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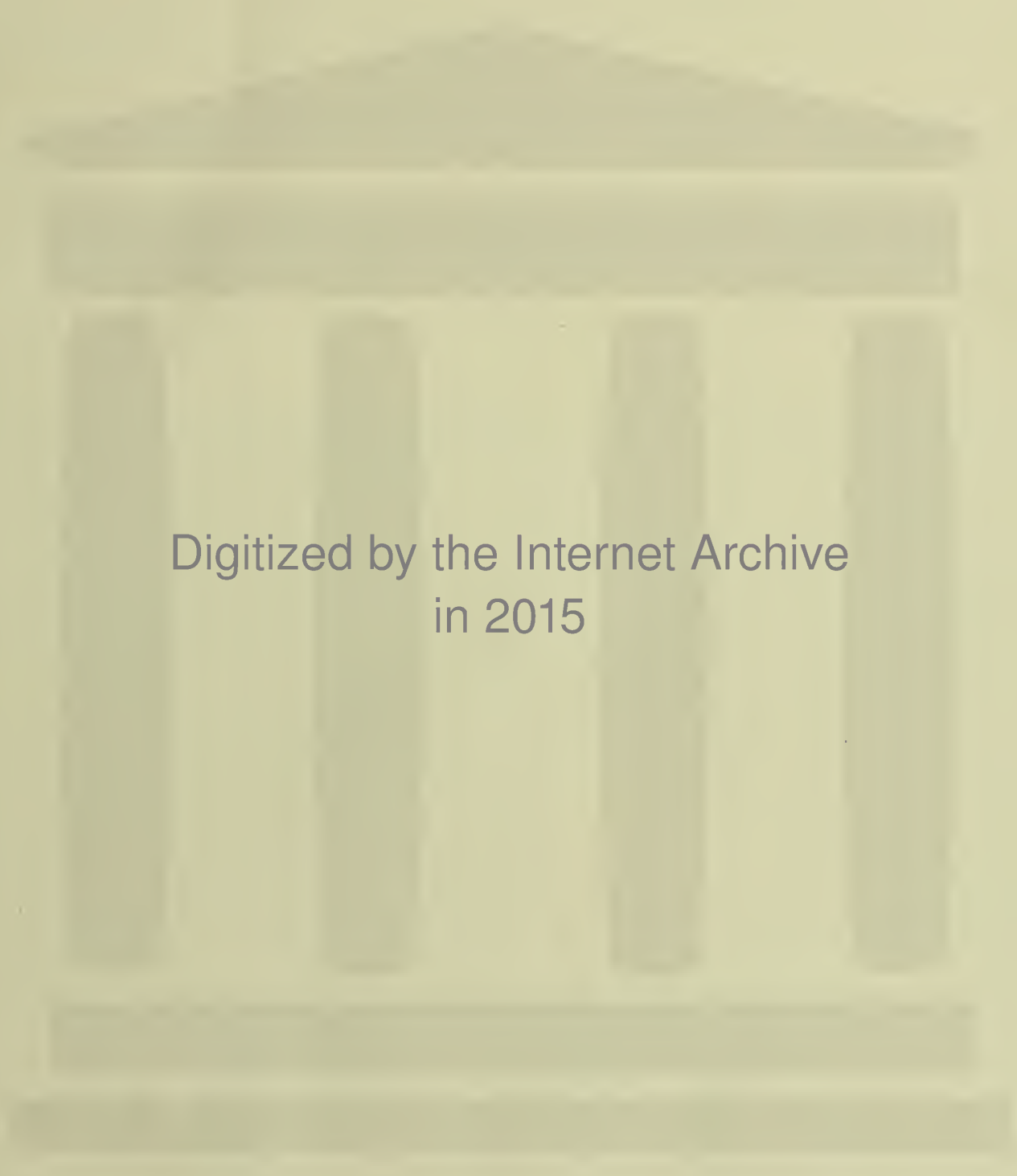
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

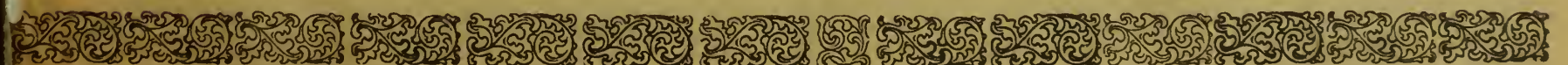
San Francisco

Vol. LVIII

January 7, 1922

No. 1

Valley Oaks as They Grow in Yolo County



Established 1877

Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL
A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901,
Combined with California Cultivator 1916

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No. 1

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors
Fred K. Howard D. F. Reichard
J. W. Mills J. B. Neff
Fred M. Reed Louis B. Stanton
G. E. Gordon M. E. Bemis
A. R. Gould E. L. Koethen

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Saturday, Jan. 7, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

The cover illustration this week is good "reading" at this time of the year when one spends a portion of an occasional long evening in mentally taking a mid-summer trip. The whole Sacramento Valley abounds in wonderful drives and roadways through miles of these great valley oaks.

The alfalfa weevil has not so far as we know found location in California's alfalfa fields. It has crossed the boundary line but quarantine officials have succeeded in capturing these first comers which might prove permanent stayers if released in alfalfa sections instead of the specimen cases of the state department of agriculture. One such possible beginning of a colony was picked up by Inspector French of the department, located at San Diego. The work of Mr. French has to do with many carloads of ponies and feed for them. These are passing through San Diego on the way to Tia Juana. One such shipment developed an infestation in the bedding used for the ponies. Other officials have found the weevil in carloads of potatoes, and as all kinds of hay and straw are used

in the packing of many products in the state, it seems that eternal vigilance on the part of the state officials is necessary to protect us.

It is time for us all to be looking over the 1920 account book and becoming familiar with the income and the expenses of the year. Congress has given us a little larger exemption and the burden is lifted slightly, but thorough familiarity with the present law and with our own affairs will aid us in rendering entire justice to the government and securing for ourselves just proportion in government maintenance.

President Gustafson of the U. S. Grain Growers is insisting upon investigation of the export grain trade by the federal trade commission in order to determine reasons for present ruinous prices. This investigation is called for in senate resolution No. 133. Both producers and consumers may safely urge our congressmen to pass this resolution, and if it is car-

trenched private interests from the day it was first offered the public. All the endorsements so far procured were obtained in the face of this hostility. Similarly, the campaign to procure initiative signatures was opposed and obstructed in every possible way—with the same result. The act is on the ballot, and it was placed there with a large surplus of signatures.

"While clearly recognizing legitimate grounds for differences of opinion on any public issue, it is a simple statement of fact the opposition to this measure has been led by the special privilege interests and those who have consistently and unfailingly opposed every progressive measure which has ever been advanced in California. Hence, the alignment is clear. The issue lies between the unrelenting enemies of California's entire program of progressive legislation of the last 11 years—you will find them all on record against this measure—and those who fought successfully to place California in the forefront of the enlightened commonwealths of the world.

"The battle goes on. California must make good its gains by meeting and solving this great economic problem. It has no coal, its oil supply cannot long care for its needs, millions of potentially fertile acres are

we should ask if their trouble is not ours, and see what can be done to improve the situation. Purely from self interest, if for no higher motive, we should help them. All of us want to get back permanently to 'normalcy'; but is it reasonable to hope for that condition unless our greatest and most basic industry can be put on a sound and solid permanent foundation? The farmers are not entitled to special privileges; but are they not right in demanding that they be placed on an equal footing with the buyers of their products and with other industries?"

In addition Mr. Baruch in a personal letter says:

"It is my belief that the farmers enjoy the sympathy of large numbers of persons who, like myself, are not directly associated with them in an economic sense. In other words, these persons perceive that the problems of agricultural merchandising, financing and distribution are not merely class but, rather, common problems."

In other words, the capitalists of industry have arrived at a point where they are willing to join with the farmer in correcting the present situation instead of sympathizing and preaching up to it. But so long as the present attitude of protecting large aggregations of capital invested in industries and in transportation prevails, and it is insisted that the cost of such protection shall be borne by the farmer, there will be nothing gained by discussion. When the farmer with small capital invested has an equal show with the manufacturer with large capital we believe it will be found there is but a short step back to normalcy.

BUILD MORE HOMES

And now we are going to save the destructive forces of the Colorado river and turn them into home comforts and home conveniences. This will benefit seven states of the Southwest. At the same time Dr. Mead of the University of California is working for a vast cultivation project which will call for the expenditure of \$3,000,000 and the utilization of many thousand, possibly a million, acres of the lands of the Sacramento Valley. Dr. Mead has said:

"At present, outside of the state land settlements, we are drifting. The solvency of irrigation companies is menaced. The office of the state land settlement division has become a clearing house for the people who have new schemes for selling land. They realize that the old plans no longer appeal.

"Last week I attended a conference in the San Joaquin Valley, called by people who wished to protect unwary or oversanguine land buyers from Eastern states. They are brought here by Eastern agents, taken through our best vineyards and orange groves, told fairy tales of profits and are then asked to sign on the dotted line. The farm bureaus meet these settlers when it is too late. They find them planting Emperor grapes in soil that will grow nothing but experience, and almond trees where the only result will be root knot. All present at that meeting had made a study of the Delhi state settlement. They want its methods adopted in 20 settlements instead of two.

"Nearly every state west of the Mississippi is working on a land settlement policy. Washington has asked the loan of the superintendent of the Durham state settlement to bring its land settlement act in operation.

"We have come to a time when more money must be secured than can be obtained from the state. New plans must be evolved in which there would be cooperation between land owners, land banks and the state. We must use government agencies to obtain money, because only in that way can we get the interest rate down to what land buying will stand. I do not believe that the farm buyer can pay more than five per cent.

"Senator Breed has succeeded in securing from the legislature approval of a bond issue of \$3,000,000 to be used to finance future settlements. If these bonds are voted it gives money with which to carry on. If the bond issue fails, I do not believe another direct appropriation can be secured. It will mean an end of the policies that created Durham and Delhi."

We appreciate and take this means of thanking the writers of many complimentary letters from the Cultivator's big family of subscribers, in reference to the efforts of the publisher in furnishing quality articles the past year, that really helped solve agricultural and livestock problems. These boosts encourage us to greater efforts this year. Our subscribers can assist us in making the paper better by buying whenever possible from advertisers using the columns of the Cultivator to carry weekly messages to California homes. Delay in buying necessities which make life worth living and the farm more profitable means just so much time and opportunity lost. Lost time never returns. If interested in any appliance, implement, power plant, auto equipment, feed or animal, correspond with the advertiser. It may be the means of bringing you something really profitable.—Business Office.

ried congress may secure information which will help us to determine why there is such an enormous spread between producer's return and consumer's cost. One trouble with wheat is that supply and demand has not made the price. It has been named by a bunch of conscienceless gamblers through a system which congress persists in tolerating.

The state railroad commission refers to the recent 10 per cent cut in freight rates as a "record cut" on the chief farm products of California. This may be a record cut but it looks to the producer as a desperately small cut as compared with the 33 per cent advance made some two or three years ago which resulted in taking the bread and butter from many a farmer's mouth.

WATER AND POWER ACT

More than 60,000 signatures to the initiative petition to place California's water and power act on the ballot have been certified, with still many more to be recorded. This assures without question the opportunity to vote at the next general election on an amendment to the constitution which will enable the people of California to take advantage of their own resources.

This measure would make state credit available for the development of water and power by communities or associations at cost. The revenues brought in by the plants would be sufficient to carry overhead and pay out the bonds. This is the measure which was so heartily, in fact, unanimously endorsed at the last meeting of the California League of Municipalities. The state campaign committee which will conduct a campaign of education makes the following statement:

"California's water and power act has been bitterly opposed by in-

suffering for lack of water for irrigation. The water and the power are here and they are ours. Private operation has proven inadequate to the demands of California's growth. The people of California must do the job themselves. California's water and power act offers the one sound, practicable way to do it.

"This measure was drawn by specialists and experts in the problems involved. It represents nearly three months' work by legislators, financiers, economists, engineers, attorneys, agriculturists, business men and others who brought years of practical experience to the task."

RELIEF FOR FARMERS

The president has requested the secretary of agriculture to call a conference of the thinkers of the land to determine as to what legislative or other steps should be taken to secure relief for the farmers. It is probable that this discussion has been advanced because of a desire to stabilize the country's greatest industry. Notwithstanding that, it is also probable that the farmer's bloc in congress has taken such a stand that it was seen he was getting in a condition to fight his own battle. However, there is a very fair tone in much of the discussion resulting from the present situation. For instance, in an article appearing in a recent Atlantic Monthly Bernard M. Baruch suggests:

"Agriculture is the greatest and fundamentally the most important of our American industries. The cities are but the branches of the tree of national life, the roots of which go deeply into the land. We all flourish or decline with the farmer. So, when we of the cities read of the present universal distress of the farmers, of a slump of six billion dollars in the farm value of their crops in a single year, of their inability to meet mortgages or to pay current bills, and how, seeking relief from their ills, they are planning to form pools, inaugurate farmers' strikes, and demand legislation abolishing grain exchanges, private cattle markets, and the like, we ought not hastily to brand them as economic heretics and highwaymen, and hurl at them the charge of being seekers of special privilege. Rather,

California Cultivator

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Los Angeles, January 7, 1922

One Dollar Yearly

Planting a Walnut Orchard

By J. B. Neff

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BEFORE walnut trees are planted a careful selection of soil and location should be made, as a walnut orchard in a proper location, properly planted with carefully selected trees, will be a source of pleasure and profit to the owners much longer than the usual life of men, while injudicious planting and selection will always be a source of annoyance and regret.

Don'ts

A few of the "don'ts" may well be noted in the beginning. Don't plant on alkali land. The walnut is as susceptible to injury from alkali as the orange tree. Don't plant on low ground which is subject to late frosts in the spring and early frosts in the fall. This means that it is unsafe to plant on the low part of a valley that does not have good air drainage to a still lower part of the valley. The very young growth of a walnut tree will not endure more frost than a tomato plant. This will cause the loss of the crop for that year and an early frost that kills the leaves in the fall means undeveloped wood which dies back and shortens the crop for the next year. Don't plant on hardpan, even if it is 10 feet from the surface, as it may prevent water drainage and kill trees. Don't plant where the free water in the soil may stand near the surface at times. This means that the trees may be completely killed some wet winter. The roots will not live in standing water but will accommodate themselves to an unvarying water table and do well where the water is not more than four feet below the surface. This, however, is not safe and should be avoided.

Number per Acre

Don't plant too many trees on an

acre. Sixty feet apart in squares is close enough. If conditions are good the tree will need all the space and if conditions are poor so much more reason for giving the tree the use of more soil. Tree roots extend much farther from the trunk, near the surface, than is commonly supposed and likewise they do not fill the soil to the generally supposed depth. One may be sure the lateral roots reach much farther in all directions than the trunk reaches upward, while not more than five to ten per cent of the roots will be below three feet from the surface in the best loamy soils. The central, or so-called tap root, seldom extends more than six feet below the surface. Don't plant on poor soil or that which may be underlaid by clean sand at three or four feet below the surface. The sand will allow the water to escape downward and carry off soluble fertility, at the same time making it difficult to maintain a proper supply of moisture and fertility. Don't plant on land having two or three feet of good soil, then a layer of clean sand three inches to six inches thick to good soil. The roots cannot penetrate clean sand any better than a layer of cement and will not reach the good soil below.

They Need Plenty of Water

Don't undertake to grow an orchard without a plentiful and permanent water supply. With careful management 25 acre inches of irrigation water will be needed to produce a crop of walnuts when the trees have

been planted 15 to 20 years. This means that a stream of 50 inches must be run 25 hours on each acre during the five months of the irrigating season, that is, five hours during each month, as may be needed. We are often told that certain soils do not require as much water as other soils. This is not altogether correct and it is better to say that some soils do not waste water as rapidly as others. If proper management is given in the application of water and in the methods of conservation of moisture there will be but little difference in the quantity of water needed on the various soils, provided the soils have sufficient depth.

Planting

After having determined that soil conditions, location and water supply are what is needed the selection of trees and planting can be done.

Select the variety best adapted to the locality and plant only thrifty, stocky trees with good root systems and one year old grafts. A well rooted, strong bodied tree seven feet high is better than one with a slender body 10 to 12 feet high. The tree with the slender body will likely have to be cut back to five or six feet while the stocky tree will be ready to start the permanent branches for the bearing tree.

Trees should be planted as soon as possible after being taken from the nursery and in holes large enough to receive the roots without crowding.

The roots should be placed by hand and the soil well firmed around the roots by hand, using the surface soil

in the lower part of the hole and around the roots. Do not put any kind of fertilizer in the holes nor near the roots when planting.

Time of Planting

Plant as early in January as can be done but do not in any case wait until the roots begin to put out their new fibers. Run a stream of water along the rows as soon as the planting is done so as to settle the soil and fill all air spaces. Heading back to 18 inches or two feet is advisable only when trees have been out of the ground a long time and are partially dried or have very tall and slender bodies. Trees which have been headed back will in many cases make longer single stem growths than without heading but are more difficult to keep properly trained and have the disadvantage of being more subject to sunburn and dieback the next winter. If this undeveloped growth dies back once it is extremely difficult to get a properly formed tree. It is not well to let any shoot grow too far ahead of the others. These should be pinched off at a bud pointing in the proper direction for the new branch.

Interplanting

Interplanting can be done to advantage if the interplanted trees are removed early enough but when walnuts are planted with the intention of taking out the owner will find that trees in the permanent rows are often not as good as the interset trees and the temptation to leave all another year cannot be resisted, much to the damage of the orchard and the reduction of the crop. Much better plant peach and apricot trees or depend on growing beans or other annual crops.

Selecting a Market for Hay Shipments

THERE are almost as many methods of selling hay as there are markets, but the principal methods are designated according to the location of the sale. The warehouse method consists of selling the hay at railroad or public warehouses after it has been unloaded from cars. The car door method is employed where hay is sold from track in railroad yards and is made, as the name indicates, at the car door and based upon the quality of the hay as it appears at the doorway of the car. Plug sales are made in special railroad yards from a sample or plug consisting of 20 to 30 bales which have been removed from the car and piled on the ground or on a platform along the tracks and beside the car from which it was taken.

No one method is generally best in all particulars, but the shipper should know which method is used in the market receiving his hay, and also what service is rendered for the charges assessed. It will then be possible to determine which method will result in the largest returns for his particular kind and grade of hay.

If the shipper prefers the consignment method of marketing, it is usu-

ally the best policy to consign only to markets having a broad, general demand sufficient to absorb large quantities of different kinds and grades of hay. While definite sales can frequently be made very advantageously to the smaller markets, the current demand for spot hay is generally so small that a few cars of consigned hay will overstock the market and cause the shippers serious losses. Even in the larger markets the demand is not unlimited, and shippers should inform themselves as to the quantity the various consignment markets can normally handle or consume without seriously depressing prices. Markets which have storage warehouses are likely to be steadier than those which must depend upon daily arrivals to supply the fluctuating demand. It is very difficult always to hit the high prices when consigning hay, and a policy of steady shipments, if consigning is preferred, will probably produce the most satisfactory results for the entire season.

The hay shipper should give particular attention to the size and weight of bales that are preferred in any particular market and cater to that preference when making consigned

shipments. Hay in bales of undesired size or weight is usually discounted from \$1 to \$2 per ton by the buyers. This preference varies in the different markets, and hay which will bring a premium in one market may be severely discounted in another. It is the buyer's preference rather than that of the shipper which prevails.

In general, New England and eastern markets prefer large five wire bales weighing from 175 to 215 pounds. Southeastern, southern and southwestern markets prefer small two or three wire bales weighing from 75 to 100 pounds. These bales range in size from 14 by 16 inches to 17 by 22 inches by about 36 to 48 inches in length. In the central western markets the 17 by 22 inch bale is probably the most generally used, while on the Pacific Coast both this size and the large five wire bale prevail almost exclusively.

Since the weighing and inspection charges are almost always charged in full to the shipper when the hay is consigned, he is directly interested in the weight and inspection methods employed and in the degree of economy with which these functions are administered. The shipper should insist that only accurate weighing methods which will furnish correct weights be used. Official weight certificates showing the number of bales unloaded and the total weight of the hay should be demanded if charges are

made by the market for the weighing service.

In the matter of inspection the shipper is entitled to an official certificate, if official inspection is maintained at a market, which should state the grade designations and the quantity of the hay covered by each designation if more than one grade is assigned to the carload. If a full car is not inspected, the certificate should state just what part was inspected and graded, and the charges based upon the service rendered.

Profitable returns from consignments depend a great deal upon the ability and reliability of the shipper's representative at the market. Only representatives who can or have demonstrated their ability as conscientious and trained salesmen, and who know the needs of the market and the responsibility and financial standing of the buyers should be employed. Such services may entail a higher initial cost, but will probably be more economical in the end.

Where trade organizations or exchanges exist, membership in them, which requires certain desirable qualifications, is to some extent a guarantee of the members' reliability, but there are also many reliable men outside of such organizations who will render efficient service. Shippers, however, should obtain bank and other commercial reports concerning commission merchants to whom they expect to intrust the marketing of their hay before making shipments.

Agricultural News Notes of the Pacific Coast

Northern California

January 2-6 has been veterinarians week at the university farm at Davis.

Glenn County farm bureau increased its membership 100 per cent last month.

The North of Bay Counties Association begins publication of a magazine, January 1.

The farm center at Anderson, Shasta County, has formed an irrigation department.

A hog auction will be held January 10 by the Tehama County farm bureau at Red Bluff.

The Orland farm bureau is discussing the advisability of locating a cannery at Orland.

The Glenn County farm bureau is planning a two day clean up campaign of farms, gardens and lawns.

The Capay farm center at its recent annual meeting elected W. E. Hill president; J. W. Rich, secretary.

Preparations are going forward for establishing the packing plant of the Prune & Apricot Growers at Colusa.

The Rosenberg mill at Colusa has closed down, having finished on 1920 rice crop. Work will soon begin on 1921 rice.

An irrigation district has been formed west of Williams, Colusa County. It will purchase its water from the Glenn-Colusa district.

The alien land law forbidding aliens non-eligible to citizenship to own or lease agricultural land in California has been upheld by federal court.

The Petaluma County cow testing association tested 1350 cows during its last year's activities. Average production butterfat 248 pounds; last year, 223.8 pounds.

Another concerted blow in the fight for lower freight rates was struck by a meeting at Lodi this week of the California Growers & Shippers Protective League with the Lodi league.

The California farm bureau exchange has headquarters at 354 Pine St., San Francisco. It has now established grain sales, live stock, and poultry and purchasing departments.

L. M. Jeffers has been appointed chief grain and warehouse inspector of the bureau of standardization, acting both for the state department of agriculture and the federal government.

Cow testers of associations in Sonoma County are collecting data on costs of production. This is being done under supervision of Prof. R. L. Adams of the state university. Similar work will be done all over the state.

A scale of wages for ranch workers in Tehama County has been announced as the result of a meeting of farmers at Red Bluff. The new scale calls for \$1.50 a day and board for long line drivers of horses, \$1.25 a day and board for two horse drivers and general farm hands, and \$4.50 a day and board for tractor drivers.

A new fruit marketing association has been formed, comprising the New-castle Fruit Company, Placer County Mountain Fruit Company, Silva-Bergthold Company, Vacaville Fruit Company, and Penrhyn Fruit Company. Its officers are H. E. Butler, president; J. E. Bergthold, vice president; W. R. Monahan, treasurer; W. J. Charlesworth, secretary-manager.

Central California

Bakersfield complains that it is overrun by peddlers.

Clovis, Fresno County, is suffering from chicken thieves.

Heavy losses for potato growers of the Delta section are reported.

Practically all the navel orange crop of the Lindsay section of Tulare County has been sold.

An advance of a half cent per pound has been made in prune prices by the association.

Marina, Monterey County, has organized a farm center. Meetings will be held on the first Monday of each month.

A shipment of Watsonville Newtowns has just been made from San Francisco to Batavia in the Dutch East Indies.

Over 10,000 cans of olives have been shipped east by local people from Lindsay, Tulare County, mostly as Christmas gifts.

Horticultural Commissioner Haupt of Kings County reports total value of fruits produced in that county for 1921 over four million dollars.

There are 1,000 acres planted to pomegranates in the Lindsay, Exeter and Porterville sections of Tulare County; 600 are in bearing trees.

An apple growing contest is proposed as one activity of the Santa Cruz County farm bureau. A committee has been appointed to take up the matter.

The Sun-Maid Growers has found the little five cent package the quickest seller on the market. More than 1200 women are employed in packing the "Little Sun-Maids."

A convention of grape growers at Fresno, January 26-27 is being planned by the Sun-Maid Growers. Cultural matters will be discussed as well as matters relating to the future of the grape industry.

The Tulare County Pomegranate Growers' Association is sending pomegranates to the department of agriculture at Washington and to the state university for experimentation in the making of dyes.

Experiments in canning apples for commercial purposes are now being made. Apples used in the test were shipped from Hammond, Tulare County, to the San Francisco concern making the experiments.

Recommendations that the Sequoia national park be enlarged soon to include Mount Whitney, Tehipite Valley and the Kings and Kern River Valleys were made by Secretary of the Interior Fall in his annual report.

Among the speakers secured for the Fresno convention of Grape Growers January 26 and 27 are President Giffen of the Sun-Maid Growers, R. L. Nougaret of the state department of agriculture, Elmer Snyder of the United States department of agriculture, and Horticultural Commissioner Roullard of Fresno County.

The Owens Valley Herald says: "Twelve inches of snow and approximately three inches of rain was Mother Nature's Christmas gift to the Bishop section of the Owens Valley. And not content with this generous contribution to the holiday season the good old lady stored up in the big Sierran savings bank of the valley from three to six feet of snow for future use."

Southern California

Imperial County is planning great things for its 1922 fair.

Orange picking, stopped by the rains, has been resumed.

The Imperial Valley marketed over 10,000 carloads of lemons last season.

It is expected that many vineyards will be set in northern Imperial County.

Myron M. Winslow has been appointed farm adviser for Riverside County.

Apple growers of Costa Mesa, Orange County, have formed an association.

Committee in charge of the National Orange Show has plans completed for the 1922 event.

Anaheim orchardists are raising fund to build levee to turn the Santa Ana back to its old channel.

It is estimated that several hundred additional acres will be set to grapefruit in the Imperial Valley.

The government has acquired title to North Island, San Diego, through payment of \$6,000,000 to the Spreckels Corporation.

California Walnut Growers' Association has a force of several hundred hands on extracting and sorting meats of cull nuts.

The walnut growers' institute at Santa Ana, January 13, is expected to bring together walnut growers from all Southern California.

Teachers of San Bernardino County in session resolved that petition be presented to directors of the National Orange Show to eliminate gambling features.

The Japanese Association in the Imperial Valley has decided to cooperate with the lettuce growers in establishing a daily quotation at Brawley.

At the 25th annual meeting of the Upland Citrus Association it was shown that 1,047 carloads of fruit were sent out during last season, for which \$1,174,923.83 was received.

Horticultural Commissioner Call of Ventura County says that approximately 60,000 acres have been covered by rodent control work in that county and over three tons of poisoned barley used.

Representatives of fruit growers associations and packing houses in San Diego County recently met at the call of the county horticultural commissioner to discuss problems of pest control.

Mr. Braunton of the California Cultivator will speak before the Associated Farm Centers of the San Gabriel Valley at the Spinks Ranch, Duarte, at 2 o'clock on January 20. The subject is avocado culture.

Cattlemen of Southern California met recently in Los Angeles and discussed matter of forming an association to aid members in securing loans at reasonable rates of interest. The movement was started through suggestion of the war finance board.

The city attorney of Los Angeles has filed application with the state railroad commission for rehearing of the recently granted 50 per cent increase in rates. The service rendered is according to the city attorney, deplorable. The waiting list for new telephones is said to be 11,596; for changes of phone, 5,635.

The Coast and General

Oil olives are still being picked in Arizona.

Oregon's 1921 hop crop is estimated at nearly 11,000,000 pounds.

From 85 to 90 per cent of the Arizona cotton crop has been picked.

Farm and home week at University of Arizona at Tucson, January 16-21.

Oregon Beekeepers Association meets at Pendleton, January 26 and 27.

Churchill County, Nevada, shipped out 700 carloads of alfalfa hay during 1921.

Rain and snow have fallen over the major grazing sections of Arizona and New Mexico.

The Western Royal Swine Breeders Association holds its sale at Spokane, February 21-22.

Washington Growers Association convenes in annual meeting at Vancouver, January 10.

The last week of December was farmers week at Oregon agricultural college, at Corvallis.

Secretary of Agriculture Wallace has recommended postponement of the World Dairy Conference till 1923.

The Ohio State Dairy Show will open at the Ohio state university on January 30 and run until February 3.

The raspberry pool for growers of Lane County, Oregon, brought to growers 8½ cents for red and 10½ for blackcaps.

The Idaho-Oregon Honey Producers Association at its recent annual meeting decided to hold extracted for better market.

Growers of Marion County, Oregon, have organized the Willamette Valley Flax and Hemp Growers Cooperative Association.

Mole and gopher trapping is being pushed in Tillamook, Oregon, by the United States biological survey co-operating with the farm bureau.

There was great increase in livestock grazing permits for national forests the past year. In cattle an increase of 16,915; sheep, 141,276.

The Lake (Washington), Fruit Growers Association is considering marketing next year through the North Pacific Cooperative Berry Growers Association.

Absence of rain and stormy weather in the Salt River valley of Arizona has favored cutting and crating lettuce and its shipment to eastern points has gone forward without interruption. Quality is excellent.

Annual meetings of state farm bureau federations at Fargo, North Dakota, December 29-30; St. Paul, Minnesota, January 3-4; Huron, South Dakota, 4-5; Lincoln, Nebraska, 4-5; Dallas, Texas, 4-5; Des Moines, Iowa, 10-11; Baltimore, Maryland, 10-12; Springfield, Illinois, 11-12; Columbia, Missouri, 17-18; Columbus, Ohio, 30-31; Madison, Wisconsin, 31-February 1.

The fruit growers' association of Washington, Oregon, Idaho and Montana will send representatives to a conference at Spokane, January 21. Another of commercial marketing associations will be held in February. It is hoped to co-ordinate marketing and advertising effort throughout the Northwest.



FEW people realize the specialized knowledge required to provide the daily meat for the table. Fewer still realize the many changing complications that surround the marketing of meat, and it is this difficulty in making known a constantly changing situation that brings into rabid dispute any particular statement about percentages of profit of packer or retailer.

The utmost any well intentioned farm paper can do is to secure the opinions of men who should know. Not long ago J. E. Robert, secretary of the Cattle Association here (who by the way is the Roberts of the former Adams and Robert of the XL's and well known through the Middle West), made a statement relative to cut proportion and was severely contradicted by the head of a group of retail chain stores.

I do not propose to describe in full the retail situation, except to state that a long held opinion of mine was recently suggested through Hurd, who owns some retail shops. That is that one cause of the present retail meat price is the fact there are more shops than business and a tremendous waste of man power, rental, light, space and energy. Also that a license system limiting the number of retail meat shops in proportion to population could effect a tremendous saving to the consumer, as a gross profit percentage could be established. All such a system would require would be a city ordinance. It is nothing new, as the government operates all trading post licenses upon Indian reservations upon the principle of a business volume and a maximum 25 per cent profit, and the person who breaks the rule quits and moves.

There is no question but that a greatly higher price than is justified is being charged to consumers by retail butchers. Upon the present meat scale 30 cents is a high price for T-bones, and 35 plenty for the choicest lamb cuts, and I will be pleased to prove it to any disputing retail profiteer.

Now, getting down to carcass prices, the packers list with its 12½ No. 1

steers and 11½ No. 1 cows, etc., is merely a fiction. This is something that makes some folks believe packers make more than they do, as the packing profit is always made in its bulk in other ways as I will show later.

When beef was 14 cents live weight all a killer required was to kill white and cover. Today with beef on the 5 to 6.50 live basis what is required is heavy cover, large cod in steers, heavy kidney fat and high finish. Of course this is bunk, as there is no retailer or consumer who cares for this heavy cover, beyond its keeping quality, as there is too much waste. The packer likes the heavy cover as it makes a steer go the 60 per cent if he shrinks it enough instead of 52 per cent, and that 8 per cent is nice in itself. Now when there are many heavy steers the premium goes to light smooth fat cattle, and when many light cattle, to the heavy ones. This is one of the ways of extracting the profit. Not many months ago if you had 1300 pound fat steers they were "too heavy," "wouldn't sell," etc. Today the come in buys are light cattle, and the fed held packer cattle are heavy, hence "light stuff" sells slow, etc. Between light and heavy cattle there is here today a 2 cent variation dressed carcass price.

This class manipulation is varied with location price. The custom is to pay higher for outside stuff as that nearby has to come in and competition will bid for the outside stuff.

With the list on No. 1 steers reading 12½ the general price being charged for good fat steers is 11½, and many are getting an 11 cent price. With the fat cow No. 1 price at 11½, if you can find any retailer who knows how to buy paying over 10 cents, you are a close trailer. Nor is it all milk and honey in this packer trade. They cut and slash and fight for volume, and today most of the packer profit is due to

three things, a good sales organization, volume and clever business tactics. The packer salesmen may sell a carcass low to a small buyer who has had a cheaper quotation, but when it comes to lambs or pork or coney or something else the price may run up several cents. I found a variation of two cents on cow beef price in ten miles and of three cents in same district on coney. We know that volume carries a profit. The business tactics comprises "other ways." I have already mentioned the heavy and light carcass price changes and shifts and locality price shifts, but will merely mention lamb carcass prices to illustrate. Not many moons ago 12 cents was a milk lamb carcass price, today it's 20 cents, and they are off of milk.

Most of the lambs were bought up a month or so ago on a 5 cent f. o. b. range price, and that meant about \$3.50, but many were headed off at less. When the supply was fairly done these lambs advanced a couple of cents, and the carcass price climbed nicely. Today an average lamb is 20 and yearling lamb 16 carcass price, although one retailer claimed to me he is buying milk lambs now at 16.

I hate to comment about the profit of these lambs, as every bunch would be different, but one bunch I know figured as follows: Bought Inyo County to producer, \$3. Killed Los Angeles, 37 pounds at 20, or \$7.40. Retailed Los Angeles \$11.10 per head. Now business tactics did well on lambs lately. They did well twice this year on hogs. At this writing a hog brings 8 cents live weight, and hogs go up and go down. When down they are bought up fast and put into pickle for hams and bacon, and when they rise all that goes with them. When pickle stocks are low and need replenishing Mr. Hog drops in price again, and so on. This is also business tactics.

It is not all milk and honey, as stated before, and if we were all as smart as these packers and killers we would probably work our own business to make it equally profitable in production.

Today a fat old dairy cow, the mother of the herd, with a thick fat cover, will bring a better price than a light two year old button heifer with a light cover. There is no comparison in meat quality or eating tenderness, but the old, heavy, fat cows bring the premium. Some of the Los Angeles shops are buying light cover cattle today at 6 to 9 cents per pound carcass price. These shops could easily sell good meat, not fat, but nutritious, tender, lean meat, from 8 up to 20 cents for the best cuts, and they wouldn't go broke at that.

I know one shop, a one man shop with almost enough business to keep a man occupied half the time, which is selling ten cent cow beef on a ten to 30 cent scale and making \$20 a day profit. I know another man who with one helper is cutting four cattle a week and selling at ten cents for better cuts under a shop in the same town which has two cutters, one cashier, two delivery men and a manager, that handles seven head a week. The man handling the four head is making money, and the other also, but the low expense man is making more.

They can't talk breeding with this sort of cattle situation except for one thing, and that is breeding for weight. With the old dairy cow selling a cent or so under the almost pure bred Hereford beef steer, breeding incentive, beyond mere weight, is not a forceful argument to a cattleman. The present slaughter situation is killing off better breeding and better production in beef about as fast as any policy it is possible to suggest.

Carcass beef prices can stand the list and a cent more today on the retailing margin, and hurt no one except shave a mere sliver from retail profits, but with a maintained list and a cent advance there is nothing whatsoever to prevent an eight cent live weight steer price, and that would permit a living profit for the producers who are now in a desperate plight.

Carcass Meat Prices

By A. L. Spellmeyer

January in the Vegetable Garden

Northern California

By A. R. Gould



HAPPY New Year to all my readers! It looks as though the rains have brought us chances of prosperity and will stimulate all our vegetable gardeners.

Now is the time to get busy for a fine seed sowing program. There is now no excuse as the soil will soon be in excellent shape to work. Those who cleared up the plots last month in readiness will be able to now dig in the manure and get them into shape for planting. Use lime on heavy and sour soils and work into the surface. Secure only the best seed from reliable seedsmen as it is of the utmost importance to the grower. Poor seed means waste of time, labor and money, and the best seed is produced at considerable expense by seedsmen with a reputation who pride themselves on the quality of their product. The writer is frequently in touch with the seed testing grounds of California seedsmen and admires their honest efforts to give the growers the best. A time saver is the wheel plow and cultivator. Peas, beets, turnips, etc.,

may be drilled in with the aid of the seeder and attachments and the home gardener should not be without one.

Peas

This crop in the more sheltered positions on the slopes is making great headway. A fairly rich well drained soil is essential to success, as is also frequent cultivation as the season advances. The main crop varieties should now be sown and the tall varieties we advise are Alderman and Abundance. Dwarf types are Little Marvel, Stratagem and Yorkshire Hero. The edible pod type is Melting Sugar and it is a favorite with many. Sow thinly in rows at least 3 feet apart. If troubled with aphid spray with Blackleaf 40.

Spinach

If sown as advised last month will soon require thinning to 8 inches apart in the row. Still time to sow Bloomsdale and New Zealand varieties.

Lettuce

Sow Los Angeles in rows 18 inches apart. Transplant any thinned from a previous sowing.

Turnips and Kohlrabi

Sow thinly on richly prepared soil in rows 18 to 20 inches apart. Early

Snowball and White Egg are good turnips and Early White kohlrabi should be sown at once.

Parsley

Make a sowing of Moss Curled around the edge of the garden plots. Sow seed very thinly.

Radish

Sow Crimson Giant Forcing which is the best solid, crisp radish grown. Icicle is also a good white variety. Sow in rows 12 to 18 inches apart.

Onions

Main crop varieties, Ailsa Craig, Prizetaker, Yellow Globe Danvers and Australian Brown should be sown at once in rich soil, finely prepared, in rows two feet apart. This plot should be dressed with soot before sowing. Seedlings thinned from the earlier sowings may be transplanted to other plots. As the soil gets into condition use the wheel cultivator between the rows.

Carrots

Sow the early French Forcing variety in rows 18 inches apart in fairly rich soil very thinly and an early crop will result.

Asparagus and Rhubarb

Still time to plant out asparagus,

Palmetto and Conover's Colossal and Rhubarb Victoria and Crimson Winter in trenches six inches deep and four feet apart. Top dressing the old established plots with farmyard manure should not be delayed.

Strawberries

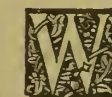
Plant Brandywine, Banner and Everbearing in rows two feet apart in well manured soil on ridges.

Raspberries

Plant St. Regis, Cuthbert and La France, and these should be supported by wires on a fence. Plant in rows at least four feet apart. These are a profitable crop and planted on a fairly heavy soil richly manured yearly should give good returns.

Southern California

By D. F. Reichard



WE were going to tell you just how to get your ground thoroughly soaked preparatory to having it worked up—but—well, it's not necessary to explain. Wasn't it great! The best thing to do now is to scatter a good dressing of manure over the land to be used for garden, and work (Continued on Page 8)

Rudiments of Citrus Fertilization

By E. L. Koethen

THE first essential to all true fertility for economic crops is humus. Without it it is futile to attempt to build up any kind of soil productivity. It may avail for a time to draw upon the natural humus content of the soil but in the end it spells disaster to attempt to get along without it. It is the soil solvent which makes all kinds of inorganic forms of plant food available. It dissolves phosphoric acid which may have been locked up for years. It does the same for the natural stores of potash which nature deposited there for future use but which are unavailable because in forms which the plant cannot reach. It is the home of most of the nitrogen compounds upon which the plant must depend for sustenance.

What is humus? Well, who knows? The scientists differ in their definitions of it, so we laymen must be content to say we do not know from a scientific standpoint, but we can adopt a definition that is understandable to us and that is all that concerns us. It is decayed or decaying organic matter, animal or vegetable. The mechanical effect of decayed or

decaying matter is the same practically, but it may be more active as a chemical agent when decomposed. It is not to be assumed that when organic matter has disappeared in the soil as far as the eye can detect it, that it is no longer of use to the grower. On the contrary, it is still active and still at its best as long as it is in the soil. It is a common remark among orchardists that green matter plowed under "disappears within a couple of weeks and is lost." That is just what is wanted of it.

The more humus we can store in California soils the better. They are naturally deficient in it, especially in the top layers. As a matter of fact, the lower stratum, the subsoil, is better stocked with it than many of the soils of the humid countries. But it is the upper stratum that we are most concerned with. We are told that in Florida soils the application of manures will cause die-back, but we have so far heard of no such results in California. Without humus our soils are dead and lifeless; it is the home of the bacteria which makes a living thing of our soil; it is indispensable and the problem is where and how to obtain enough of

it. Of this we will treat in another paper.

Humus is of as much importance to us as cultivation or water. Without it the soil becomes refractory, melts down with rains or irrigation, a plow sole is formed, making it impervious to water. The citrus tree will become mottled and show all the symptoms of malnutrition. This, though you have at great cost applied all kinds of rich fertilizers, excepting organic matter. Here is an illustration: An orchard which had received the best of commercial fertilizers in abundance, well located as to soil and climate, but the humus content allowed to run down. As a result, the crops began to fall steadily, the trees became mottled. New growth failed to appear in spite of excellent cultivation and an abundance of water having been applied. A soil test showed a distinct hard crust at about five inches from the surface in spite of deeper plowing each season.

Then the owner began growing cover crops and using organic commercials only, and immediately there began to be a change, and today that orchard after about ten years of organic fertilization is yielding nearly \$1,000 per year per acre in returns for the crops, and the trees are free from mottled leaves and the foliage is large and deep green. The trees make a heavy new growth each year.

The soil is friable, breaks up loose and spongy and is loose, clear down as far as you wish to probe. This is but one case. It can be duplicated many times over. A good farmer knows when a soil "feels right"; that is the way we must have it.

SCALE—JUNE DROP

Here is a little problem I would like to pass on to my brother orange growers through the medium of the Cultivator, who possibly know more about it than I do:

I have lost the larger part of this year's navel crop because my trees were infected with citricola scale, and I would like to know if any one can tell me the how and why of this. The grove was well fertilized, trees blossomed heavily and there was a good crop on them up to the 15th of June when the scale began to hatch and the fruit began to drop and continued to drop for two months, leaving only a light crop.

My own theory is this: The scale insect is only indirectly the cause of the drop; the juice or sap in the leaf which exudes following the bite of the insect, or the honey dew thrown off by it, and which coats the upper surface of the leaves, furnishes a developing medium for black smut or fungus, the spores of which are transmitted to the stamen of the little orange and from there down into the navel, whereupon temperature and sap composition becoming favorable, it develops, causing the little orange to drop. An examination of small oranges which dropped showed a black or dark brown spot, almost invariably consuming the pulp of the navel.

Now for what I propose for a remedy. My groves have been fumigated and the scale partly cleaned up. I propose to spray the trees with the Bordeaux mixture before they come into bloom, say about the first of March, weather permitting, using the same strength used on lemons for brown rot prevention. Has anyone tried this experiment? Does Bordeaux mixture have any harmful effect upon new growth? Why should fumigation be delayed after applying Bordeaux mixture? Part of my groves will have to be fumigated again in the summer, middle of July or later. Would it be safe? Yours fraternally, John Lesler, Redlands.

We will be glad to hear from our subscribers in the matter of this inquirer's experience with citricola. However, if sprayed with Bordeaux in March and then fumigated in June or July, which is the usual time for citricola, it is very probable that trees would be injured. In our issue of October 15 we referred to fumigation injury after spraying with Bordeaux and suggested as the safe limit 10 or 12 months' time between spraying and fumigation. In this case fumigation in July or at latest in August would, we believe, be far more important than spraying with Bordeaux. Then through heavy irrigation and perhaps use of a quick acting fertilizer we would depend on putting the tree in such vigorous condition that it would hold the crop of fruit in June.

BEES AND FRUIT

Extensive tests carried out in New South Wales go to prove that bees do not damage sound fruit, though it has been noticed that where fruit has been previously damaged by birds, wasps, etc., bees will during a severe dearth of nectar suck the juices through the damaged portion, often widening the puncture. The senior apiary inspector says: "From our experience Italian bees go after fruit juices no more than other races of bees. Large numbers of Italian bees have been kept in New South Wales for the past 30 years and apiaries worked in the vicinity of orchards and vineyards, yet rarely has the orchardist complained of any damage; in fact, in many cases fruit growers have offered a piece of their land for the use of the bee keeper gratis, recognizing the advantage to be gained in the way of better pollination. One of my own apiaries of 120 colonies of Italian bees was situated for 15 years within 100 yards of an orchard where peaches and plums were growing, and not in one case did we find that sound fruit was interfered with."

Lower Machine Prices —a factor in a brighter outlook for 1922

MOST of the readers of this paper know that we have reduced our prices on farm machines for 1922. The lower figures apply on practically our entire line of grain, hay, and corn harvesting machines, plows, tillage implements, seeding machines, etc.

Reductions in prices of farm machines and other articles the farmer buys is one of the many indications pointing to continued improvement in the farmer's situation. The War Finance Corporation is steadily pouring aid from its billion dollar fund into agricultural communities to finance the farmer. Freight rate reductions on stock, grain, hay, etc., now going into effect, will save many millions for the farmers. Land values are now on a sound-

er basis. For 1922, better labor at lower cost will be available, better marketing conditions are being evolved, and recent tariff legislation also should tend to increase farm product prices.

All these factors indicate that more efficient production by modern methods and improved machines will mean greater profit for the new year. You cannot afford to postpone the purchase of needed machines. Where repairs have been made again and again, beyond the point of serviceability, waste and loss are pretty sure to follow. The present prices will enable you to replace the old with efficient modern machines so that best use may be made of the opportunities that are certain to come to the farming world.

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Walnut Institute at Santa Ana

By Robert W. Hodgson, Farm Advisor Los Angeles County



ONE of the first activities undertaken by the agricultural extension service following its organization in Los Angeles County some four years ago was an annual institute for the walnut growers of the county. A careful survey brought out the fact that although the acreage planted to walnuts was in the neighborhood of 50,000 at that time, now increased to 85,000, it had not been the custom for the walnut growers to meet informally for the discussion of the many problems confronting the industry, and it was felt that a splendid opportunity was open for the initiation of an activity which might prove of decided benefit to the industry. Consequently, in January, 1918, a mass meeting of walnut growers was called at El Monte, the purpose of which was a discussion of some of the principal problems confronting the industry. The result was a decided success, the attendance being more than 200 persons. At the meeting a resolution was passed urging that the state legislature enact a bill providing an appropriation of \$20,000 for the coming biennium for the investigation and control of the new walnut codling moth pest, at that time a decided worry to the industry. The appropriation was secured. The first institute was so successful that the growers expressed the desire to have the activity made an annual event. Each year has seen the institute grow in attendance and interest, the third annual institute held at Whittier last January bringing out an attendance of 525 persons.

The purposes of this annual convention are to build up a stronger organization spirit by bringing the growers together, to bring to light the principal cultural problems confronting the industry by means of mutual conference and discussion, and to bring to the growers the latest results accumulated by the research branches of the state college of agriculture and federal department of agriculture.

The holding of the institute soon led to the conducting of other activities, such as field demonstrations on dusting and spraying for the control of pests, top-working and pruning, and various other subjects, the culmination being the demand for the organization of a walnut growers department of the Los Angeles County farm bureau. Completion of the organization occurred at the first annual walnut growers' field day held at Puente last September, at which some 1200 walnut growers from all parts of Southern California were in attendance. The

phenomenal success of the walnut growers departmental activities in Los Angeles County have led to the organization of similar departments in adjacent walnut growing counties, the most recent of which is that organized in Orange County.

Several months ago the executive committee of the walnut growers department in Los Angeles County, in view of the rapid development of similar departments in southern counties, decided to make the annual walnut institute a Southern California affair rather than to attempt to keep it permanently a Los Angeles County activity. Consequently, the presidents of the farm bureaus in Santa Barbara, Ventura, San Bernardino, and Orange Counties were requested to appoint a special representative to act on the committee in charge of the fourth annual walnut growers institute. The committee as finally formed consisted of E. G. Hotchkiss, Covina; J. E. Killian, El Monte; W. H. Howell, Walnut; Lester Cole, Whittier; Alfred Brant, Owensmouth; J. A. Smiley, Orange; J. P. Thille, Ventura; P. C. Marble, Santa Barbara; H. L. White, Chino; and the farm advisors of Los Angeles and Orange Counties.

A meeting of this committee was held in Los Angeles December 15 and January 13 was chosen as date of the fourth institute, to be held at the high school auditorium at Santa Ana. A splendid program has been worked out consisting of discussions of the principal subjects of timely interest to the walnut growers of the state.

The Program

10:00 A. M.—The Walnut Growers Department, Robert W. Hodgson, Los Angeles County Farm Bureau. Progress report on Walnut investigational work, J. T. Barrett, director citrus experiment station. Cause and Treatment of Walnut Black Sap, H. S. Fawcett, citrus experiment station. Is the American Farmer Awake? W. S. Rosecrans, Los Angeles County farm bureau. Noon, basket lunch, coffee served by local committee. 1:30 P. M., Better Curing of Walnuts before Packing House Delivery, C. V. Newman, Irvine. Final Report on Codling Moth Control, H. J. Quayle, citrus experiment station. Subsoiling the Walnut Orchard, Eugene Kellogg, horticultural commissioner, Santa Barbara County. Establishing the New Orchard, L. D. Batchelor, citrus experiment station.

A feature of the institute will be display of different grades of walnuts produced in other countries.

Whitewash Retarding Blossoming

A year or more ago the Cultivator referred to the fact that deciduous trees sprayed with whitewash late in the dormant period are somewhat later in blooming than their companions in adjoining rows. This matter has been taken up by R. R. McLean of the farm service department of the First National Bank of San Diego and he is recommending a test of trees which bloom so early as to be in danger of late spring frosts. Mr. McLean writes:

"The writer has been in correspondence with Prof. J. C. Whitten of the University of California relative to the commercial practicability of retarding the blossoming period of such trees in the spring by the application of whitewash. Some experiments along this line were tried by the Missouri experiment station at the time Prof. Whitten was connected with it a number of years ago.

"Whitewashing trees is not a new thing by any means, at least so far as the lower limbs and trunks are concerned, but covering the entire tree in a definite attempt to delay blossoming has not been done in California, so far as the writer is aware. The underlying principles that make whitewash of value to fruit trees in general and promise some relief in the matter of frost injury to early blossoms, are unusually interesting and conclusive. Damage Done in Winter

"It is a necessary orchard practice to protect the trunk and larger limbs

of young trees for four or five years after they have been set out. The protection sought for is not from the summer heat, as might be supposed, but from the winter sun, and whitewash is apparently the best and cheapest agent for that purpose.

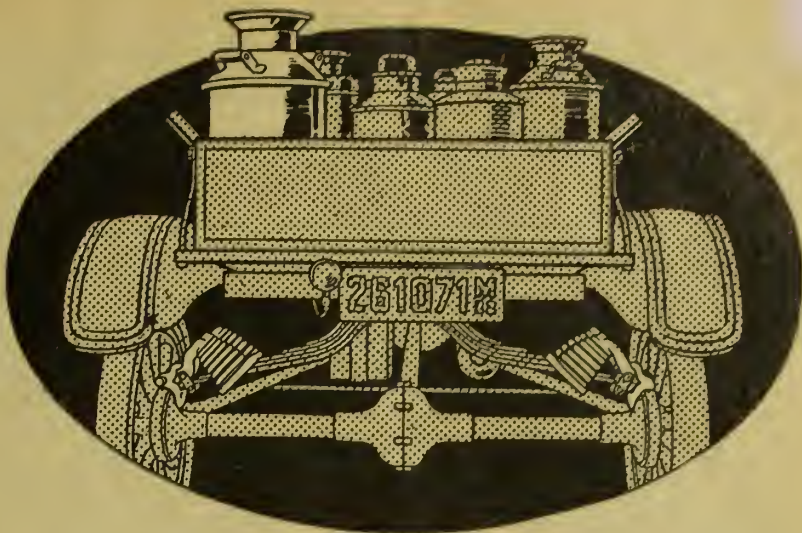
"It has been proved by experiments, according to Dr. Whitten, that the coloring matter in the thin bark on young trees will absorb enough heat on clear, warm winter days, such as we often have in late winter and early spring, to raise the temperature under the bark from 15 to 25 degrees above that of the air. This has the effect of increasing the activity of the cells and buds, especially on the south and southwest exposures, making them very tender and exhausting to some extent their stored reserves of plant food.

"As the sun goes down the tree quickly cools to atmospheric temperature, which may be nearly to freezing or even a little below, especially if in the higher altitudes, and this wide range in temperature is very likely to injure the buds and growing layer, causing what is known as sunburn, or sunscald. This results in the death of parts of the exposed bark, but as the injury is usually not noticed until the growing season, the summer sun is charged with the damage.

Whitewash Reflects Heat

"If, however, the trunk and larger limbs are covered by an even coating

(Continued on Page 10.)



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VEGETABLE GARDEN FOR JANUARY IN SOUTHERN CALIFORNIA

(Continued from Page 5.)

it in by plowing or spading ten to fourteen inches deep as soon as your ground is dry enough to work. Then harrow or rake it well so as to get the soil settled and a nice fine seed bed.

In the meantime, some sort of a plan should be worked out concerning this garden you are going to have. First select the piece of ground which for best results should be naturally rich, conveniently watered, of a nature that drains well and with a southerly exposure. The size will be controlled by the space available or the amount of time one wishes to apply to this part of his garden. On a town lot one is usually confined to a space 50x75 feet or less. It is surprising how much can be grown in a backyard if managed properly. On a ranch a house garden should comprise about an acre, as much of the work can be done with a horse. We should decide whether the plot selected is to be a permanent garden, if not, then we will plan on using only annual stuff; but if it is to be a garden for several

years we can figure on using some perennial stuff. These should be planted where they need not be moved, usually to one side of the plot and arranged according to their habit of growth. Vining berries like Himalaya, Mammoth or Thornless blackberries, loganberries and dewberries should be set six to eight feet apart and trained on trellis; raspberries, plant about two feet apart in rows; currants, gooseberries and upright growing blackberries, plant about four feet apart; rhubarb and artichokes should be allowed four feet also, while strawberries are set 15 inches apart in the rows. All of these should be set out as soon as possible so as to get their roots well established before growing weather comes.

As it is now early for setting out tomatoes, peppers and melons, the space intended for these can be nicely used for quick crops like spinach and radishes or it may be used to start cabbage or cauliflower plants, all of which will be out of the way in time to put out tomatoes, egg plants and peppers in March.

Potatoes may be planted in protected places any time now, but in open valleys we would recommend

waiting till March. Cut your seed so that it is about the size of a hen's egg and with at least one good eye. Drop these pieces about a foot apart in a furrow and cover three or four inches. Have your rows 30 inches apart. In order of their earliness we use in Southern California, Triumph, Red Rose, American Wonder, White Rose and British Queen.

Plant a row or two of peas, Laxtonians for a quick crop and Senator or Dwarf Telephone for a little later. A pound will plant 150 feet of row. Give each row two to two and a half feet and cover the seed two to three inches.

Make plantings of the hardier vegetables like parsnips, with which plant a few radishes to break the crust so as to let the slow growing parsnips come on without stunting. Put in carrots, turnips, lettuce, beets, kohlrabi, kale, mustard, spinach and rutabagas. An ounce of any of these will sow from 100 to 200 feet of row, according to size of seeds.

Put in some onion seed for dry onions. An ounce of seed will sow 125 feet of row and should produce 75 pounds of dry onions. Use Crystal Wax and White Queen for Earlies and

for pickling onions, Australian Brown, Danvers and White Globe for summer use and storing.

Set out cabbage, cauliflower and kale plants in rows about three feet apart. Cabbage should be set 15 to 20 inches apart in the rows, cauliflower and kale 24 to 30 inches. Plant all of these in the bottom of a furrow at least six inches deep and gradually work the dirt in around them as they grow.

In protected spots Canadian Wonder and Ventura Wonder Wax beans may be planted. It is early yet for planting sweet corn, melons and cucumbers. So, in planning the garden, be sure to reserve some space for those things that cannot be planted for a month or so.

This is the best month in which to prune trees, berry bushes and grape vines. Clean them out and spray with lime-sulphur solution. Cultivate your growing crops, thin out stuff planted late in November and early December. Keep on the lookout for aphids. Spray with Blackleaf 40 or dust with the new dusting compounds. This dusting method is proving very effective and economical.

Southern Arizona

By M. E. Bemis

PLANT growth in January is usually not rapid. Sometimes the coldest weather of the year comes in this month, and as a rule there are many frosty nights. In spite of this there is considerable that can be done in the garden, and as the days begin to lengthen perceptibly towards the end of the month it is well to make a considerable effort in planting and planning for the more active work which follows in February and March.

The list of things to be planted in January includes beets, carrots, collards, kale, kohlrabi, lettuce, mustard, onion seed, onion sets, parsley, parsnip, peas, radishes, spinach, Swiss chard, turnips and cabbage, cauliflower and strawberry plants.

The common root crops such as beets, carrots, onions and parsnips, as well as parsley and lettuce, are best planted in narrow drills 15 to 18 inches apart for garden culture and two to three feet for field culture. In depth they should be planted from one-fourth inch to one inch, the smaller seeds as a rule requiring a more shallow planting. Germination is slow during the cooler weather. The most common practice is to plant on the sides of furrows just above the water line. With a fine sandy soil it seems advisable sometimes to plant flat, but with heavier soils the furrow system is usually necessary.

Proven varieties for the January plantings are: Crosby and Extra Early Egyptian beets; Ox heart or Danvers carrot; Georgia collard; Green Curled Scotch kale; Purple and White Vienna kohlrabi; New York, Iceberg and Prizehead lettuce; Ostrich Plume and Southern Curled mustard; Yellow Danvers, White Portugal, Bermuda, and Crystal Wax onions; Champion Moss curled parsley; Hollow Crowned parsnips; early varieties of peas such as Alaska or American Wonder; Epicure, Early Long Scarlet or Long White Icicle radish; Prickly or Round spinach; Silver Swiss chard; Purple Top White Globe or Early Snowball turnips; Early Winningstadt, Selected Early Jersey Wakefield, Danish Ballhead or Selected Early Flat Dutch cabbage; Hendersons Early Snowball cauliflower, and Arizona Everbearing strawberries.

Early planted lettuce is being shipped out in carload quantities, but later plantings will continue to come on and mature for some months. Most of the varieties of vegetables and plants that are seasonable for planting now are also being harvested from earlier fall plantings, but plantings up to as late as March and in some cases even later may be made, thus insuring a succession covering a long period.

A potato specialist from the federal bureau of plant industry has been assigned to study Southern California problems. He will arrive December 20 for a preliminary investigation in connection with the potato growers' department of the Los Angeles County farm bureau.

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This Month in the Ornamental Garden

Southern California

By Ernest Branton

BY reason of the unusually heavy rains which fell around Christmas week nearly all minor garden operations indulged in during December will have to be done over again. Not only were seeds washed out but in many cases small seedlings on sloping lands were almost a total loss; still others of the more tender class were broken or beaten to pieces by the excessive downpour. But almost anything planted from seeds in December will grow better from January sowings.

Really the most serious result from the heavy rains is the beating down to extreme compactness of heavy soils and even medium soils need lightening and aeration. Few realize the terrific force of heavy downpours on the soil surface, but no roller yet built can so compact and force out the air. When soil is dry enough turn it up as deeply as possible and leave it to "weather" until the area is needed for planting. But do not attempt to work it or upturn it until it is sufficiently dry through drainage from below. This is the most important of garden work looking to the welfare of plants in the future. When working soil incorporate more fertilizer.

Watch for little wads of garden rubbish that have lodged in corners and out-of-way places where insects and other pests may find harbor, and consign it to flames or compost heap.

Belated rains suggest belated sowing, and the time is ripe and right for seeds of native plants. In fact, January should be the most important planting month of the season. Citrus growers contend that little danger from heavy frosts portends after January 15. After that date there remain two weeks of the month during which all hardy trees and plants should be set out, especially deciduous material, for no time is better suited to its needs. With promise of normal weather another sowing of sweet peas should be made to provide spring blossoms, the last sweet peas to be planted, for hot weather does not produce large flowers, delicate colors nor long stems, for all of which weather and soil should be cool and moist. For later flowers sow seeds of aster, celosia, cockscomb, coreopsis, chrysanthemum (annual sorts), dianthus and other pinks, phlox, salvia, snapdragon and stocks. Consultation of the modern seed catalog calendar will give one all the possibilities in seed sowing for the month, and you may choose your favorites from the list.

The hardier perennials, such as goldenrod, golden glow (rudbeckia), etc., will soon start top growth and roots should be divided, transplanted or cultivated and fertilized as you may elect. Cut off tops of Matilija poppy plants at top of soil so new tops will spring up. Do not cultivate except superficially to destroy weeds, or apply fertilizers, but the present is a good time for moving or dividing the roots, but do it at once—a month later is too late. Last year's clumps of chrysanthemums will break forth and need division or propagation by cuttings, or both. A box of clean sharp sand in a shaded position well protected from winds is a good propagating equipment for hardy cuttings but equable soil moisture must be maintained or failure will result.

Bulbs in variety may now be planted, especially of native sorts, which should be planted deeply, not less than six inches. Holland or Dutch bulbs are still in season but the last planting should be made at once. A general list, including Easter lilies, is not long: anemone, ixia, narcissus, oxalis, ranunculus, sparaxis and tulip. The best success with gladiolus flowers usually comes from January planting. Anemone and ranunculus sprout quickest and are surest if bulbs are soaked in water for 24 hours before planting.

Dormant roses may now be had and are the best of all to plant. Deciduous trees and shrubs, either fruit, ornamental, or both; trees and shrubs of evergreens, except of tender sorts,



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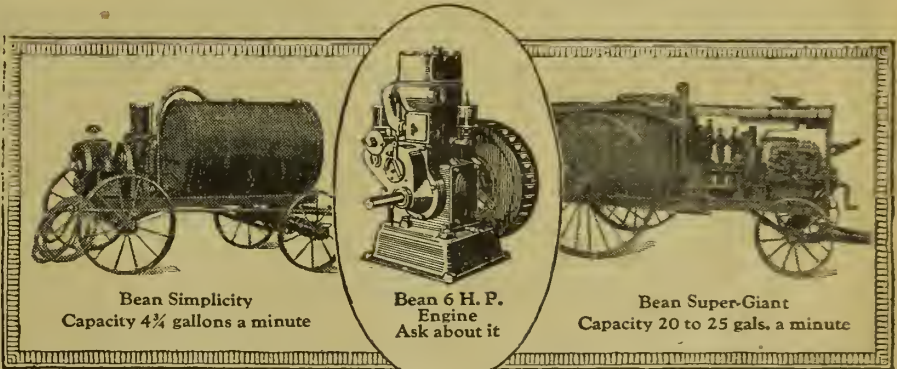
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may now be set out. Train and tie climbing roses but do not prune Banksias, Cherokees, Beauty of Glazenwood or Gold of Ophir or you will prune away dormant flower buds. Prune all such, if pruning is needed, at close of blooming period. Violets and carnations planted now as tiny plants will grow all summer and provide good flower crops for the holiday season at the close of 1922. Do not yet fertilize lawns, heavy rains may carry all the nitrogen away, active growth of grass comes later, food is needed in greatest supply when most rapid growth commences.

Northern California

By A. R. Gould



ACTIVE planting should now be under way as this is an opportune time to transplant. Many shrubs may be secured and some pleasing groups arranged. Where close planting has been practiced it will be possible to move plants to positions where they may have more room to develop.

During the wet weather when outdoor operations are impossible dahlia tubers should be carefully sorted over and gladiolus also begonias should all be inspected for any diseased bulbs or tubers must be removed. Dry sand is a good medium in which to store these.

The lawns should also receive attention at this time and may be top-dressed with sheep manure, bone meal or dried blood. This will put them in good order for the coming season. New lawns may be put in as the weather gets warmer, but this will be better if deferred to next month as the seed will germinate much better, when we shall give hints on new lawns in more detail. In the meantime we would advise having the proposed plot deeply trenched and prepared.

Seed Sowing of Annuals

Boxes of leaf soil should now be prepared and placed in a sheltered but warm position and frame covers prepared to protect from the rain. Annuals such as snapdragon, godetia, clarkia, stock, candytuft, centaurea, dianthus, larkspur, lavatera, phlox

drummondi, schizanthus, viscaria and scabiosa, all are easily transplanted and if sown now will give a long succession of bloom.

The New Lace Flower

Dediscus coerulea is a graceful flower of light blue, a popular shade just now in the garden, and may be easily raised from seed sown in a box of fine soil. It is useful as a cut flower and is also delightful in the border. A packet of seed will furnish quite a number of plants.

The Perennial Border

Work on this border should be progressing and any large clump of hardy aster, iris, canna, chrysanthemum, columbine, oriental poppy, helianthus, sweet william, pentstemon, etc., may be divided and new borders prepared for planting in color groups, and here we would like to impress upon our readers the fact that there is nothing quite so satisfactory to grow as a perennial and nothing more beautiful and lasting than a well arranged grouping in color.

Delphiniums

These flowers have of late become

extremely popular and rightly so as one can secure them now in almost every shade of blue and in heights from 12 inches to 5 feet, double and butterfly types. They flower from seed the first year if sown early and should be sown at once in a box of well prepared soil. They are somewhat sensitive to excessive moisture and the seedlings therefore must be watered with great care. Strong plants may be secured from the nurseryman for planting in March.

Bulbs

There is still time to plant tulips and lilliums. Plant in well manured soil, placing a little sand at the base of each and place them at least four inches deep.

Roses

These may still be pruned and cuttings inserted in sandy soil. This is also planting time and you should get your order in early for the best stock.

Evergreen Shrubs

Eunymus hakea, coprosma, acuba, abella, ionicera nitida, melaleuca and leptospermum. Any of these will give satisfaction grouped or as single specimens, planted now.

Berried Shrubs

Cotoneaster pannosa, C. horizontalis, C. angustifolia, C. microphylla, C. acuminata and C. Franchetti, Crataegus celandii and C. crenulata. Most of these may be seen just now in full glory with their brightly colored berries, and small plants may be secured in pots to plant out in groups where they will make an effective display another season.

Sweet Peas

These must be watched for aphids as they are usually very troublesome at this season. Spray with "Black leaf 40." Keep the vines tied to the stakes as severe winds are likely to severely damage them. The winter flowering types should soon be coming into bloom.

WHITEWASH RETARDING BLOSSOMING

(Continued from Page 7.)

of whitewash, the heat of the winter sun will be reflected and the temperature under the bark will be several degrees lower than the atmospheric temperature, the buds and cells will remain thoroughly dormant and uninjured though the extremes in temperature may be great.

"In the summer, even if it be very hot and dry, the upward passage of cool water from the roots and its evaporation from the twigs and leaves cools the parts of the tree above ground so that they are frequently from 15 to 20 degrees below the temperature of the air. For this reason sunburn does not ordinarily occur in the summer when sufficient water is supplied the roots and the normal leafage on the tree is maintained.

"Although the bark of older trees is much thicker and less liable to sunburn, it is nevertheless good practice to whitewash exposed trunks and bare main limbs.

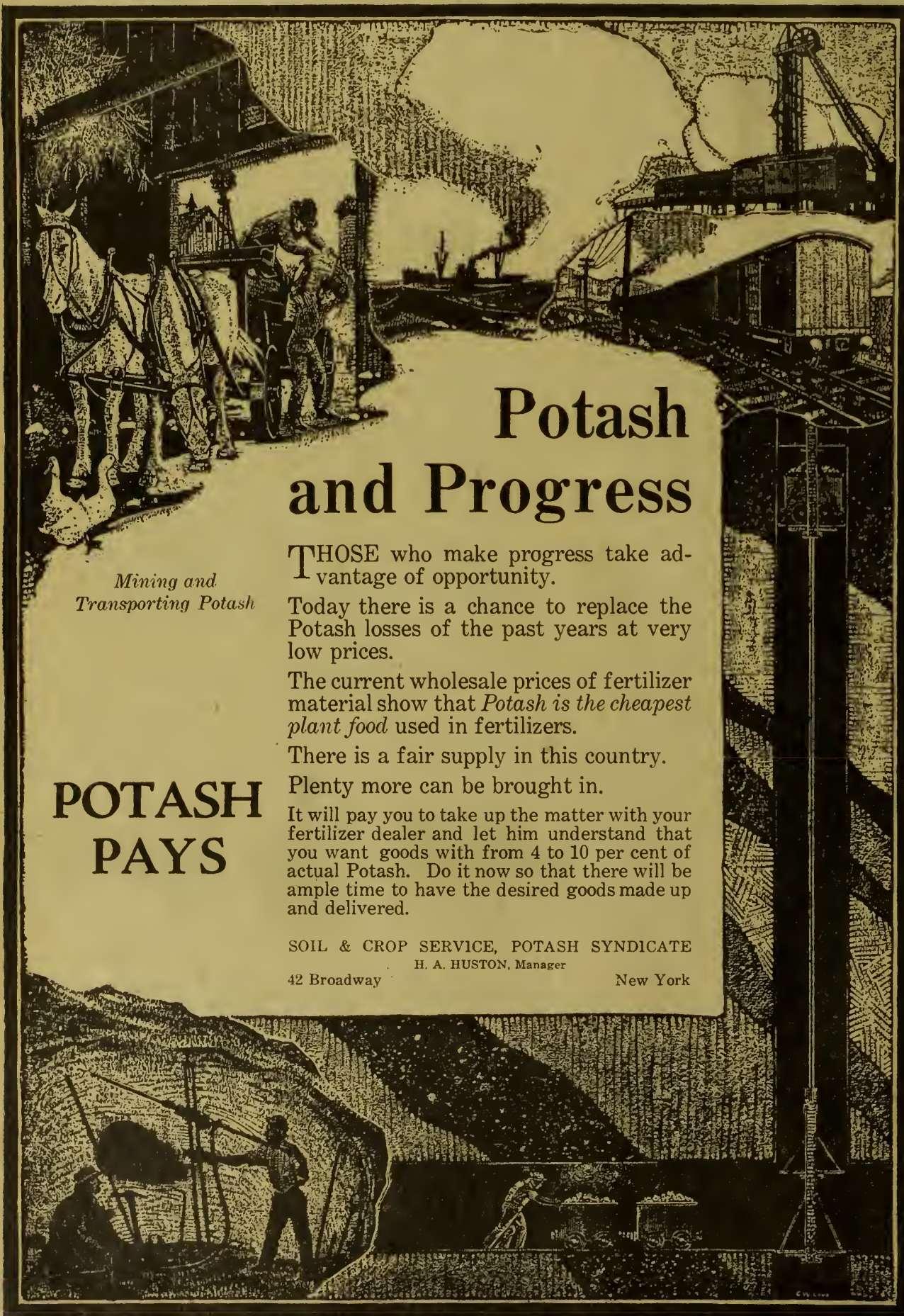
"Because of the fact that whitewash has been proved to lower the temperature of the buds and keep them dormant in spite of the hot days occasionally experienced, it has been determined that if the entire tree is kept covered by it during the winter, the blossom buds will be so much delayed in the spring that they will escape late frosts that are often disastrous."

NAVEL ORANGE PRUNING DEMONSTRATIONS

During January a series of nine navel orange pruning demonstrations has been arranged by the Los Angeles County farm bureau: January 25, 10 a. m. Pasadena, 2 p. m. Monrovia; 26, 10 a. m. Azusa, 2 p. m. La Verne; 27, 10 a. m. Covina, 2 p. m. Pomona; 30, 2 p. m. San Fernando; 31, 10 a. m. Whittier, 2 p. m. San Dimas.

PRESIDENT CALLS AGRICULTURAL CONFERENCE

President Harding has asked Secretary of Agriculture Wallace to call conference at Washington to suggest practical ways of improving the serious agricultural depression over the nation.



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Not every crop needs an excess of lime, but the great majority of our staples will do best in lime soils. California is rich in lime deposits and but few sections are so far away as to make liberal application unduly expensive. Perhaps the greatest benefit from use of lime is in its encouragement to bacterial action so that organic forms of nitrogen are reduced to a nitrate or available form. In addition to this effect upon soil conditions lime often proves directly beneficial to the plant. One of Florida's most noted authorities says:

"Much of the fertility of the soil depends upon the number and activity of soil bacteria. These liberate plant food and make it available so that the roots of trees and other plants may take it up.

"Soils, especially in warm climates, have a tendency to become acid and under such conditions the bacteria cannot live.

"The presence of lime counteracts the acid condition and it should be applied whenever necessary. Furthermore, it helps to bring about the decomposition of humus and liberates the nitrogen which it contains. Large amounts of plant food may be liberated by or through the use of lime; hence, in applying it to citrus groves it is best to use it sparingly or, at the time of its use, discontinue the nitrogenous fertilizer and depend upon the amount of nitrogen liberated to make up the deficit.

"In the plant the presence of lime appears to favor the formation of stronger cell walls and thus aids in making the trees stronger and more sturdy. Citrus trees planted on soils fairly well supplied with lime have a tendency to mature their fruit somewhat earlier and the fruit is bright and clean."

In addition the Ohio agricultural college tells the story of a man who wrote the lesson of lime on a Carroll County hillside so that all who passed could read it.

"In 1914," says Professor Jones, "Emmett Belknap, a farmer of Carroll County, applied with a lime spreader about a ton and a half of ground limestone to part of a hillside pasture on his farm. In 1915 and 1916, because he had some limestone left, he made one round with the lime spreader on the same field toward the foot of the hill. This fall the two green strips where the spreader had gone across a second and third time could plainly be seen all the way across the valley. It was a spectacular demonstration of the possibilities of improving land through limestone.

"Closer examination showed that bluegrass and white clover have come in on the limed land, displacing weeds, poor grass and moss, which abounds in the untreated portion of the field. The line between treated and untreated pasture is distinct. Mr. Belknap was so struck by the improvement that he has since limed three other pastures on his farm.

CONFERENCE ON COLORADO RIVER

Secretary of Commerce Hoover has fixed January 26 as first meeting date of the Interstate Colorado River Commission. Steps to control the river's flood waters and allocation of the water for irrigation purposes as well as the plans for development of power will be discussed preparatory to an intensive study of the problem.

Following this conference Secretary Hoover will go to California for several weeks to study the subject personally and will visit Los Angeles, San Francisco and other Coast cities.

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I don't mind the man with red-blooded kick,
At a real or fancied wrong;
I can stand for the chap with the grouch,
If he's quick
To drop it when joy comes along;
I have praise for the fellow who says
What he thinks,
Though his thoughts may not fit with mine,
But spare me from having to mix with the ginks
Who go through the world with a whine.

I am willing to listen to sinner or saint
Who is willing to fight for his rights,
And there's something sometimes in an honest complaint
That the soul of me really delights,
For kickers are useful and grouches are wise,
For their purpose is frequently fine,
But spare me from having to mix with the guys
Who go through the world with a whine.

THE MAID AND THE ALBUM

By Clara Peterson



ONCE upon a time there was a very efficient ruler called Sir Compe Tent. Oh, he was so efficient! His palace had lightning rods and dumb waiters and vacuum cleaners and his cows were milked by electricity and the minute one of his hens got through laying an egg she pulled a string with her bill; this worked the little dating machine over her nest and there the egg was dated as nicely as you please!

Sir Compe's white stone palace was washed every other year and his white painted picket fence was given a shining new coat every other month, but outside that fence things were in just alarming shape.

There were cunning little crooked streets with beds of flowers right in the center of them and there wasn't the slightest bit of system to the houses. Some were untidy brown with sprawly rose vines crawling over them and scattering pink velvet petals on the grass. Some were cloudy grey with little crisscross windows and hollyhocks white and red standing here and there against them. Others were yellow and cream and blue with front yards short and front yards long and fruit trees blossoming just anywhere they happened to spring up.

Sir Compe had been extremely busy writing a book on "How to Have Time to Attend to Everything," but now it was finished. He took off his black rimmed glasses and rubbed his fine blue eyes after he had written the last word. He stood up and stretched mightily and waved his arms to get the roundness out of his shoulders. He folded the manuscript proudly and went out for a refreshing walk.

It was then that Sir Compe realized that there was no system in his city outside the palace grounds; people were living just as naturally and comfortably as they pleased. He went home sadly. To think that immediately upon his return from college he had gone to work on his book and had neglected his people entirely!

He vaulted his picket fence and sat down on a green bench to think it over. There wasn't one leaf on the grass as far as he could see so he had nothing to bother him.

"I shall give them a most welcome surprise," said Sir Compe to himself. He got up to put a grasshopper outside the fence. "All the houses shall be changed so that they look exactly alike and they all shall be painted white, a shining city indeed. We shall have grass in the front yards and vegetables in the back yards and the stone pavements shall be scrubbed each morning by my men. The palace shall do without anything new this year in order to pay for it all."

He went up the marble steps into his scarlet study where he wrote this out very clearly on the typewriter:

"Tomorrow the whole city will know about it," said Sir Compe, rubbing his hands and chuckling. "And just to show the people that I want them to be satisfied with everything I'm going to write at the bottom of the proclamation that I shall expect every householder to visit me this week some day between six and seven in the evening. Then I'll give each one his choice of four or five windows in the living room and round or square pillars for

the front veranda. This can be managed easily."

Sir Compe could hardly wait for the next evening to come. He didn't realize that this was because he was lonely and wanted to see his people and know them and chat with them.

At five o'clock Sir Compe was all ready for the first grateful caller, dressed in his scholar's robe of black with only the plain gold band of the Tents on his head to show that he was ruler. He sat on his throne and tried to read, but all he did was watch the minute hand of the ebony clock go round and round. He was hoping that a few of the jolly fat townsmen would drop in for tea.

But teatime came and Sir Compe was alone. A maid brought in the tray, a tall, grey eyed maid, sleek haired and slim as a birch tree. Sir Compe looked up and wished that she would smile; he had never seen her smile. Then he looked down at the tray and he himself smiled gayly, for there was chicken salad and chocolate cake. He thanked the maid and began to eat, very slowly, still hoping someone would drop in.

But that whole evening the ruler sat in the throne room and not one person came to call. That was Monday night. Five more evenings in which to talk with the jolly fat townsmen and get acquainted; he hoped they would not come in a bunch.

Tuesday night. Veal pie and cherry cobbler, enough for twelve. Till ten o'clock Sir Compe sat and waited. He looked over all the latest magazines; he polished his spectacles for half an hour; finally he just leaned back in the great gilt chair and whistled lonesomely.

At nine o'clock the grey eyed maid, who happened to be passing through the hall, peeped in the half open door. Sir Compe had whistled every tune he knew and was sound asleep, the light from the crystal chandeliers blazing down upon him.

The little maid tiptoed in and turned out the lights nearest the throne. Sir Compe's head was bent upon his arm like a little boy's and his face was ever so sad. She stood looking at him and two crystal tears rolled down her cheeks. For once, when she was a tiny girl, the maid had visited the palace with her parents of high degree and she and little Compe had played together and had sworn when they parted never to forget each other so long as the world stood. And now she was alone and through misfortune had had to earn her bread. She had come to the palace hoping Sir Compe would not know her as his little friend of long ago, and yet how it pained her to be unrecognized. That was why she never smiled.

The little maid opened the stained glass window so that the cool evening breezes might soothe Sir Compe in his sleep. Then she tiptoed off to bed.

Wednesday night. Hot roast beef and apple pie with ice cream piled atop of it, enough for twenty-four, yet no one came. Sir Compe could not eat. He whistled instead, but the tunes were slow and rather quavering.

Thursday night. Baked trout and lemon pudding, enough for half the city. Surely they must come tonight. The little maid who brought Sir Compe's portion at seven o'clock on a silver tray, hesitated and then turned back when she saw his face.

The ruler smiled wistfully when he saw that she understood.

"No, I cannot eat—not yet," he said. "Perhaps later in the evening numerous men of the city will drop in. Then the pages may serve us all together."

He did not say this confidently and the maid turned again to go. Sir Compe bent forward, staring with his blue, near sighted eyes.

"But stay, have I not known you before?"

The maid did not answer. "No, the face is the same yet different. The one I knew was always laughing. Some day, perhaps—"

He sat musing. The maid stood for a moment, a slender, black clad figure against the purple of the hangings. The ruler had forgotten her. He was polishing his spectacles and whistling

dearly. Lifting high the silver tray she passed quickly through the door. The next day was rainy. The maid

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hummed to herself as she dusted the piles of books in the attic, hummed gaily so that the pitter patter, drip, drip, drip, would not make her cry. She was sometimes very lonely.

There seemed to be thousands of books, histories and primers and atlases and stacks and stacks of albums. The maid guessed what numbers of forgotten photographs they must hold, but she had not time to look. There was one of red plush like people had on parlor tables long, long ago. The maid dusted it tenderly. Someone had prized it. Without thinking, she gave a little twist to the key in the album's lock and then from somewhere came the softest, sweetest strain of music in all the world.

Open fell the cover and there instead of pages of strange faces, lay the tiny springs and wheels of the music box. On and on tinkled the piece as the little spring unwound.

The maid clasped her hands and listened. She thought of Sir Compe. Tonight perhaps he would again sit alone, whistling drearly or turning the pages of a book he did not read. The forgotten music box might help him as it had her, for she had no thought of weeping now. The gentle music had been like a mother's hand stroking her hair.

Friday night. Baked little pig and apple sauce and sweet potatoes, but not so much of anything for the ruler had been afraid to order. At eight o'clock the great room had grown very dim and still Sir Compe was alone. At nine o'clock he bowed his head in the darkness. So his people did not care for him, did not understand that he wanted to help them. Why—why—

He heard a timid footstep in the darkness, then suddenly a strain of music, faint, mysterious, but oh so sweet! Sir Compe sat erect. His lips began to whistle the tune very gently. Then he hummed it. The old words came to him one by one:

"Mid pleasures and palaces though we may roam,
Be it ever so humble, there's no place like home!"

A charm from the skies seems to hallow us there,
Which, seek thro' the world, is ne'er met with elsewhere.

Home! home! sweet, sweet home!
There's no place like home, there's no place like home."

He saw the palace when his mother had lived, friendly ivy trailing over its dusty walls, geese and their babies waddling across the lawns, petals falling from the rose bowls in the dining hall, bits of sewing in the study. He saw suddenly all the cottages of his people and he knew that they were homes, that his people would not have them changed, that that was why they had not come.

The next morning Sir Compe arose early and hurried to the market place. A great and murmuring crowd had gathered and the ruler walked among them smiling.

"My friends, nothing shall be changed! Your homes are your own! Pardon me, I beg of you."

And now the people were shouting and tossing their hats into the air.

"Long live Sir Compe! Long stand our homes and his own!"

It was noon before Sir Compe was able to get away from his friends. He walked briskly toward the palace. He vaulted the picket fence and came to his kennels.

Open went the doors. Out trooped the dogs, sniffing, barking, frisking. Out came the ponies to the first terrace, kicking their little heels in the fresh air.

Sir Compe walked along, planning flower boxes for the palace windows. He stopped. Someone was leaning over the balcony. Someone was laughing delightedly and calling to two scrambling puppies.

Sir Compe looked up. The little maid looked down into his face. Her grey eyes were as bright as stars and her cheeks were rosy with laughter.

"You!" cried the ruler. "You are the one after all. My little Ardis!"

And every person in the city celebrated their wedding with rejoicing.

To keep macaroni from sticking together mix a little butter with macaroni after it has been boiled and drained.

Money may be saved by avoiding sure things.

HINTS FROM HOUSEKEEPERS

Almond Paste

I saw in this department some time ago a request for almond paste. I have recipe which is as good as any I know. Being an English recipe it may be difficult to get the bitter almonds which the recipe calls for. However, I will send it.

Pound together 6 ounces of blanched sweet almonds and 1 ounce of bitter almonds, 2 ounces confectioner's sugar, whites of 2 eggs.

This is the cake that the paste is usually used with:

Almond Simnel Cake—Beat together 6 ounces each of butter and sugar, add 4 eggs well beaten, 2 ounces rice flour, 6 ounces flour and 2 ounces mixed candied peel, cut very fine. Mix well and pour half the quantity into a round buttered cake tin, put in a half an inch layer of almond paste, then the remainder of the cake mixture. Bake in a moderate oven 40 minutes. Hoping this will assist you.—Mrs. S. G. Walsh.

Lemon Cheese

Here is a recipe which I find very useful to have made up, as a delicious cake can be made in a very short time with this filling on hand:

Six ounces butter, 12 ounces sugar, 3 eggs, 3 lemons. Put butter and sugar in a double boiler and when melted add the grated rind and juice of 3 lemons, then add the eggs (well beaten) to the mixture, and cook until thick, stirring all the time. This is delicious and will keep indefinitely if put in a Mason jar and sealed.—Mrs. S. G. Walsh.

HOUSEHOLD QUERIES

Omelet

I have been reading with interest your household department and wish to ask some of the kind readers to contribute some good recipes for omelet with directions.—Subscriber, Maxwell.

Plain Omelet.—Place 3 tablespoons shortening in frying pan and while heating place 3 eggs in bowl and add 1 tablespoon milk, 1 tablespoon water. Beat with fork to thoroughly mix and, then, when pan is smoking hot, turn in the mixture. Then place where omelet will cook very slowly. Season, then fold, turning on hot platter.

Fluffy Omelet.—Separate yolks and whites of 3 eggs. Place yolks in bowl and add 3 tablespoons milk and beat to thoroughly mix. Then beat whites very stiff. Cut and fold yolks into the prepared whites and then turn into pan and cook slowly. Fold, roll and turn on hot platter. This may be garnished with ham, bacon, parsley, pimientos and green peppers, jelly, grated cheese, etc. Cook as for plain omelet and just before turning add desired flavoring. Have filling heated (except jelly) before spreading on omelet. Leftover vegetables and bits of meat may be used in this manner for attractive dishes.

Spanish Omelet.—Chop fine 2 medium sized tomatoes, drain free from moisture and add 1 medium sized onion and 4 large olives chopped fine. Place in small pan with 1 tablespoon butter to heat. When hot spread over omelet, fold and serve on hot platter or slip in oven to brown.

Sunshine Cake—Potato Cake

I would like for you to publish in household department a recipe for a sunshine cake as I have misplaced mine. I remember that the sugar was boiled with water and poured over the beaten whites of the eggs, and that it took seven eggs, but I don't remember the amount of flour and water or sugar. It surely was a splendid cake. Also would like a recipe for potato cake. I certainly do appreciate the Cultivator recipes very much.—Subscriber, Santa Maria.

We have not this particular recipe, but give the following. Perhaps some of our housekeepers can supply the one requested:

Sunshine Cake.—Beat whites of 10 eggs till stiff and dry, add 1½ cups powdered sugar gradually, and continue beating; then add yolks of 6 eggs beaten until thick and lemon colored, and 1 teaspoon lemon extract. Cut and fold in 1 cup flour mixed and sifted with 1 teaspoon cream of tartar. Bake 50 minutes in moderate oven in angel cake pan.

(Continued on Page 19)



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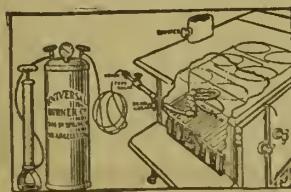
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Poinsettias.

I would like information regarding the care of the poinsettia. We do not raise them around Fresno, so know little of their culture. When the bloom fades what pruning is necessary? Does the plant remain green and in foliage all year? Would appreciate any information you can give.—“A Sun Maid” Subscriber, Fresno.

The poinsettia will never succeed to its best in the San Joaquin Valley. It is almost a tropical plant and likes more moisture in the atmosphere than the valley can supply. In sheltered sections near the ocean, especially in San Diego and possibly as far north as Santa Barbara, it grows exceptionally well. The principal supply for Christmas trade comes, we believe, from San Diego County. It is possible the plant could be kept alive in Fresno by building a shelter, but where the oleander is supreme as it is in Fresno far more satisfaction can be secured in growing a plant of that type which is adapted to conditions. Plants are deciduous.

Bichloride for Tools.

Will you please publish a good method of disinfecting the tools used in pruning blighted trees?—Subscriber, Turlock.

The usual formula for solution for disinfecting tools used in pruning for pear blight is bichloride of mercury and water, 1 to 1,000.

Poinsettias Drop Leaves.

Can you tell me why the leaves of poinsettias turn yellow and drop off? Is it the nature of the plant, or does the soil need something?—Subscriber, Sebastopol.

We fear the weather conditions have not been favorable to poinsettias. They are purely tropical plants and unless grown in greenhouse or thoroughly protected do not think highest success could be had with them in your section. They are deciduous.

Curing Olives.

I am much interested in the subject of pickling green and ripe olives for home use. I have read your various articles in California Cultivator and have no doubt the directions you print are the right ones; but, with a special reference to the pickling of ripe olives, would you be so good as to inform me if it would be safe to omit from these the sterilization by heat and depend upon their keeping fit through the lye and salt process alone? I have in the past used both the green and ripe fruit without sterilizing but, in view of somewhat recent cases of poisoning, I feel that it would be safer to know if there is really any risk in omitting the sterilizing. I can't help but think that takes away some of the crisp, fruity condition of the olive cured with lye and salt alone.—Subscriber, Los Gatos.

In view of the fact that the state board of health has ruled that “It is possible that bulk non-sterilized olives may carry the bacillus,” the Cultivator has no advice to give. But the writer will say that having eaten home cured olives treated only with lye, pure water and brine over a period covering more than a third of a century, and not being dead yet, he will continue eating with relish olives cured in that way. The ruling of the board is working a great injustice on growers of olives who wish to cure and sell a portion of their product. Of course the ruling does not affect the olive grower who may cure and eat as he pleases.

Non-bearing Apple Tree.

I have an apple tree 11 years old that never bears any fruit. It has no disease whatever. What is the cause?—Subscriber, Lancaster.

This is probably a case of barrenness which can only be corrected by grafting tree over to a desirable variety. Grafting of the apple is so simple and almost sure that anyone who understands grafting at all can easily make over the tree. Find desirable variety known to bear well in the same community, use scions say three to five inches long, use the ordinary cleft graft, tie and thoroughly wax. This done, say in February or March, or a short time before the spring flow of sap begins, will probably result in fine producing tree within two or three years.

Distance for Walnuts.

I am more particularly interested in walnut growing, and have already set out about 60 trees on this place, which have made a good showing during last year, in fact, after being cut back at the time of planting some of them are seven feet tall at the present moment! I was about to order more trees when, happening to see something from the pen of Mr. Neff in your issue, I decided to stop until I had settled an important point, and it is this matter that I wish to have your expert advice upon. I planted the walnut trees 50 feet apart, which I thought would give the trees a fair chance to do their best, but I see that Mr. Neff says in no uncertain manner that 50 feet is not enough; they must be placed 60 feet apart! Of course, in years to come the trees may grow big enough to require this 60 feet, but I am thinking of something which concerns me now in the immediate present. If I plant the trees at 60 foot centers I will lose five trees to the acre; I have only a limited area available, about another 13 acres or so, which means that I will be shy a matter of 65 trees. Sixty-five bearing walnut trees seem a lot to sacrifice for a number of years before they get big enough to fill a 60-foot square, so I am asking you if 50 foot planting is not enough for practical purposes. That distance is recommended by reputable nurseries. I understand that the walnut tree doesn't like to be crowded and cannot be expected to do its best under a handicap of that character, but since I want to make the most of my available ground I would like to get some expert counsel about it. Another point I wish to bring before you is this. The trees are planted in a canyon bottom; the soil is a layer of loose sand and silt overlying loam, and the subsoil is always damp from the underground seepage down the canyon. We have had no rain here for over two months and yet the soil three or four feet down is quite damp, and there is about 30 feet of such soil for the walnut roots to get into. Naturally such conditions have made my trees grow very well. Some of them send up long shoots, seemingly at the expense of the other branches. Shall I nip off the tops of these long shoots so that the tree may develop more evenly or leave them alone? In these cases there are four or five short shoots beside the extremely long growth, and I want the trees to develop evenly.—Subscriber, Riverside.

This question is so fully discussed on another page of this issue by Mr. Neff that we refer to that article, which, while very short, gives the gist of walnut planting practice. As may be noted, Mr. Neff still believes in the 60-foot distance. The loss of the use of the land while the trees are young may be eliminated by intersetting quick maturing trees or annual crops.

Thornless Blackberry

I would like to get some information on the thornless blackberry. Are there any commercial growers of this blackberry in California?—Subscriber, Chandler, Arizona.

At the present time the Cory Thornless is one of the most popular berries planted in California. Plants may be had of nurserymen advertising in the Cultivator.

Cypress Seed

Under what conditions of soil and climate may the seeds of the common cypress be germinated and grown. I do not have any luck with them.—Subscriber, Etiwanda.

Your failure may be due to age of seeds and lack of moisture. It is good practice to soak cypress seeds in water for 24 hours before sowing, and this will be particularly efficacious if seeds are old. A subsequent equal moisture supply is needed so that fine sand or leaf mold, preferably both, in the soil will prove conducive to a good percentage of germination.

Pruning Cornichon

What is the best way to prune Cornichon, Emperor and Verdel grape?—Subscriber, Morgan Hill.

The three varieties of grapes mentioned will produce well by using the spur method of pruning, although recently growers are using somewhat longer spurs, particularly on the Emperor. This has been termed the half-long system. Horizontal cordon pruning may be practiced also and provided this system is understood and care exercised to keep the vines pruned as they should be.—F. K. H.

Pruning Mulberry

I have a mulberry tree that is over 12 years old. It has a tendency to spread over 20 feet. Should it be pruned very much back to keep it from having too much of a crown?—Subscriber, Morgan Hill.

You can probably keep your mulberry tree in bounds by cutting the long limbs back to a smaller lateral. This operation will, of course, have to be repeated every few years. Be sure to make the cuts clean, thus giving the wounds opportunity to heal properly. (Continued on Page 23.)

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State Dairy Cow Competition for November

By F. W. Woll

List of cows producing 50 pounds of butter fat or more during the month: Arden Dairy, graded Holsteins—932, 1077 lbs. milk, 50.62 lbs. fat. Anita M. Baldwin, Holsteins—Lady Lilith Walker DeKol, 2116 lbs. milk, 53.58 lbs. fat. Dean Beeman, Holsteins—Jacobina, 1760 lbs. milk, 59.68 lbs. fat. Berylwood Stock Farm, Holsteins—Fay Tritomia Heng. W., 1454 lbs. milk, 53.16 lbs. ft. Eug. Biondini, grade Jerseys—Midget, 795 lbs. milk, 55.65 lbs. fat; Rosalie, 615, 53.51; Shortie's Best, 726, 50.09. W. F. Early, grades—Rosy, 837 lbs. milk, 57.75 lbs. fat; Pencil, 768, 55.30. J. A. Genzoli, grades—Dolly, 957 lbs. milk, 61.25 lbs. fat; Jill, 660, 54.78. Earl Graham, Holsteins and grades—Princess Maida V., 2127 lbs. milk,

63.59 lbs. fat; Niger, 1302, 61.19; Hauser, 1323, 59.54; Plunkie, 1251, 57.55; Pansy, 1203, 52.93. Fred Hartsook, Holsteins—Miss Aaggie Ormsby, S., 2020 lbs. milk, 58.37 lbs. fat; Bessie Snowball DeK., 1930, 55.97. N. Hauck, grades—Brindle, 1233 lbs. milk, 69.05 lbs. fat; Red, 1080, 66.96; Lily, 906, 62.51; Chub, 1044, 56.38; Speck, 1011, 53.58. Peter Iversen, grades—Holstein, 747 lbs. milk, 50.80 lbs. fat. Palo Alto Stock Farm, Holsteins—Kiatta Pontiac Pr., 2259 lbs. milk, 68.66 lbs. fat; Thelma Hart. S. DeK. IV, 1719, 65.30; Alta Pappoose, 1463, 62.94. F. F. Pellissier, Holsteins and grades—No. 2479, 1578 lbs. milk, 55.23 lbs. fat; No. 2640, 1416, 55.22, Princess Tolia W., 1353, 54.12.

Completed Ten-month Records, November, 1921

No.	Name of Cow	Yr. Mo.	Days in Milk at Beginning of Record	Milk Lbs.	Butter Fat	
					Per Cent	Lbs.
1.	Thelma Hartog S. DeK. IV, H...	5-7	5	23763	3.32	788.45
2.	C-269, gr. G. (1).....	5	5	11903	4.48	532.94
3.	C-319, gr. G.....	5	5	9710	5.36	520.19
4.	C-210, gr. G.....	5	5	11759	4.13	485.90
5.	C-26, gr. G.....	5	5	8766	5.51	482.60
6.	C-33, gr. G.....	M.	5	8176	5.45	445.71
7.	C-9, gr. G. (2).....	5	5	9102	4.63	421.63
8.	C-263, gr. G. (3).....	5	5	9549	4.16	397.53
9.	C-22, gr. G. (4).....	M.	5	8357	4.42	369.65
10.	C-4, gr. G.....	M.	6	10191	3.55	361.98
11.	C-248, gr. G.....	5	5	8217	4.40	361.70
12.	C-446, gr. G.....	3-2	5	5610	5.98	335.71
13.	C-29, gr. G. (5).....	M.	5	7301	4.54	331.01
14.	C-397, gr. G.....	M.	5	7214	4.56	328.95
15.	C-418, gr. G.....	2-5	5	5607	5.65	316.85
16.	C-23, gr. G.....	M.	5	6192	4.42	273.83
17.	C-17, gr. G. (6).....	5	5	5564	4.74	263.78
18.	Betty NaDean DeK., H.....	2-1	5	12169	3.69	448.67
19.	Romeanna Douwe, H.....	9-0	9	19313	3.31	638.87
20.	Douwe Pontiac, H.....	3-10	5	16851	3.66	617.30
21.	Segis DeK. Bess, H.....	4-2	5	18186	3.60	655.02
22.	Bess Aaggie Cr., gr. H.....	4-5	5	19277	2.95	569.10
23.	Anoakia Alc. Segis, H.....	4-4	34	14900	3.35	499.76
24.	S.V.K.P. Cantate of S., H.....	2-7	5	13397	3.03	405.92
25.	Aralia Pietertje, gr. H. (7).....	3-11	5	10088	3.97	400.66
26.	Talima DeK. O., H. (2).....	2-10	5	10579	3.07	324.27
27.	Queen Contenta Alc., H. (8).....	2-11	5	9343	3.10	289.55
28.	Sheep Walker, gr. H. (9).....	1-11	5	7022	3.89	273.24
29.	Idelwild Walker, gr. H.....	2-1	8	6216	3.82	237.29
30.	Frances Lone O. K., H.....	2-3	5	6775	3.37	227.63
31.	Colantha Hengerv., gr. H. (10)...	3-0	5	6214	3.32	206.46
32.	Lady Kate's Rosette, J.....	6-5	5	12492	5.30	661.64
33.	Lambert Glory's P., J.....	8-1	5	9593	5.30	508.60
34.	The Owl's Nymph, J.....	9-8	6	8499	4.99	424.42
35.	Lady Kate's Belle, J.....	5-2	5	8326	5.01	416.76
36.	Hecla's Margery, J.....	8-2	5	7481	5.50	411.74
37.	Queen Pontiac W., H.....	5-4	5	19171	2.93	560.86
38.	Lady Silver G. DeK., H.....	8-10	5	13111	3.54	464.11
39.	Anselmo Snowflake, C., H.....	6-4	5	13718	3.12	428.55
40.	Granny, gr. J.....	M.	10	12245	3.71	454.34
41.	No. 53, gr. H.....	7	5	13829	4.22	584.09
42.	No. 32, gr. H.....	8	12	13347	3.53	471.38
43.	Bobbie, gr. H.....	4	12	10274	3.27	335.60
44.	Cora Jarie Pont., H.....	4	5	16790	4.11	689.47
45.	Montana, gr. H. (11).....	M.	6	14807	3.92	581.15
46.	Niger Heifer, gr. H. (12).....	3-5	5	12878	3.58	461.26
47.	Smithy, gr. H.....	4-6	11	12541	3.38	424.18
48.	No. 21, gr. J. (13).....	M.	14	9859	3.71	366.22
49.	Lydia's Valentine, J.....	3-1	6	8985	6.41	575.84
50.	Francesca of Eureka, J.....	3-10	5	9630	5.22	502.74
51.	Calla Gr. Itchen M., G.....	3-9	7	11456	5.13	587.73
52.	Amador, gr. H.....	11	6	15468	3.82	591.33
53.	Alameda, gr. H.....	4-10	5	14101	3.60	507.09
54.	Placer, gr. H.....	4-1	6	10707	3.40	363.53
55.	Finlayston's Annie, Ay.....	8-7	5	12175	4.00	487.05
56.	Bright Eyes of H., Ay. (14).....	8-2	5	11110	3.98	442.60
57.	Willowmoore H. D., Ay.....	5-4	5	8942	3.85	343.88
58.	Baron's Molly, Ay. (15).....	5-11	5	7443	3.82	283.95
59.	Teola, gr.....	14	14	6870	6.04	414.81
60.	Irene Segis Pont., H.....	4-3	5	20608	3.40	701.39
61.	No. 2403, gr. H.....	5	5	16688	3.99	666.57
62.	Teddy R's Poppy Girl, J.....	6-4	8	9208	6.06	558.07
63.	Rioter Lad's Owl, J.....	2-7	46	5427	6.68	362.25
64.	Lad's Lark of St. L., J.....	4-1	10	6274	5.36	336.01
65.	Tony's Perfection, gr. H.....	4-10	21	9336	5.46	510.00
66.	Pansy, gr. H. (6).....	5	5	11162	4.35	485.37
67.	Bessie, Abbek. Col. II, H.....	4-1	5	16385	3.07	502.66
68.	Bertha Pont., Jewel, II, H.....	6-5	20	13493	3.52	474.70

(1) 283 days; (2) 302 days; (3) 243 days; (4) 276 days; (5) 257 days; (6) 267 days; (7) 278 days; (8) 295 days; (9) 285 days; (10) 250 days; (11) 273 days; (12) 242 days; (13) 214 days; (14) 293 days; (15) 277 days; (6) 267 days.

Owners of Cows: Nos. 1 and 60, Palo Alto Stock Farm, Palo Alto; 2-17, Adohr Stock Farm, Van Nuys; 18, Dean Beeman, Woodland; 19-20, Berylwood Stock Farm, Hueneme; 21, N. L. Browning, Hemet; 22-24, Burr Farms, Los Angeles; 25-31, J. M. Christen, Martinez; 32-35, D. F. Conant, Modesto; 36, Marguerite Conant, Modesto; 37-39, L. A. Driver, Nicolaus; 40, W. F. Early, Grizzly Bluff; 41-43, El Mirador Dairy, Pasadena; 44-48, Earl Graham, Compton; 49-50, H. G. Gross, Eureka; 51, A. B. Humphrey, Escalon; 52-54, Los Angeles County Farm, Hondo; 55-58, J. Henry Meyer Estate, Watsonville; 59, C. A. Mitchell, El Monte; 61, F. F. Pellissier, Whittier; 62-64, Hugh F. Richards, Denair; 65, H. L. Wakeham, Santa Ana; 66, R. H. Walrath, El Centro; 67-68, Warne & Sons, Holtville.

M. L. Pontoni, grade Jerseys—Klamath, 810 lbs. milk, 55.89 lbs. fat.

H. F. Richards, Jerseys—Victor's Lady Queen II, 856 lbs. milk, 55.31 lbs. fat; Teddy R's Silver B., 731, 50.14.

The reports for November so far received show that 282 cows in milk during the full month produced an average of 716 lbs. milk and 35.44 lbs. butter fat (average number of days in milk at the beginning of the month, 230). The highest producing cow for the month was a pure bred Holstein, Lady Lilith Walker De Kol, owned by Anita M. Baldwin (2116 lbs. milk, 53.58 lbs. butter fat) at 165 days from freshening. Eight cows produced between 60 and 70 lbs. fat during the month.

The prize offered by the California Cultivator for the highest average production by five grades for the month of November, was won by W. F. Early of Grizzly Bluff, Humboldt County. The average production of the five highest grades eligible to compete for this prize was 48.72 lbs. butter fat during the month (average milk 660 lbs., test 7.38%; average distance from freshening, 245 days). The production of the individual cows ranged from 40.2 to 57.8 lbs. butter fat. These cows stood first among similar groups of five grades in 15 dairy herds in different parts of the state that competed for the Cultivator prize the past month. The average production of butter fat for five of the groups came above 40 lbs. during the month, viz., W. F. Early, 48.72 lbs.; M. L. Pontoni, 47.93 lbs.; Peter Iversen, 47.79 lbs.; J. A. Genzoli, 46.90 lbs.; F. F. Pellissier, 43.50 lbs.

The following cows completed the record period of ten months (305 days) in the competition during the past month. They are given in the order of their owners, alphabetically arranged, except for the record cow for the month, which is placed first:

HOG AUCTION SALE DATES

Hog auctions of the California Farm Bureau Marketing Association at Wasco, January 7; Tulare, 10; Visalia, 11; Hanford, 12; Corcoran, 13; Merced, 17; Turlock, 18; Madera, 19; Fresno,

20; Bakersfield, 21; Tulare, 24; Visalia, 25; Hanford, 26; McFarland, 27.

Packers claim sales have improved quality of hogs 100 per cent in the San Joaquin Valley. The association sells only for members of the farm bureaus. Notify sales manager of your consignment five days before sale. Hogs should be in corral before 10 o'clock on day of sale.

Local managers: Stanislaus County, W. J. Norton, Modesto; Merced County, Geo. H. Knott, Merced; Madera County, Henry Webb, Madera, and F. R. Powell, Chowchilla; Fresno County, J. A. Poytress, Fresno; Kings County, L. C. Trehwitt, Hanford; Tulare County, D. H. Scott, Visalia, and Allan Thompson, Tulare; Kern County, H. H. Fowler, Wasco, and T. M. Calvert, McFarland.

BULL BARGAINS

We offer a limited number of high record registered Holstein bulls of excellent type and popular breeding. They are

—Ready for heavy service.

—Out of dams with 700 to over 1,000 pounds butter in one year.

—By sires whose dams have yearly records up to 31,000 and 33,000 pounds milk and up to 1,200 and over 1,300 pounds butter.

There are only a few on hand and at the prices we have placed on them they will soon be gone. If you can't visit our herd, write or wire for description and prices.

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WILLIAMS, CALIF.

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Bulls for Breeders and Dairymen. All our milking females have A. R. O. records. Every calf is out of an A. R. O. dam. All our milking females are on long time test. Only one bull of service age left.

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Workman and Azusa Ave.

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Francis T. Underhill of the
Ortega-Underhill Rancho

Has built up a truly great herd of this breed. He urges all who are interested to visit the ranch.

Thos. T. Dinsmore, Mgr.

SANTA BARBARA, CALIF.

HOLSTEIN Fred Hartsook CATTLE

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One Cause for High Cost of Living

By J. C. Sherer

As from time to time in your excellent publication I note articles on the high cost of living, any one of which sets forth clearly at least one of the causes, please permit me to make a contribution from personal experience.

Some months ago I had a fat cow to sell, an animal that had been brought up "in the family" as it were since calfhood, and had never to my knowledge had a day's illness. I called up one of the big packing houses on the telephone and asked what they were paying for fat cows and was told that the price was from five to seven cents live weight, but that payment could not be made until the animal had been killed and "inspected." I agreed to the terms and sent the cow to the packing house on a truck. The driver brought back to me the weighing receipt showing that the animal weighed 1,200 pounds. Two or three days later I received a check with statement showing that it was for "1,200 pounds at one cent a pound (condemned), \$12; and hide, 40 pounds, at 35 cents, \$14," making a total of \$26 for the animal that I reasonably expected would net me about \$75. I am giving the price of the hide

per pound from memory and may be in error there, but the total for the hide was as stated. I went to the packing house to investigate and was courteously received and shown from one person to another but was unable to see the inspector, who was absent. I did, however, see his report for the day the animal was killed. It showed that on that date there had been three animals condemned in the establishment, two for tuberculosis and one for pyorrhea, only that and nothing more, no identifying description of any kind.

Then I wrote to the inspector and received a reply from him stating that on the date named there had been three animals condemned, but that none of them was tagged and therefore he could give no particulars. This ended my investigation as I saw no encouragement in continued efforts to get satisfaction. Now I am not saying that the animal I sold was in perfect health; but all outward evidence pointed to that conclusion. She had been tuberculin tested a short time before. But I do not believe the animal was diseased, and if in this particular case I was not swindled, it was

not because it would have been difficult for the inspector and the packing company to have got away with it. It is disgraceful that the United States government should maintain a system of inspection that provides no protection to the seiler of livestock while making it easy for dishonest inspectors and packing house managers to rob the producer by the use of means which the government seems to have provided them.

And while on the subject allow me to give another instance from personal experience. About the time that the Cudahy Packing Company began business in Los Angeles, some 25 or 30 years ago, I sold to Sam Maier on Spring Street, in that city, a hog for which he paid me at the rate of seven cents a pound live weight. In 1912 I sold to the packing company a hog similar in size and quality and received seven and a half cents live weight, an advance of half a cent per pound in a period during which the retail price of pork had doubled.

Facts of this character go far towards explaining why the consumer, even before the war upset values, was paying too much for many articles of daily use. There is no longer any inducement for the raising of livestock on the small farm with the market hedged round with all sorts of devices to make it difficult for the producer to get a fair price for his product, or in other words, to get a square deal.

OBSTRUCTION IN TEAT

There have been many queries as to garget conditions, inflammation of udder, obstruction in teat, etc., so we quote three paragraphs touching upon the latter from "Diseases of Cattle."

Blocked by Concretion of Casein

Under unhealthy conditions of the gland or milk ducts clots of casein form which, pressed clear of most of their liquid and rolled into rounded masses, may block the passage. They can be moved up and down by manipulation of the teat, and if they cannot be pressed out they may be extracted by using the spring teat dilator, being held surrounded by its three limbs. Before extraction is attempted an ounce of almond oil, boiled, should be injected into the teat.

Blocked by Calculus

When the calcareous matter of the milk has been precipitated in the form of a smooth, rounded stone, a rough, conglomerated concretion, or a fine, sandlike debris, it may cause obstruction and irritation. These bodies are felt to be much harder than those formed by casein, and the milk usually contains gritty particles. Extraction may be attempted, in the case of the finely divided gritty matter, by simply milking or with the spring dilator in the case of the larger masses. Should this fail the teat may be laid open with the knife and sewed up again or closed with colloidion, but such an operation is best deferred until the cow is dry.

Blocked by Growth

In this case the obstruction may be near the orifice of the teat or farther up, and the solid mass is not movable up and down with the same freedom as are concretions and calculi. The movement is limited by the elasticity of the inner membrane of the teat from which it grows, and is somewhat freer in certain cases because the growth has become loose and hangs by a narrow neck. In the case of the looser growths they may be snared by a fine spring wire passed as a loop through a fine tube (like a teat tube open at each end) and introduced into the teat. When this cannot be done, the only resort is to cut in and excise it while the cow is dry.

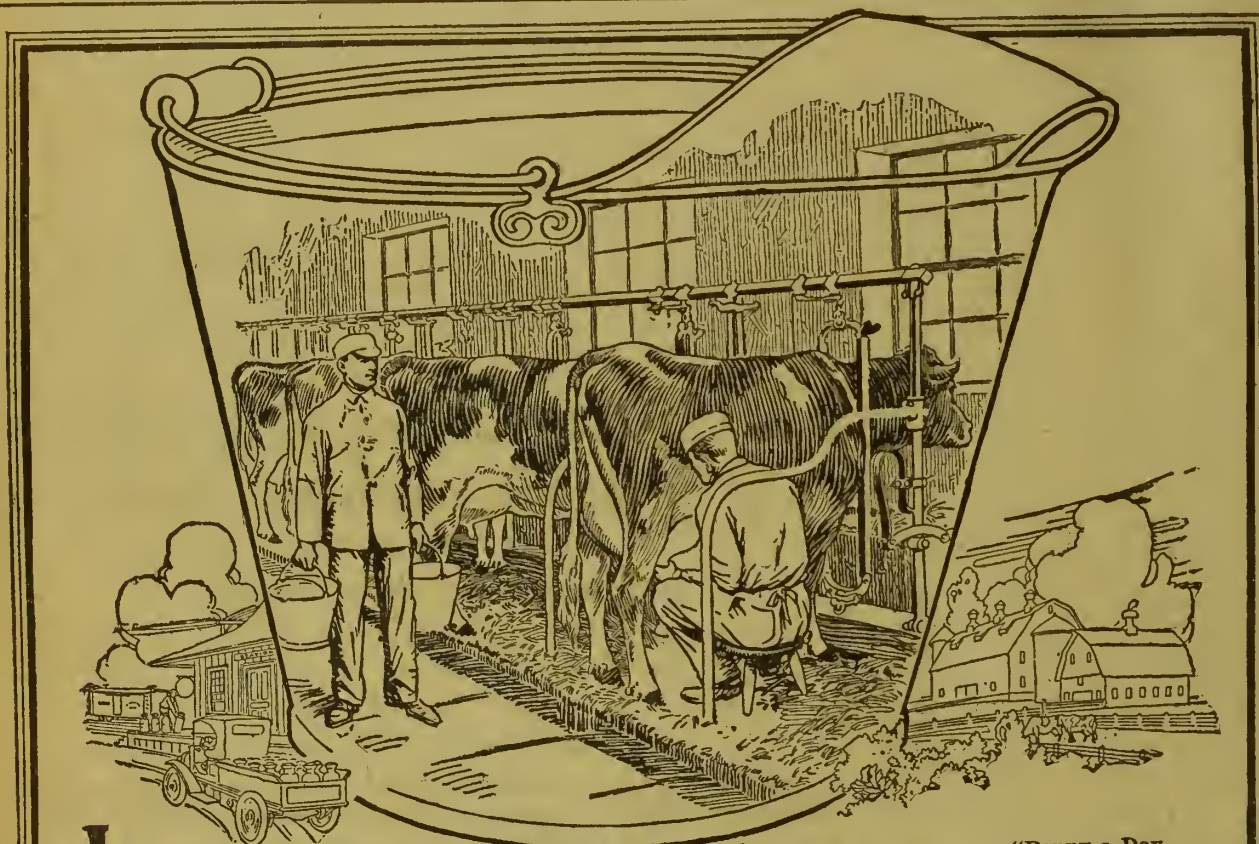
Livestock News Notes

V. F. Dolcini, June Acres Stock Farm, Davis, has announced a public sale of Duroc-Jersey bred sows and gilts to be held at Davis, February 9, the day following the association sale. Dolcini will offer at that time about 35 head and will feature the get of his herd boar, Choice Wonder 3d, grand champion at the 1920 state fair, part of which will carry the service of his son of Pathfinder.

The annual sale of the California Duroc-Jersey Breeders' Association will be held at the university farm, Davis, February 8. The offering will be made up of high class consignments from the leading herds of the state and will afford California farmers an exceptional opportunity to enter the hog business at a time that was never more favorable.

The first Duroc-Jersey sale of the 1922 season has been scheduled by Witherow and Stafford, Green Wood Farm, Live Oak. The sale will be held at the farm on January 26. The owners of this herd are recognized as among the most conservative swine breeders in this state and it is a foregone conclusion that they will present an offering that will represent most dependable Durocs.

R. C. Sturgeon, Tulare, recently sold sixteen registered Holstein heifers to T. B. Pearson of the same place. Many of these are daughters of Segis Pontiac Abbecker, a 35 pound son of Segis Pontiac De Kol Burke. Following the sale of the heifers Mr. Sturgeon sold to H. G. Ball, Tulare, the outstanding young sire, King Tola Korndyke Pontiac, who is by King Korndyke Pontiac 20th and out of K. P. Tola, the noted 36 pound daughter of King of the Pontiacs. Mr. Sturgeon states that he intends always to have a registered Holstein or two around, but that his duties as vice president of Farmers State Bank absorb so much of his time that he felt



Increased Milk Production —and a better grade of milk

MORE and richer milk is well worth trying for. It means more money on the profit side of dairying. And it is far from being just a dream. In every herd there are certain cows that are not yielding up to capacity, just because of some reduced vitality of genital or digestive organs—some sluggish condition of the milk-making organism that proper medicinal aid would quickly correct.

It is just such conditions—very common to hard-worked milch cows—that Kow-Kare is able to clear up; because this famous cow medicine has properties that act directly on the organs of production and reproduction, making them function as Nature intended. Besides effectively preventing the ailments that make cows unprofitable, Kow-Kare has a nation-wide reputation as a reliable remedy in the treatment of Barrenness, Abortion, Retained Afterbirth, Scouring, Bunches, Milk Fever, Loss of Appetite, etc.

Play safe; know what to do when a cow is sick. Send for our free book on cow ailments, "The Home Cow Doctor." It tells the right treatment for various ailments, and has a wealth of information valuable to cow owners.

Kow-Kare is sold by general stores, feed dealers and druggists, at the new reduced prices—65c and \$1.25.

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compelled to dispose of most of his cattle at present.

Several more good records have re-



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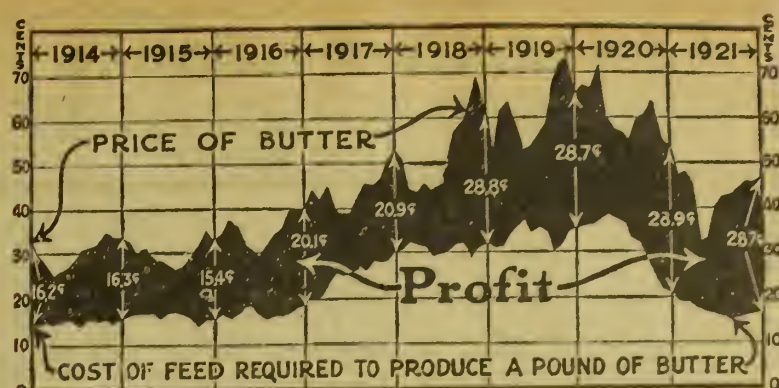


cently been completed in the big herd of registered Holsteins owned by Frank M. Helm, Fresno. Leila Korn-dyke Hengerveld made 29.53 pounds butter from 515 pounds milk, increasing her former record of 27.05 pounds butter in seven days made as a senior three year old. Helm Lady Fayne Mead, a first calf daughter of King Hiske Mead, made 22.76 pounds butter from 420.6 pounds milk in seven days. Helm Pontiac Walker, a first calf daughter of Prince Juliana De Kol Walker, made 22.96 pounds butter from 410.7 pounds milk in seven days. The full age cow, Kathrina De Kol 3d, has in her first seven days 25.48 pounds butter from 529.8 pounds milk. There are close to 40 head of promising females moving up toward the test barn for the first season of official testing in this herd, and Herdsman Harry Redd will have his hands full from now on as a large number will be continued on yearly test.

Acting for Max Mamlock, who recently purchased the herd of registered Holsteins owned by E. A. Gammon, Hood, V. P. Snow recently purchased a high class young herd sire from Fred W. Kiesel, Sacramento, owner of Jane Garden Farm. This young sire, Jane Garden Orlando Korndyke, is sired by the famous Sir Aaggie De Kol Acme, son of the world's official yearly butter producer, Aaggie Acme of Riverside 2nd, and is out of Helen Nye Skylark, that made 28.02 pounds butter in seven days as a senior three year old, and was one of California's choicest individuals. Her sire, Buffalo Skylark Ames, was junior champion at 1909 National Dairy Show, and is by a half brother to the sire of Spring Brook Bess Burke 2nd, one of the breed's outstanding yearly producers and foundation dams. The price of \$2500 paid for this youngster places him among the California price leaders for the 1921 season.

When W. J. Higdon, Tulare, sold off all of his mature registered Holsteins at public sale in May, 1920, he established a new high average for an individual breeder's sale in California, his 50 head averaging right at \$1000 per head. It was an outstanding offering of females headed by King Korndyke Pontiac 20th, who sold for \$12,000 in the same sale. The prices give some indication of the quality of the females and the herd sire, and when the sale was over Mr. Higdon had left as the nucleus for another herd about 25 daughters of King Korndyke Pontiac 20th out of the great cows that he sold. These are just now coming into milk, and Mr. Higdon is himself back on the job milking the ones he now has on official test. Among the first to finish seven day records as two year olds are Pearl Segis Burke Pontiac, that made 19.78 pounds butter from 429.8 pounds milk; Miss Heringa Pontiac that made 17.05 pounds butter from 388.1 pounds milk; and Lady Pontiac Holingen Jewel 2nd, that made 17.19 pounds butter from 349.3 pounds milk. A remarkable thing about the last named heifer is that she came in with two blind quarters and made her record out of half an udder, milking as high as 56 pounds in one day. Another daughter of King Korndyke Pontiac 20th, the heifer Korndyke Creamcup, purchased by Mr. Higdon in the last guaranty sale, is making an excellent yearly record. She has now been in milk nine months as a junior two year old and has made right at 70 pounds butter each month for the past two months and is now milking 60 pounds per day. None of these heifers were highly fitted or crowded as they will all be continued on yearly test.

Louise Alcartra Prilly, a junior two year old daughter of the four times grand champion bull, King Segis Alcartra Prilly, has just completed a record of 23,100 pounds milk from 865.02 pounds butter in the Bridgford Holstein Co. herd at Patterson. Several of her first calf half sisters are on the way to large yearly records, among them being Bessie Veeman Alcartra Prilly, that promises to annex the senior two year old yearly milk record by a wide margin.



(Compiled from U. S. Government statistics)

Look at this diagram!

It shows just how profitable the production of butter or butter-fat has been since 1914, and that it pays just as big today as ever.

The top line of the black area shows the price of butter, while the bottom line shows the cost of feed required to produce a pound of butter. The thickness of the black area then shows the spread between cost of feed and price of butter—or the net profit. For example, near the end of 1921, feed to produce a pound of butter cost 16.9 cents; butter sold for 45.7, leaving a difference of 28.8 cents per pound, or 170% profit.

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Walter Hogan Stock White Leghorn Chicks. December and January chicks come from Winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. Lyon Hatchery, Gardena, California.

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Ours pay. Hens tested and mated for egg production. R. I. Reds, Barred Rocks, Black Minorcas \$20.00 per 100. White Leghorns \$17.00. Expressage prepaid on January and February deliveries. Box 9, Denton Poultry Yards, Campbell, Cal.

White Leghorns—Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder "Secret of Success." Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.

Baby Chicks—From the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. The White Leghorn Hatchery, Pomona, California.

Baby Chicks from my carefully selected flock of pure-bred S. C. White Leghorns. I am accepting orders now for spring delivery. Make your arrangements early and write for prices and particulars now. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.

White Leghorn Baby Chicks from heavy laying stock. Booking orders now for spring 1922 delivery. Safe arrival live vigorous chicks guaranteed. Prices on request. Reliable since 1898. MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.

S. C. White Leghorn baby chicks from our own bred-to-lay stock. Now booking for January to July delivery. Breeding cockerels for sale. Model Poultry Farm, W. C. Smith, prop., Corning, California.

Baby Chicks—Single Comb White Leghorn Only. These are certified chicks from inspected flocks, approved of by Alameda County Farm Bureau, Poultry Department. Castro Valley Hatchery, Hayward, California.

White Leghorn Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. Pioneer Hatchery, 409 Sixth St., Petaluma, California.

White Leghorn Hatching Eggs and Chicks—Stock trapnested 18 years for vitality, production and persistency, circular sent free. Bonnie Brae Farm, Burbank, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Volden, Los Gatos, California.

Anconas, Our Sixth Year—Cockerels, single birds, \$3.50 and \$5.00. Satisfaction guaranteed. A. S. Wilkinson, Winton, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

POULTRY

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guinea \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. VENTURA: First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

Baby Chicks—Barred Rocks, R. I. Reds, and White Leghorns. All our chicks are from Hoganized stock. Prices: Rocks and Reds, \$20 per 100; Leghorns, \$17; delivered to you by parcel post, prepaid. Safe arrival guaranteed. Write for circular. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

ROUND WORMS IN POULTRY Expelled by "Impeco Brand" Tobacco Dust. Recommended by your University Experiment Station. Ratio: 1 pound "Impeco" to 50 pounds dry mash. Free literature on request. International Milling Company, 814 Montgomery Street, San Francisco, California.

Baby Chicks, Hatching Eggs, from Ho- ganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Penn's Quality Barred Ply. Rocks and Ferris heavy-egg-type White Leghorns. Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. GOLDEN RULE POULTRY FARM, Porterville, California.

Chicks, Eggs — Hoganized White Leg- horns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebble- side Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chix from mature White Leghorn hens mated to cockerels from mothers trapnesting 240 eggs and better in pullet year. Also Barred Rocks and R. I. Reds. Hawleys Hatchery & Poultry Farm, Route A, Box 315A, Lodi, California.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Baby Chicks—Barred Rocks, Rhode Isl- and Reds, Single Comb White Leghorns. Book your orders now for January and later deliveries, from our own stock. E. A. FISCHER POULTRY RANCH, Route 2, Compton, California.

Baby Chicks "well hatched are half raised." Petaluma Incubators produce that kind. They have lots of "Pep." We supply chicks. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Hatching Eggs—We are now booking or- ders for Eggs from our well selected and mated heavy laying stock S. C. White Leghorns only. Pine Tree Poultry Farm, Los Gatos, California.

Book Orders for Baby Chicks from R. I. Reds (Owens Farm), White Leghorns and Anconas; also official strain of White Rocks. Los Angeles, R.F.D. 1-958. Phone Garvanza 1941.

Single Comb White Leghorn Eggs for hatching. Wyckoff-McFarland strain. \$7.50 hundred. Garmac Ranch, Rt. 1, box 382, Gardena, California.

Los Gatos Hatchery solicits your order for purebred W.L. Chicks 6 weeks pullets, laying pullets. Vigorous heavy laying stock. Shannon Station, Los Gatos.

Hatching Eggs from well Hoganized Wal- ter Hogan strain White Leghorns. Will run 96% fertile. \$1.50 for 15 or \$3.00 a 100. C. M. Bradford, Hemet, California.

White Leghorn Pullets for sale. Three thousand three months old January 4th. Elmer E. Thompson, R. 1, Box 173, Petaluma.

Baby Chicks—Thoroughbred White Leg- horns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$3.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2.

Langshans Purebred—Eggs \$2.50; Stock \$2.50. Francis Rudkin, Fillmore, Calif.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

POULTRY

Profitable Poultry: For 20 years our reasonably priced chicks from 180-290-egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, ducks, have made foundation flocks and filled repeat orders for hundreds. Reasons: Superior vigor, size, winter laying, profit. Chicks for delivery any week, booked January below pre-war prices. Profitable Poultry, 13 North Fair Oaks, Pasadena.

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.

Brown Leghorns, superb matings, utility or exhibition, hatching eggs, settings or 100's baby chicks, small select lots or hundreds, breeding birds, cockerels at attractive prices. Sun Crest Poultry Yards, Box 115 Boston Avenue, San Jose, Calif.

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. B A B Y CHICKS. Fairmead Poultry Farm, Fairmead, California.

Pure Bred Andalusians, pullets and cock- erels for sale. Eggs \$3.00 for 15. Mrs. John Woolery, Loma Linda, California, Box 145.

FARM LAND FOR SALE

WE WANT "GO-GETTERS"

Sutter Basin is ready for "Go-Getters." It is a practical farming project in crops today. Deep, rich soil with irrigation and drainage system, river and rail transportation. In the heart of the Sacramento Valley. Very liberal terms to men who know how and will work. Write today. Sutter Basin Company, California Fruit Building, Sacramento.

Avocados—42 acres, frostless belt. Abun- dant water at low cost. Fine orange and olive grove, Riverside County, \$800 per acre. Ten acres alfalfa, Fernando Valley, near Blvd., \$5,500. C. M. Jay, 718 Washington Building, Los Angeles, California.

Farmers, Attention—Literature, newspa- pers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Fryer, Colusa, California.

For Sale—Dairy, 20 acres, fully equipped, 23 cows, fine buildings, plenty water, milking machine, silo, leased for oil, cheap. Route 3, Box 28, Santa Ana.

For Sale—One acre up, any quantity; plenty of water, terms. Yours for a square deal. W. E. Speer, Manteca, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

DUROC-JERSEYS

Weanling Boars and Glits by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glits. Derrysfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs — Moderate prices on bred glits and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Boyana Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harold, Dixon, California.

Big Type Durocs—Better Durocs at right prices. Harvey M. Berglund, Dixon, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

BERKSHIRES

Berkshire Glits—Bred for late spring lit- ters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred glits and young boars priced to sell at once. Young stock either sex, for sale at all times. Russell Bros. Hanford California.

HAMPSHIRE

For Sale—Full blood Hampshire Swine— 2 service boars, 3 breeding sows and open glits (some of the finest blood lines). Eagle Ranch, Atascadero, California. John Graham.

WANTED

Wanted — Commercial orchard pruning. Work guaranteed. For rates address W. I. SCIBERD, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656W.

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

Wanted to Buy—Any kind of dried fruit, honey or walnuts. Mail samples to W. A. Collins Co., Box 397, Santa Ana, California. Phone 71.

Wanted—Walnuts Meats and cull wal- nuts. We solicit culls for cracking only, paying cash. Fred L. Mitchell & Son, 214 French St., Santa Ana, California. Phone 551-M.

Cash Buyers want Western farms. Will deal with owners only. Write R. A. McNow, 370 Wilkinson Bldg., Omaha, Neb.

Wanted—400 Splendor prune trees on Peach or Myro root. M. Sharpe, Vacaville, California.

HORSES

For Sale: Registered imported French Percheron stallion. J. W. Proctor, Hughson, California.

SEEDS AND PLANTS

ROOTED VINES

For Sale — Alicante Bouchet, Malaga, Thompson Seedless, Zinfandel and Emperor rooted vines. These vines are guaranteed A No. 1, true to name, certified and from clean producing vines. We are also looking orders for cuttings. CHAPMAN & SON, Modesto, California. P. O. Box 906, Phone 663.

For Sale—Seedless Thompson Malaga Muscat and Almeria (Ohanes) grape rootings. Cuttings came from the finest vineyards of Tulare County and guaranteed to be A No. 1. Write for prices per thousand lots. J. Murray, 7050 Kester Ave., Van Nuys, Los Angeles County, California.

Hubam Clover Seed: Recleaned, scarified. Certified Iluban clover seed for sale. Direct from grower to you. Give it a trial as a cover crop or for feed. I secured a wonderful growth this last year and believe it to be the coming cover crop for the Pacific Coast. O. E. Lambert, Route C, Box 226, Modesto, California.

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address George Forest, Standish, California.

Hairy Peruvian Alfalfa Seed: Each sack certified as coming from officially inspected fields. Planting season now at hand. Samples, prices, government statistics, etc. cheerfully furnished upon application. E. F. SANGUINETTI, YUMA, ARIZONA.

Raspberry Snell Has It—The wonderful Giant everbearing Red Raspberry La France. Many of the berries are one inch in diameter, delicious flavor. Order your plants now from Ralph L. Snell, Mountain View, California.

Seeds and Plants—Grape vines (rooted) strictly first class, one year No. 1 Thompson Seedless, Muscat, Sultana, Flame Tokay, Cornichon and other varieties. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

First Class Klondike Watermelon Seed for sale by grower. This seed is not mixed as I raise only one variety. Also 100 lbs. of famous Indiana cantaloupe seed. A. E. Wilks, R. F. D. 1, Box 137, Downey, California. Phone 713.

Strawberries six months in the year: Plant Everbearers, Superb, Progressive, \$2.00 hundred. EVERBEARING RASPBERRIES, six \$1.00, inspected. Apple Blossom Nursery, Route 6, Seattle, Washington.

Try our fine Black Raspberry—Grapes of all kinds, berries, thornless; tree, everbearing straws and blacks, fruit trees, etc. Delv. now. J. L. Lawson, San Jose, 1946-R.

For Sale—Millions of tomato, pepper, ru- barb, pansy and other plants at reduced rates if ordered in time. L. C. Johnson, Gardena, Cal. Spanish American Institute.

Cory Thornless Blackberry—Large vigor- ous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write Chas E. Mortensen, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. Wm. Mortenson, Route 1, Lodi, California.

Banner Strawberry Plants — Mountain grown, heavy bearers, \$2.50 per hundred, \$12.00 per thousand. Special prices for large plantings. A. L. Emery, 550 Kingsley Ave., Palo Alto, Cal.

400,000 Rootings, Thompson, Malaga, Em- peror, Muscats, Sultana and Cornichon and cuttings, also wine grape cuttings; 4 kinds of alfalfa seed. Box 501, Fowler, Cal.

For Sale—Brandywine Strawberry Plants, fifty cents per hundred, postage extra. E. A. King, West Fourth Street, Riverside, California.

Cory's Thornless Blackberry—10,000 se- lected, well rooted tips. Write us or call. Sylvan Nurseries, Lincoln Highway, Roseville, California.

Cory's Thornless Blackberry Plants, extra fancy, 15c each or rates by the thousand. Corner Ingewood Ave. and Arborvitae, Ingewood, California. C. C. Bryson.

Alfalfa Seed — Certified Hairy Peruvian, Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Garlic—For sale, good large, fresh garlic sets, per pound 15c. Orders of 100 lbs. or more postpaid. C. J. Baden, Garden Grove, California.

Strawberry Plants, Harris and Gold Dol- lar, 60c hundred, \$4.00 thousand. D. R. Bannister, Oakdale, California.

Strawberry Sugarloaf, Nothing like it! Plant now; 25, \$1.00; 100, \$3.00. Jno. F. Horsley, Upland, California.

Seed from Fine Papayas, 25c per ounce, postpaid. Box 144, Brownsville, Texas.

ROOFING MATERIAL

Save Your Roof for 15c a gallon with Asphaltoid. Direct from producer to consumer permits this low price of 15c a gallon. The finest roofing and preservative paint under sun. This is a natural product—why pay more for acid treated asphalt that eats your roof? Mail orders, barrel lots promptly shipped. Equally good for shingle, paper or metal roofs. Woolner Oil Co., 4th and Commonwealth, Los Angeles.

Roofing Paper— Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20.

Lead and Oil Paint.....\$2.20 a gal.

Roof Paint Special.....35c a gal.

Prompt Deliveries on Mail Orders.

ANGELUS ROOFING & PAPER CO.

764-766-768 So. San Pedro Street,
Phone Bdway. 5401. Los Angeles, Calif.

TREES

Fruit Trees—Walnut Trees grafted on Northern California black. Eureka, Placencia, Perfection, Chase, Payne, well rooted, strictly first class. Royal apricots on apricot roots, Tuscan and Sims Cling peaches, Hachiya Persimmon, locally grown on Lotus roots, extra fine stock. Phone 692. Los Nietos Valley Nursery, Downey, Cal.

Thousands of choice homegrown selected budded walnut trees, 50 cents and up according to height, also everything else that grows in Southern California in trees and shrubbery for sale, reasonable. We have what you want. Snyder Nurseries, Box 74, Burbank, California, 721 W. San Fernando Road. Telephone 122J

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVELE, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

For Sale—Placencia Perfection and Eureka grafted walnut trees. Prices 1-3 off from last season. Our stock is grafted from choice grafted orchards. See our stock before buying. The Walnut Nursery, Whittier, California. Phone 6294.

For Sale—Walnut Trees—Erhardt and Placencia grafted on Northern Black Root—4 to 6 feet high, \$1.00; 6 to 8, \$1.25; 8 to 10, \$1.50; 12-14, \$2.00; Erhardt, 8-16, \$2.25; 10-12, \$2.50. Borley and Wilkins, Puente, California. Phone 162.

Nursery Stock at bargain prices. Prune 10c each; grafted walnuts \$1.00 each; pears 20c each; Black caps \$20.00 per 1,000; other stocks at bargain prices. Submit your want list, and send for planters list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—One and two year old citrus stock budded with "Supply Co. Buds." We have also all commercial varieties of deciduous. Now is the time to order. F. A. Tetley and Son, 415 W. 8th St., Riverside, Calif.

For Sale—Hachiya Persimmon Scions from best of 300 proven trees. Nursery is sold out, but will reserve for 22-23 season. Sherwood Persimmon Nursery, Box 236, Fullerton, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Cal.

For Sale: Valencia Late, Washington Naveles, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

For Sale—ATHEL OR EVERGREEN TAMARIX. Best tree for immediate windbreak and shade in hot dry localities. Leonhardt Swingle, Indio, Cal.

Sampson Tangelo and Dwarf Chinese Lemon; the two best citrus products ever introduced. Coolidge Rare Plant Gardens, Pasadena, California.

For Sale—Walnut Trees. Placencia Perfection and Eureka, grafted on black root. La Puente Walnut Nursery, Puente, California. Phone 103.

I want 100,000 Sour Orange Seedlings, Dorton's Southwest Nurseries, Harlingen, Texas.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal

For Sale—One and two year old Wonderful Pomegranate trees. Fine stock. J. W. Irwin, Lindsay, California.

For Sale—California Black Walnut seedlings, 1-3 feet. Ripon Nursery Company, French Camp, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena. Trees—All kinds cheap. Send list for prices. Sebastopol Nursery.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords: Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Extra Good Shorthorn Bulls ready for service. Red and Roans, well grown and priced to sell. Come and see them. Howard Vaughn, Dixon, Calif.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

TURKEYS

TURKEY EGGS

To prospective turkey raisers for 1922 we wish to announce we are in the field again this year with the best bunch of breeding stock we have ever had. Comprising 150 fine Mammoth Bronze hens and 12 Toms (¾ wild); will furnish you all the eggs you want after March 1st at 25 cents each. We have a new mating system and will give a written money back guarantee of 90% fertility. A deposit of 5 cents per egg must accompany your order. We are booking orders now and thank you in advance for your patronage. If interested preserve this ad—this is all we are going to say about it. C. P. Emerson, Gardena, California. Phone 469.

Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Mountain Farm, Calistoga, Cal.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, \$1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Mammoth Bronze Turkeys—Stafford strain Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2, Box 129, Bakersfield, California.

Mammoth White Holland Turkeys—Choice hens and toms from our famous breed of large vigorous turkeys, improved by Eastern stock. Earl V. Smith, Loma Vista Ranch, Willows, California.

Pure Bred Bronze Young Toms, \$15.00; young hens, \$10.00. Pure bred S. C. Buff Orpington cocks, \$5.00 each. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

For Sale—Wild Turkeys—Best, cheapest, most certain and indispensable producers. Cash deposit secures stock or eggs. Blanche Dresser, Tulare, California. Route C, Box 194.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

MACHINERY

For Sale—Some rare bargains in gas engines and electric motors. 15 H. P. F. Oos, \$150; 18 H. P. Oids, \$185; 16 H. P. Model, \$175; 12 H. P. Western, \$150; 10 H. P. Weber, \$75; 10 H. P. Otto, \$125; 12 H. P. P-M, \$150; 60 H. P. 4 cylinder, \$150; 35 H. P. Western, \$375; 25 H. P. G-E vertical motor, \$225; 1½ H. P. F-M, \$115; 10 H. P. Westinghouse, \$150; 15 H. P. G-E, \$175; 5 H. P. Westinghouse, \$90. All above in first class running order and many more of different sizes and makes too numerous to mention. Also boilers, deep-well and centrifugal pumps, drilling rigs, air compressors, pipe, etc. W. D. Anderson, San Bernardino, Calif. Phone 75.

For Sale: Union Tool Tractor, used 365 days. Killefer 28 Disk, Killefer 18 Cultivator and 3 Disk Plow, all in first class condition. Will sell at a bargain as I will discontinue using them in orchard, being too heavy. Ira P. Bradley, Covina, California. Phone 798.

Priced for immediate sale: 45 H. P. Holt Caterpillar, three bottom (14 in.) Oliver No. 31 plow, trap wagon with 500 gallon galvanized tank, two 8 ft. Clarke double discs. All in good condition; will sell separately. M. B. Reece, Reseda Blvd., 1-2 mile south of Zelzah, San Fernando Valley.

For Sale—\$500, I. H. C. 8-16 Tractor, used 60 days and is in perfect order; extra good grousers and 75 ft. new belt. Can be seen at 216 E. Market St., Los Angeles. Owner at 437 W. 62nd St. Phone Vermont 588. F. J. White, Los Angeles.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

For Sale—One C. L. Best 12-25 Tractor, in fine shape. Might take as part pay span of good mules or horses. Terms to responsible party. Address Box 299, Sawtelle, California.

For Sale: 10 H. P. gas engine with 6-in. plunger pump. \$250. R. MATSON, Redondo Beach, R. D. 1, California.

Case 10-18, Late Model. Absolutely sound. Inquire 1957 South Los Angeles Street, Los Angeles.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

DUCKS

Mammoth White Pekin Duck Eggs for hatching, \$1.00 per dozen. A. Surtman, Petaluma, California.

GUINEA PIGS

Guinea Pigs for Sale: 50c a pair. Smith, 401 Sacramento Street, Pasadena.

BEES

For Sale: 80 Colonies of Bees in two story hives with full equipment. Best location in Imperial Valley. For full particulars write J. E. Beck, 1244 A Street, San Diego, California.

MISCELLANEOUS

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Powerene—County Rights Free. It equals gasoline at 6c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Hemstitching and Picoting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Krukeberg Press, 236 Court St., Los Angeles.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT. Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatery, El Monte, California.

HOUSEHOLD QUERIES

(Continued from Page 13.)

Irish Potato Cake.—Cream 1 cup butter with 2 cups sugar, add 1-3 cup sweet milk, 4 well beaten eggs, ½ cup cocoa, 2 cups flour sifted with 2 teaspoons baking powder, 1 cup mashed potatoes seasoned as for table use, 1 cup walnut meats slightly salted, 1 teaspoon vanilla extract and ½ teaspoon cinnamon. Mix in order given and bake in loaf or layers. Ice with caramel icing.

Caramel Icing.—Two cups brown sugar, ½ cup sweet milk, ½ cup butter. Boil 5 minutes; remove from fire and beat until creamy. Flavor with vanilla.

Doughnuts

Wish you would kindly publish a recipe in the household column for making good doughnuts.—Subscriber, Livermore.

We are sending this inquirer copy of Cultivator of March 26, 1921, containing six recipes for raised doughnuts sent in by our household readers. We print two other good ones:

Crullers.—Take 2 eggs, 2 small cups white sugar, pinch salt and 4 tablespoons melted lard; beat all well together. Stir into 1 pint buttermilk 1 heaping teaspoon soda until it foams; mix all together with sufficient flour to make a soft dough. Work out flat with palms of hands, cut into shapes and fry in hot lard. Roll into a mixture of powdered sugar. These crullers will melt in the mouth if not mixed too stiff in kneading.

Mashed Potato Doughnuts.—Four large potatoes mashed fine, 2 cups soft white sugar, 3 eggs, 2 tablespoons butter, heaping; 1 cup sweet milk, pinch salt, 4 teaspoons baking powder. Add sufficient flour to knead stiff. Roll very thin and bake quickly in hot fat. These cakes puff up very light and soft.

POTATO PANCAKES

Cook 3 large potatoes, peel and mash fine. Measure and place 2 cups mashed potatoes in mixing bowl and add 2 cups flour, 1 teaspoon salt, 4 teaspoons baking powder, 1 egg, 4 tablespoons milk. Mix to smooth dough, roll out ½ inch thick; cut and brush tops with milk. Bake in hot oven 18 minutes.

FEDERATION OF CALIFORNIA LIVESTOCK MEN UNDER WAY

A need has long been felt for an organization to coordinate the forces of all classes of livestock owners in California, and a movement toward that end is now under way. At a meeting of representative livestock men at University Farm, Davis, on December 30, in connection with plans for the annual Stockmen's Week in February, the idea of such an organization was suggested by Frank N. Bullard, one of California's most constructive breeders and a member of the firm of Bullard Bros., Woodland, whose Ram-bouillets are world famous. The idea met with ready approval and a committee of seven was named to perfect the preliminary details of organization.

The committee consists of C. L. Hughes, Sacramento, chairman; Frank N. Bullard, Woodland; Wm. Briggs, Dixon; J. I. Thompson, Davis; Thornton S. Glide, Davis; Frank L. Morris, Woodland; C. B. Cunningham, Mills. The organization of the various livestock interests into one central body makes admission of the fact that the livestock owners of California heretofore have not been in position to act in unison and with force in matters affecting their interests, a condition which the federated body will hope to correct.

HEREFORD ASSOCIATION SALE FEBRUARY 21

Plans for Stockmen's Week at the University Farm, Davis, are nearing completion, and in the assignment of dates for various events the regular semi-annual sale of registered Herefords by members of Pacific Coast Hereford Cattle Breeders' Association was set for 1 p. m. Tuesday, February 21. This sale will inaugurate the selling of registered beef bulls in California in lots to suit carload buyers, and the consigning breeders will attempt to present a class of bulls suitable for range service as the bulk of the offering, while a number of herd heading caliber will also be included. There will also be around 25 registered cows and heifers in the sale list. California Breeders' Sales and Pedigree Company, which will manage the sale, reports that 12 representative breeders have already offered a total of 51 bulls and 22 females. Entries for the sale will close promptly on January 10, and not more than 15 head above the number already offered can be accepted.

LIVESTOCK NEWS NOTES

(Continued from Page 17.)

Bridgford Holstein Company, Patterson, has added another to California's list of 1,000 pound cows, Netherland Pontiac of Greenbank having finished a 365 day record with 1,016.2 pounds butter from 24,425 pounds of milk as a five year old. She is sired by King Pontiac Pieterje Pontiac, twin brother to King Korndyke Pontiac, former herd sire in Fred W. Kiesel's herd at Sacramento.

The seventh junior two year old daughter of the famous sire, Sir Ormsby Skylark, to make over 19 pounds butter in seven days recently completed her record at Maxwell Farms, Hollywood. This heifer, Miss Sunshine Ormsby Skylark, freshened at two years five months and made 23.10 pounds butter from 437.4 pounds milk in seven days. Manager Jack Klein calls attention to the fact that this is the second highest junior two year old record for a daughter of Sir Ormsby Skylark.

King Segis Alcartra Prilly, the four times grand champion bull owned by Bridgford Holstein Company, Patterson, is taking a new and more prominent position in the breed's limelight in California due to the remarkable official records his daughters are making in both short and long time tests. He celebrates the passing of 1921 by contributing a 31 pound daughter to the production lists, his first 30 pound heifer. This daughter, Jessie Fobes Segis Prilly, a second calf senior three year old, has just made 31.58 pounds butter from 466 pounds milk in seven days.

Several new official records have lately been made in the Frank M. Helm herd at Corcoran. Katrina De Kol 3d increased her previously noted record to 26.18 pounds butter from 577 pounds milk in seven days. Helm Lady De Kol Walker, a junior three year old daughter of Prince Juliana De Kol Walker, made 18.35 pounds butter from 390.9 pounds milk in seven days. Princess Pauline Beets, a full age daughter of Crown Prince Segis, made 22.32 pounds butter in seven days. Victory Lorna Korndyke, a senior two year old, made 19.52 pounds butter from 446 pounds milk. The last named heifer is by Sir Piebe De Kol Segis Pontiac, son of the noted King Segis Pontiac Count, and is out of Leila Korndyke Hengerveld, that recently made almost 30 pounds butter in seven days in the Helm herd.

Stifel's Indigo Cloth

Standard for over 75 years



No work that you farmers do is too rough for clothes made out of Stifel's Indigo Cloth.

All Overalls, Jumpers and Work Clothes made of this cloth last longer, wash better and keep their "looks."

See that you get it. Look for this boot shaped trade mark stamped on the back of the cloth.



Garments sold by dealers everywhere—
We are makers of the cloth only.

J. L. STIFEL & SONS
Indigo Dyers and Printers
Wheeling, W. Va.
260 Church St., New York, N. Y.

La Habra Heights

Higher and Adjoining East Whittier and La Habra Districts

3,600 acres pronounced by experts the ideal location for avocado and citrus planting. Protected from frost and wind in combination with good soil. Nearly \$250,000 spent on irrigation plant, roads and other improvements. An avocado grove located in our property will be one of the most favorable orchard investments from the standpoint of the net returns that could be desired, as well as the extremely choice location for a country home.

Any acreage desired. Low prices. Reasonable terms.

We also specialize in choice Southern California walnut, orange, and lemon groves. Suburban property.

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Make Contract for 1922

Trees planted and guaranteed on Contract

Can supply A-1 budded citrus stock one and two years old, wholesale or retail, in any quantity.

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Florida Sour Seed Bed Stock for sale.

Make our Nursery a visit and see what we have.

Established 15 years.

Yamamoto Citrus Nursery

Ranch—Huntington Drive, San Marino, Cal. Phone Alhambra 731-W
Mail Address: R. F. D. 1, Box 666, San Gabriel, Cal.

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs

White Leghorn Chicks Only

Our customers contest which closed September 30, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, nothing like it anywhere. Perfect ventilation.

We are exclusive hatchers for spring of 1922, for F. R. Richardson, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. V. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

B. R. HOLLOWAY

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PRICE
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Use Moe's Poultry Supplies
Made by Specialists. Always the Best.
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Chickens Sick ? Hens Not Laying

GERMOZONE will rid your chickens of roup, colds, canker, sore head, chicken pox, skin disorders, cholera, indigestion, bowel trouble and such ailments—and keep them healthy. For over 30 years the dependable remedy. Get GERMONE, also famous LEO FIVE BOOKLETS, at drug stores. If no dealer, order by card. Postman will collect 70c and \$1.50 sizes. No extra charge.
GEO. H. LEE CO., Dept. F-30 Omaha, Neb.

Stop Hatching Weak Chicks



Chicks that hatch a few days mean

out weak and wobbly, and live but nothing to you but trouble and loss.

Queen Incubators

produce large hatches of strong, vigorous chicks that live and grow. The Queen is accurately regulated—taking care automatically without attention of a variation in temperature of 70 degrees without danger to the eggs. It is built of genuine Redwood—very scarce in these days of imitation. Redwood does not absorb the odor from hatching chicks. Cheaper woods and strawboard or composition lining in iron or tin machines, retain the odors, to weaken and kill the chicks of later hatches.

Queen Incubators and Brooders are sold by dealers everywhere. Send for Free Book.

QUEEN INCUBATOR CO. Lincoln, Nebraska



Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

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640 So. Main St., Los Angeles, Cal.

The Cultivator costs
only one dollar yearly

Hen Mothers for Baby Turkeys

By Jean A. Koethen



ONE of the most hopeful signs of progress in the fight against blackhead, the great enemy of little turkeys, is the fact that so many breeders, large and small, acknowledge the magnitude of the problem and are systematically and persistently working toward its solution. To them the loss of a large per cent of their poults each season is neither an accident nor an untimely providence, but a challenge, and they are studying and experimenting to find the way out.

The names of several of these investigators have been mentioned here in past months and only a few weeks ago a Vacaville woman, who did not wish her name published, sent in the formula for a mash which she had found almost a solution of her problem. Another name, that of Mrs. Charles W. Young of Whittier, must be added to the list.

Hen Mothers Best

Mrs. Young hatches from 75 to 100 poults each spring and prefers chicken

from the time they are given to the hen. At first it is sprinkled on the ground, but as soon as they have learned to pick it up it is left before them in trays. Charcoal is sprinkled on the drinking water, but they have nothing else till the third day.

Hard boiled eggs, young onion tops and Carnation wheat flakes are the ingredients of the nursery feed. For one day's ration for 30 poults, four eggs are boiled and ground in the feed mill with an equal amount of onion tops and wheat flakes (one-third egg, one-third green and one-third cereal). Charcoal is mixed in while grinding and chick grit added after the mixture is ground.

The above mixture is fed five times a day on very clean boards, about half a teaspoon being allowed ten turkeys. The mother hen is always fed separately and never allowed to feed the poults. The amount is gradually and cautiously increased, but this rule of "little and often" is carefully followed the first month. The second month there are only four meals a day and thereafter only three.

POULTRYMAN'S CALENDAR—JANUARY, BEGINNING THE HATCH

February is the best hatching month in California, and eggs that are to hatch in February must be in the incubator or under the hen in January. The commercial poultryman has found that he saves time and money by buying his chicks ready hatched. The fancier, the farmer and the backlotter will hatch with hens or buy chicks. A few find it more convenient to use the small incubators, but these can only be used successfully in a cellar or a double walled building in which there is little change in temperature.

Coops and brooders should be in order with the beginning of the new year and cannot be too carefully cleansed and disinfected. Incubators should be disinfected after every hatch and sitting hens dusted to remove all lice. Put the hen in a quiet, well protected place and see that her nest is comfortable. Test eggs on seventh and fourteenth days and set no egg that is over ten days old.

hens to turkeys for mothers. If more convenient, the eggs are incubated by turkey hens, but when the turkeys hatch they are given to chicken hens to rear. Chicken hens, she says, are more attentive to the wants of their brood, more easily handled and quieter in confinement.

As soon as each poult is out of the shell it is dusted with sodium fluoride or buhach powder and placed in a warm basket to await the end of the hatch. When the mother hen is through hatching she is dusted well with buhach and allowed to run for a couple of hours and to eat her fill of corn or wheat. She is then placed in a lath coop two and a half feet square and high enough to permit her to stand comfortably, and given her brood of not more than ten or twelve poults. If a turkey hen has been used for hatching, two or more chicken hens were set at the same time, so that there are mothers for all and not too many to a hen.

The coop stands on cement floor in a small house which can be opened on two sides if the weather is pleasant and closed quite tightly if necessary. Clean straw covers the floor outside the coop, but under the coop it is covered with clean sand or gravel which is renewed daily.

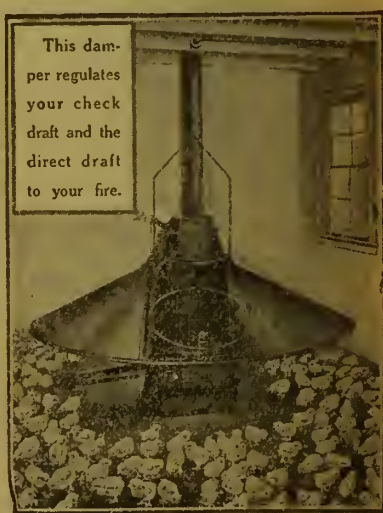
After two or three days the coop is taken out each morning as soon as the dew is off the grass and placed in a large yard filled with growing melilotus. The hen stays in the coop ready to warm her brood if they are chilly, and they have the run of the yard. When the evening shadows begin to fall, coop and brood are returned to the house. When the poults are able to fly over the three foot fence which surrounds their yard they may run where they please.

The transition from being hovered to roosting is made very easy. The house is fitted with roosts which are put in before they are needed, and when the birds wish to roost, they roost, that is all. When the hen finds her charges roosting, she goes on the roost with them, and when they are three months old they leave the hen for the wire turkey house with its high roosts.

Feeding the Poults

Grit is before the little turkeys

After two weeks the boiled egg is gradually replaced by cottage cheese, and after the end of the sixth week sour milk is used instead of cottage cheese. About the beginning of the sixth week a little chick growing mash is added to the ration in place of part of the wheat flakes, and by the end of the eighth week the poults have been gradually worked off the nursery feed and onto a ration of growing mash diluted 50-50 with bran, with five per cent bone meal added, and whole wheat and rolled barley morning and night. As the poults grow older the bone meal is dropped and by the sixth month the ration is reduced to plain bran, whole wheat and rolled barley with as much green feed as is available.



Reliable Blue Flame Brooder

The leader of oil burning brooders. Easy to operate, economical, abundance of heat. Four sizes for flocks of 1 to 1000. We also have Queen coal burning brooders, electric and hot water systems. Baby chicks and pullets. Ask for 1922 general catalogue.

C. E. HILL CO.

418 11th St. Oakland, Cal.
Sole Distributor for Northern California

Keep them Hungry

Overfeeding seems to be the predominant cause of the development of the blackhead germ in young stock, but it is not easy to know just when one is overfeeding. Mrs. Young not only keeps her little turkeys always eager for their meals, but she watches their crops as they eat. As soon as

any little crop begins to bulge that little turkey is removed and allowed to eat no more. This method gives each poult its chance and the more vigorous and greedy cannot stuff themselves while the weaker and slower ones go hungry.

In order that every bird shall have an equal chance at the feed hopper and that the feed shall always be absolutely clean, a slatted hopper is being designed for next season's use. This will be so arranged that the turkeys can reach the mash only from the side, and no turkey can monopolize more than one opening. In every flock there are turkeys that will "hog it all" if they can, but the slatted hopper keeps them under control.

Ipecac Treatment

The Drs. Wegeforth of San Diego announced their ipecac treatment of blackhead just in time to give Mrs. Young a chance to try it last spring. Seventeen turkeys that had already developed the disease were treated according to directions and ten recovered. Eight others were given preventive treatment and not one developed the disease.

SUCCESSFUL TREATMENT FOR CHICKEN POX

I have had so much benefit from the helps in the Cultivator from the various departments I can not refrain from offering my little mite if I can be of any help to the readers.

I want to tell what I did for my chickens that had the chicken pox, and they could not have been worse, as their heads were solid with thick scab when they were at the worst.

The first one, a little Seabright with little chicks, was bad before I discovered her. I put her in a pen to herself at first and gave her a teaspoon of oil and put permanganate of potash in the water she drank and mixed equal parts of kerosene and oil, rubbing it on her head several times a day, thoroughly soaking it. She could not see to eat and I was afraid she would starve, so I put her little chicks in with her and put the feed in a pie tin so that when they would eat the mother could hear them peck on the pan and she could find it. In that way I saved all that had the chicken pox.

Some just started a few white knots on the comb and I treated them the same and they developed no farther.

I used paraffine oil for the solution and also to give them. I hope if the readers try this they will be as successful as I was, for I never lost a chicken.—An Old Subscriber.

REPORT FOR 1920

The California state board of agriculture has completed and mailed its statistical report for the year 1920. The officers of the board are H. A. Jastro, president; T. H. Ramsay, vice-president; I. L. Borden, treasurer; Chas. W. Paine, secretary-treasurer; Fred W. Links, statistician. The first half of the book is given to general statistical report of the state's various productions while the latter part is given up to a summary of the agricultural resources by counties. A brief description of each county is given, followed by statistics. One of the most valuable features of the report is a folder map of the state of California.

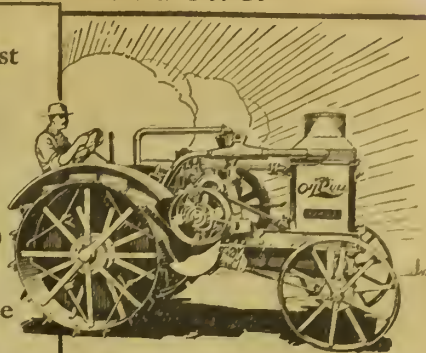
WATER CONSERVATION POLICY ADOPTED

Among the most important actions by directors of the Los Angeles County farm bureau, December 15, was the adoption of the report of the water conservation committee to the effect that the farm bureau during the coming year urge investigation of every possibility of impounding run-off waters in the San Gabriel watershed. The committee urged request that the supervisors appropriate at least \$50,000 for investigation of dam sites and reservoir construction.

OILPULL TRACTOR

"The Cheapest Farm Power"

- ① Lowest Fuel Cost
- ② Lowest Upkeep Cost
- ③ Longest Life (10 years and more)
- ④ Reasonable Price



Why an OilPull Increases Farm Profits

Every farmer in the Imperial Valley should know that there are just four factors he must have in the tractor he buys to get cheapest power. These are (1) Low Fuel Expense. (2) Low Repair Expense. (3) Long Life. (4) Fair Price.

In the Rumely OilPull Tractor these Four Factors have been combined for the first time in any tractor. (1) An OilPull has held the World's Official Fuel Economy Records for 10 years. (2) Among many OilPulls of all ages the average yearly upkeep cost was found to be less than half the Government figures. (3) The average life of an OilPull is more than 10 years. (4) Rumely prices are very reasonable, and strictly in line with present economic conditions. Everything needed to make cheap power is here.

Triple Heat Control

OilPull records are due largely to TRIPLE HEAT CONTROL—a wonderful oil burning system that solves the problem of getting the power out of cheap kerosene and stove tops. It is the only system that uses oil in the cooling system instead of water. Absolutely controls motor temperatures. No freezing. No overheating.

Due to Triple Heat Control, the OilPull is the only tractor sold with a bona fide,

written guarantee to burn kerosene successfully at all loads and under all conditions, up to its full rated brake horse power.

Write for Free Book

Among the four sizes is an OilPull that will make a profit for you. Complete details and special book on Triple Heat Control sent upon request.

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The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers and farm trucks



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Seed costs money. Labor costs money. Save both by planting with Planet Jr. seeders. Planet Jrs. sow regularly, rapidly and accurately in hills or drills at proper depths in even, narrow lines. A Planet Jr. leaves no gaps—wastes no seed. Every Planet Jr. has an adjustable index with the names of the principal seeds, enabling the user quickly to change the feed to sow the different varieties.

Planet Jr. sows so evenly and straight, it makes close cultivation of standing crops quicker and safer.

All Planet Jr. Farm and Garden Implements are scientifically constructed on proved, practical lines. Send for the complete Planet Jr. catalog, showing seeders, wheel hoes, horse hoes, riding cultivators, etc.

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Agencies in all principal Pacific Coast Cities.

No. 4 Planet Jr. Combined Hill and Drill Seeder, Single Wheel Hoe and Plow. An economical, easy-working and serviceable implement for large gardens. Does most of the garden work from planting to cultivating right through the season. Built to last a lifetime.

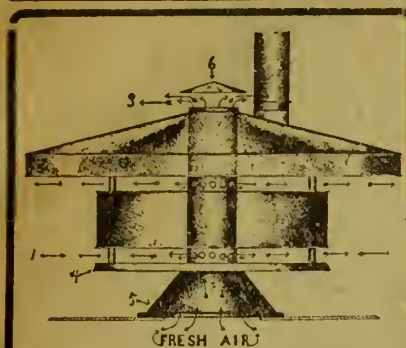
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Works on any land. Operated by hand! No horses; no digging. Made of the finest steel—guaranteed. Adopted and used by U.S. Government officials and many states. Send for FREE illustrated book on Land Clearing and special offer



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anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be, write us for our

Literature on KRESKY STOVES

Ask for Literature No. 70, which describes all sizes.

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THE MISSION HATCHERY



Capacity 25,000 Chicks Weekly
Quality Chicks—Hatched Right—Priced Right

If YOU are meaning business in poultry during 1922 it will pay you to send for our circular and special letter on early chicks. WHITE LEGHORNS. We solicit 1,000 lot (or larger) orders from those who make a business of raising first class pullets. We have the chicks. Quality and price will please you.

BROWN LEGHORNS. Winners in type and egg production. Priced right—any quantity.

BLACK MINORCAS. Beauties for big eggs. See our circular for particulars. R. I. REDS. Want a score or a thousand? We can supply you, and GOOD ones, too. BARRED ROCKS. And not priced like gold nuggets, although the quality is there.

WHITE ROCKS. Cream of the heavy breeds. Supply is limited. Book orders early.

Our JANUARY-FEBRUARY prices are REASONABLE. We PREPAY SHIPPING CHARGES.

A postcard will bring you particulars. GOOD BREEDING STOCK.

GOOD HATCHING CONDITIONS. GOOD CHICKS FOR YOU

THE MISSION HATCHERY
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"Pioneer"

Baby Chicks

We can now supply all kinds of baby chicks, baby turkeys, and ducklings, and can meet all competing prices for January and future delivery. We have served the public for sixteen years and are better fitted than ever to give you good strong Copyrighted profitable chicks. Safe delivery and full count of live chicks at destination guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

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320 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"



Try the Coulson System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars.

Coulson Co., Petaluma, Cal.

Los Angeles Markets

Los Angeles, January 4, 1922.

BUTTER

Butter: Creamery extras, produce exchange price, 39 1/2 cents.
 Dec. 28 29 30 31 Jan. 3
 '22 41 41 41 41 39 1/2

CHEESE

Brokers' prices:
 California flats, 20@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 43; case count, 40; pullets, 41.
 Dec. 28 29 30 31 Jan. 3
 '22 55 50 48 48 43

POULTRY

Price to producers: Hens, 27; colored, 31; broilers, 33@36; roasters, 30; old roosters, 16; fryers, 35; ducks, old, 20; ducklings, Pekin, 3 1/2 up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, Jan. 3.—Weighed and delivered off cars without food or water:
 Hogs (hard grain fed), 125 to 175 lbs., 8.00; 175 to 225 lbs., 8.50.

Cattle (on foot, gross weight): Steers, good, 6.50; medium, 6.00; cows, good, 5.00; medium, 4.50; bulls and stags, 3.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 7.00.
 Sheep: Ewes, 3.50@4.00; lambs, 7.00@7.50.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe avenue.

Green salted hides—No. 1 steers, 7 1/2 per lb.; No. 1 cows, 6 1/2 per lb.; No. 1 bulls, 5 1/2 per lb.; No. 2 hides, 1 1/2 less per lb.; grubby hides, 1 1/2 less per lb.; kosher hides, 1 less per lb.; glue hides, 1 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each.

Green hides—No. 1 steers, 6 1/2 per lb.; No. 1 cows, 5 1/2 per lb.; No. 1 bulls, 4 1/2 per lb.; No. 2 hides, 1 1/2 less per lb.; kosher hides, 1 less per lb.

Calfskins and kipskins: No. 1 calfskins, under 15 lbs., 10 per lb.; No. 2 calfskins, under 15 lbs., 7 1/2 per lb.; No. 1 kips, 15 to 30 lbs., 8 per lb.; No. 2 kips, 15 to 30 lbs., 6 1/2 per lb.; kosher skins, 1 less per lb.; glues, 1 per lb.; slunks, 20@40 each.

Dry flint hides—No. 1 hides, 16 lbs. and up, 10 1/2 per lb.; No. 1 kips, 6 to 16 lbs., 11 per lb.; No. 1 calfskins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 2 less per lb.; glue hides and skins, 2 per lb.

Pelts—Large, long wool, 50@80 each; medium, 25@50 each; short wool and shearings, 10@25 each.

Goat skins—No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow—No. 1 white and hard, 5 per lb.; No. 2, 4 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to quality and condition, 6 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 3, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs mostly 90@1.00. Stocktons: Burbanks, per cwt., best, special brands, 2.65@2.75; others, 2.25@2.50. Idahos: Russets, best, 2.40@2.50; bakers, 3.00; Rurals, mostly 1.90@2.10. Locals: White Rose, 2.00@2.25. Sweet potatoes: Market firm. Locals: No. 1, best, 90@1.15 per lug; per cwt., No. 1, 2.75@3.00; No. 2, 1.50@1.75; Nancy Hall, large, extra, fcy., 5.50@6.00 per cwt.; Arkansas, 6 per lb.

Onions: Demand moderate, market firm. Stocktons: Per cwt., White Globes, best, cold storage stock, mostly 7.25@7.50; browns, best, 5.00@5.50; poorer, 4.75; per lug, whites, best, 2.00@2.25; poorer, 1.85; browns, 1.75@1.90; poorer, 1.35@1.50; Spanish sweets, best, mostly 6.25@6.50 per cwt.; Lompoc browns, 5.50. Green, 15@20 bunch.

Garlic: Lb., 9@11.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, January 3, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Artichokes: Doz., 1.00@2.00.

Beans: Movement slow. Flats, 16@20; limas, 16@20 per lb.

Bunched vegetables: Per doz. bunches: Turnips, 30@40; carrots, 50@55; radishes, 20; parsley, 15; spinach, 25@35; beets, mostly 50@60; oyster plant, 40@50.

Cabbage: Market steady. Per field crate, mostly 2.50@2.75; poorer, 1.75@2.00.

Cauliflower: Market weak. Best, mostly 2.00@2.50.

Celery: Local, per cr., mostly 3.00@3.25; poorer, 2.50@2.75.

Cucumbers: Market weak. San Diegos: Best, 2.50; poorer, low as 2.00.

Eggplant: 8@10 lb.

Lettuce: Demand moderate. Locals: Field crates, best, 1.00@1.10; poorer, 75@90.

Parsnips: Lug, 75@90.

Oyster plant: 50 doz. bunches.

Peas: Market weak. Local, best, 14@15; poorer, low as 10.

Peppers: Locals: Bells, per lb., 17@20; chili, mostly 23@25.

Rhubarb: Best, 1.00@1.10.

Squash: Banana, lb., 1 1/2.

Sweet anise: 60 doz.

Tomatoes: Market steady. Locals: No. 1, per lug, best, mostly 3.00; poorer, 2.00@2.50.

FRESH FRUITS

Apples: Demand and movement moderate, market steady. Locals: Romes and King Davids, 4@6; few best Delicious, 7@8 lb.; Jonathans, 7; B grade Delicious, 2.65@2.75; fy., 3.00@3.25 lb. Watsonville: Fancy, 3 1/2 and 4 tier, Bellefleur, 1.60@

1.75; poorer, 1.50; 4 1/2 tier, 1.40@1.50; B grade, 4 tier, 1.40@1.50; loose, per lb., 3 1/2@4 1/2. Idahos, Washingtons and Oregon: Jonathans, extra fancy medium to large sizes, 3.00@3.50; fancy, 2.85@3.00. Oregon: Spitzenburgs, medium to large, extra fancy, mostly 3.00@3.25; fancy, 2.75@3.00.
 Avocados: 50 lb.
 Cranberries: Market steady. Massachusetts: Late Howes, 25.00@27.00 bbl.; New Jersey, Late Howes, 25.00@28.00 bbl. Dates: Coachella, 25@26.
 Grapes: Demand moderate, market steady. Per lb.: Red Emperors, 6.50 per drum.
 Olives: Green, 4@5 1/2.
 Pears: Bartletts, 8@10; Winter Nells, 7.
 Persimmons: Lb., 10@15.
 Pineapples: 20@25 lb.

CITRUS FRUITS

Grapefruit: Market steady. Californias, northern: Packed, box, 3.00; small, 2.50; Imperial Valley, 4.25@5.00; Arizonas: Seedless, 3.75@4.75, according to size and quality.
 Lemons: Demand and movement slow, market steady. Locals: Special pack, mostly 3.50; market pack, 2.50@2.75; loose boxes, 1.20@1.50; poorer, 1.00.
 Oranges: Demand moderate, market steady. Navels, special brands, 150s-176s, mostly 5.50; 200s-216s, 4.75@5.00; choice, orchard run, 3.00@4.00; market pack, 3.00@4.50, according to size and quality; culls, field boxes, best, 2.00@2.50; poorer, 1.50. Tangerines: Demand and movement light; best, 7@8 lb.

HONEY

The general situation shows little change over that prevailing two weeks ago. Stocks continue to decrease and are much lighter than were those at the corresponding period last year. Demand is reported as light. Due to light supplies, the market, although quiet, has a healthy tone. Alfalfa honey is in heavier supply than white honey. Quotations per pound in carlots or less than carlot quantities, f. o. b. California points: White orange blossom, nominally 12@12 1/2; light amber, 11@12; light amber sage, 8 1/2; light amber alfalfa, 6 1/2@6 3/4. Growers are said to be asking 10@13 per pound for white orange blossom and 6 1/2@7 for light amber alfalfa. Beeswax is in fair local demand at present at 20@25, mostly 22 per lb. to the beekeepers by bee supply houses for use in making next season's foundations. Demand in the East is lacking, as imported wax offers too great competition.

HAY

Alfalfa Growers of California report: Country loadings of alfalfa hay during the past week were very light; arrivals in all markets showed severe shrinkage, thus bringing out the full effect of the long rainy spell by putting a stop to shipments of most growers.

There were 330 tons of grain and alfalfa hay received in the Los Angeles tracks the week ending December 31, with 190 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa	25.00
Standard	20.00
Quotations by Nicholas-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:	
Tame Oats	22.00@28.00
Barley	18.00@24.00
Alfalfa, Rabbit	24.00@28.00
Alfalfa, No. 1 Dairy	20.00@22.00
Standard	16.00@18.00
Straw	10.00

San Francisco Markets

San Francisco, January 4, 1922.

BUTTER

Extras	28	29	30	Jan. 2	3
Dec. '22	40 1/2	40	40		38 1/2

CHEESE

Dairy Exchange quotations:	
California Flats	20@21
California Y. A.	26

EGGS

Dairy Exchange quotations:	
Extra	45
Extra Firsts	56 1/2
Extra Pullets	40 1/2
Undersized No. 1	40
Dec. '22	28 29 30 Jan. 2 3
	55 50 48 1/2 45

POULTRY

Prices furnished by the state department of agriculture, division of markets:
 Broilers: 1 to 1 1/2 lbs., 33@35 per lb.; 1 1/2 to 1 3/4 lbs., 33@35 per lb.; 1 3/4 to 2 lbs., 34@36 per lb. Colored fryers, 2 to 3 lbs., 33@32 per lb. Colored young roosters, 3 to 4 lbs., 28@31 per lb.; over 4 lbs., 28@31 per lb.; staggy, showing spurs, 22@25 per lb.
 Colored old roosters: 18@20 per lb.; Leghorn old roosters, 17@18 per lb.; Leghorn hens, 2 1/2 to 3 lbs., 23@26 per lb.; 3 lbs. and over, 26@29 per lb.
 Large colored hens: 28@31 per lb.
 Ducks: Young, 23@25 per lb.; old, 22@24 per lb.
 Geese: Live, 25@30 per lb.; Turkeys: Live, young, 41@43 per lb.; old, 37@39 per lb.; dressed, young, 52@55 per lb.; old, 49@51 per lb.; off grades, 40@45.
 Belgian hares: Live, 16@20 per lb.; dressed, 25@28 per lb.
 Squabs: Live, 55@65 per lb.; 3.50 per doz. Old pigeons, 2.50@2.75 per doz. Guineas: Young, 6.00@8.00 per doz. Jackrabbits: 2.50@3.50 per doz.

LIVESTOCK

Western Meat Co. quotes:
 Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 6@6 1/2; do, second quality, 4 1/2@5 1/2; cows and heifers, No. 1, 4 1/2@5 1/2; do, second quality, 4@4 1/2; bulls and stags, 3@3 1/2.
 Calves: Light weight, 7 1/2@8 1/2; heavy, 6@6 1/2.
 Sheep: Wethers, 4@4 1/2; ewes, 2 1/2@3 1/4.
 Lambs: 7 1/2@8.
 Hogs: Hard fat, grain fed, weighing 125 to 200 lbs., 9 1/2; 200 to 250 lbs., 8 1/2; 250 to 300 lbs., 7 1/2; light sows, 7 1/2; heavy, 6 1/2.

POTATOES AND ONIONS

Prices furnished by state department of

agriculture, division of markets.

Potatoes: 150s, fancy, 1.75@2.00; Oregon Burbanks, 2.00@2.25; Netted Gems, 2.00@2.25; British Queens, 1.90@2.15. Sweet potatoes: Per cwt., 3.50@3.90, according to quality.

Onions: New crop, brown, common, 3.50 per cwt.; cold storage, 3.90@4.25; white globe, 6.50. Garlic, 4@6 per lb. for medium grades; poorer quality less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets.

Artichokes: Per case, 16.00@18.00; fcy., higher; Nos. 1 and 2, 1.00@1.50 per doz.; Nos. 3 and 4, 50@80 per doz.

Beans: Lb., 5@10; lima, 10@12 1/2.

Brussels sprouts: 6@8 per lb.

Bunched vegetables: Carrots, 50 per doz.; turnips, 40@50 per doz.; beets, 40@50 per doz.; parsley, 30; green onions, 10 per doz.

Cabbage: 2.00@2.25 per crate, 1 1/4 per lb., or 65@75 per doz.

Cauliflower: 1.10@1.25 per doz.

Celery: Fancy, 3.50@4.50 per crate; poorer, slow, 2.00@3.00.

Cucumbers: Per outside small box, 1.75@2.25; hothouse, 3.00@3.50 per box; English, 1.75@2.00 per doz.

Eggplant: So. lb., 4@6.

Endive: 30@50 lb. California, 50@60.

Lettuce: Small crate, local, 1.27@1.75; Los Angeles, 2.65@2.75; Sacramento, 2.25@2.75; Imperial Valley, 2.75@3.25.

Mushrooms: 20@40 per lb.; field, 1.25@2.00 per box; 50@75 per basket.

Olives: Very slow, 2@5 per lb.

Peas: Lb., 15.

Peppers: Best, 10@15; chili, 12@15.

Pumpkins: 75@1.00 per 90 lb. sack.

Rhubarb: Sebastopol, 2.75@3.00; southern, 2.00@2.25 per large box.

Squash: Southern, 1.50@2.25 per lug; cream, 60@1.00 per sack; Hubbard, 90@1.00 per 90 lb. sack.

Spinach: 7@9 per lb.

Tomatoes: Southern, best, 3.00@3.50 per lug; 1.25@2.00 per crate, according to quality; poor quality, inactive; hothouse, 20@25 lb.

FRESH FRUITS

Prices furnished by state department of agriculture, division of markets:

Apples: California Newtown Pippins, 3 1/2 and 4 tier, 1.75@2.15; 4 1/2 tier, 1.60; B grade, 1.00@1.60; Langford Seedlings, 4 1/2 tier, 1.10@1.25; 4 tier, 1.40@1.60; Northwestern: Newtown Pippins, extra fancy, 3 1/2 and 4 tier, 2.40@3.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitzenburg, extra fancy, 2.50@2.75; fancy, 2.25@2.50; Rome Beauty, fancy, 3.00@3.25; choice, 2.50@2.75; Bananas, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fancy, 3.50; Jonathan, extra fancy, 1.75@2.50; fancy, 1.75@2.00; Lady, per box, 2.50@3.00.

Avocados: California, large, 6.00@8.00 per doz.; small, 4.00@6.00; Pago Pago, 3.00@8.00.

Bananas: Eastern, 7@8 per lb.; Hawaiian, 7@8 per lb.; red, 8 per lb.

Casabas: 75@1.25 per crate.

Cranberries: 5.00@6.00 per box; Cape Cod, 22.50@24.00 per bbl.

Pears: Winter Nellis, 2.50@3.00 per box; Beurre, Clairgeau, 2.00@2.50; De Anjou, 2.00@2.50; poor storage, 1.00@1.75.

Persimmons: 1.50@2.25 per 20 lb. box.

Pineapples: 5.50@6.50 per doz.

Pomegranates: 1.75@2.25 per 20 lb. box.

Rhubarb: Box, 1.50.

CITRUS FRUITS

Oranges: Navels, special brands, 216s to 126s, fancy, 5.25@5.75; 150s, 4.50@5.00; 200s-216s, 4.25@4.50; choice, 4.25@4.75. Lemons, per box, 3.75@4.25. Lemonettes, 1.25@1.75 per box. Grapefruit: California, fancy, special brands, 3.00@3.25 per box; Arizona, 4.50@5.00; Imperial Valley, 5.00@5.50. Tangerines, 5.00@5.50 per box; small, 2.00@2.50.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples	In 50s
Choice	@13 1/2
Extra choice	@13 1/2
Fancy	@15

Apricots	In 25s
Slabs	@18 1/2
Standard	@18 1/2
Choice	@22
Extra choice	@23
Fancy	@25
Extra fancy	@26
Moorparks, fancy	@29
Moorparks, extra fancy	@31 1/2

Figs	In 25s
White	@10 1/2
Standard (in 50s)	@10 1/2
Choice (in 50s)	@11
Fancy (in 50s)	@11
Bricks, 12 No. 10s	@10
Bricks, 24 No. 8s	@10
Bricks, 50 No. 6s	@10
Bricks, 70 No. 4s	@10
Layers, 10 lb., 4 row	@10
Layers, 10 lb., 5 row	@10
Calymrna	@10
Bricks, 24 No. 8s	@10

Peaches	In 25s
California Peach and Fig Growers prices:	
Yellow Muir	@10
Standard (in 25s)	@10 1/2
Practically peeled, Standard (in 25s)	@11 1/2
Cartons, 30 11 oz., per case	@3.10
Cartons, 60 11 oz., per case	@6.00
Cartons, 24 2 lb., per case	@6.50
Cartons, 10 5 lb., per case	@6.00

Pears	In 25s
Standard	@12@13
Choice	@15@16
Extra choice	@17@17 1/2
Fancy	@19@19 1/2

Prunes	In 25s
California Prune and Apricot Growers prices:	
Size	Basis Price
30-40s	10 @10 1/2
40-50s	8 1/2 @8 1/2
50-60s	7 @7 1/2
60-70s	6 1/2 @6 1/2
70-80s	6 @6 1/2
80-90s	6 @6 1/2
90-100s	6 @6 1/2
100-120s (in 50s, per lb.)	@6
120s up (in 50s, per lb.)	@5 1/2

Raisins

California Associated Raisin Company's prices:

Seeded—	
Sun-Maid, 16 oz.	14 1/2
Bakers (in 25s)	13
Loose Muscatels—	
4 crown (in 25s)	15
3 crown (in 25s)	13 1/2
2 crown (in 25s)	12 1/2
1 crown, re-cleaned (in 25s)	13 1/2

Seedless—	
Thompsons, 16 oz.	
Thompsons, bulk (in 25s)	
Thompsons, bakers (in 25s)	
Sultanas, bulk (in 25s)	13 1/2
Bleached Thompsons—	
Choice, sulphur (in 25s)	
Fancy, sulphur (in 25s)	19

Boston: 9 or., 2 lem. Nav. 3.55@5.30, lem. 2.35@4.38.
 Cleveland: 9 or., 2 lem. Nav. 2.70@5.55, lem. 2.95@4.45.
 St. Louis: 2 Nav., 1 lem. Nav. 4.15@4.36, lem. 2.55@3.05.
 Pittsburgh: 5 or., 1 lem. Nav. 2.60@4.80, lem. 3.45.
 Philadelphia: 2 or., 2 lem. Nav. 2.80@4.55, lem. 3.65@3.75.
 Cincinnati: 2 or., 1 lem. Nav. 3.30@3.55, lem. 1.85@3.30.

December 29

New York: 19 or., 3 lem. Nav. 3.20@6.70, lem. 3.65@5.15.
 Boston: 6 or., 2 lem. Nav. 3.10@4.85, lem. 3.40@4.20.
 Philadelphia: 2 or., 2 lem. Nav. 2.55@5.35, lem. 3.35@4.25.
 Pittsburgh: 3 or., 1 lem. Nav. 2.70@4.80, lem. 2.75.

December 30

Boston: 4 Nav. 3.25@4.75.
 Cleveland: 4 or., 1 lem. Nav. 3.65@5.65, lem. 3.45@4.35.
 St. Louis: 2 or., 1 lem. Nav. 3.25@4.55, lem. 2.45@3.35.
 Pittsburgh: 2 Nav. 3.45@4.30.
 Philadelphia: 2 lem. 2.80@3.55.
 Cincinnati: 1 lem. 3.00@3.55.

January 3

New York: 29 or., 3 lem. Nav. 2.45@5.90, lem. 3.60@4.80.
 Boston: 6 or., 4 lem. Nav. 3.10@4.60, lem. 2.90@4.45.
 Pittsburgh: 4 or., 1 lem. Nav. 3.45@5.30, lem. 3.25@3.85.
 Philadelphia: 1 or., 2 lem. Nav. 4.50, lem. 2.30@3.75.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Loss of Cud

Have examined the cow losing the cud. The trouble is not with the teeth. The cud sits way back on the root of the tongue. Have pulled tongue out and examined it but find no sore. Was feeding some barley hay but have cut that out and am feeding only ground feed. Cow eats well and seems all right in other respects.—Subscriber, Newman.

If the cow eats well and seems all right how did you happen to find a cud in the mouth? Now you say you have cut out the barley hay and feed only ground feed. That will surely make the cow sick. She must have some kind of hay or fodder that will form a cud or she will not live long. If you can not get anything else give her the barley hay. Forget about the cud as long as she seems well and eats well.

Udder Trouble

Have a cow that is failing in her milk in one quarter. Is there anything that can be done to restore it to normal? This trouble appeared last year but is worse since she came fresh last time. She appears perfectly healthy in every other way.—Subscriber, San Gabriel.

When there is trouble with the udder we always advise giving salts in the feed. Mix three pounds of epsom salts with two pounds of common salt and a handful once a day. Every time you milk the cow spend ten or fifteen minutes rubbing that quarter and be sure to milk out every drop you can get. Just hand rubbing will often restore an udder to healthy action.

Calves Dying

Can you tell us what is wrong with our calves and what to do for them? They come from healthy cows that are well kept and well fed. The calves receive the mother's milk warm from the cow regularly but when they reach the age of three or four weeks they lose their appetite entirely and refuse to drink. They lose control of their hind quarters and can not stand and try to shake themselves. They linger this way for two or three weeks and die. Their pens are kept dry and clean with plenty of straw. We have not put one in same pen with sick one nor where a sick one has been nor fed them from the same bucket. We have lost eight in this way.—Subscriber, Watsonville.

You have used good judgment in caring for the calves. There must be something wrong with the milk or about the place that you have not found. It acts like a slow case of ptomaine poisoning. Dissolve four tablespoons of epsom salts and two tablespoons of common salt in a pint of cold water and put in clean bottle for future use. The next time a calf refuses its feed give half of the solution as a drench. In 24 hours, if you

think the calf needs it, give the other half. Please let us know what results you get.

Tumor in Cow's Teat

I have a cow that has had something wrong with one teat for about a month. A hard lump has formed about half an inch from the udder and with all I have done for it it has not disappeared. At first it was a hard ring around the teat and as that went down it left a lump inside which seemed to hurt when milking and made her kick. I put on hot lard and it improved a little, but now the duct is partly closed so she is hard to milk and it seems to hurt more again. What is the remedy?—Subscriber, Sisson.

Lumps such as you describe are often caused by a bruise. They form small tumors and sometimes close the teat. The only remedy we know of is to cut them out. This must be done by an experienced man. They have small instruments that they pass in through the opening in the teat and with that cut the tumor in pieces. After that it usually heals all right but sometimes it grows again and sometimes the operation sets up an inflammation of the quarter and makes things worse than before. These tumors are not nice things to have and are not satisfactory to treat.

Abscess on Udder

We have a Jersey cow that is fed alfalfa hay and also has green alfalfa in pasture. We also feed her about one-third pail soaked beet pulp with a common coffee cup of cottonseed meal added. With this she got very fat. About two months ago a hard lump came in udder above first front teat. It was the size of two fists. We poulticed it about two weeks and finally had a veterinarian open it and a lot of pus came out. We took good care of it and it healed all right. Now we notice another lump coming just above where the first one was and some larger. When the first lump appeared we reduced the feed to one-half beet pulp and cottonseed meal. Do you think she is overfed? We have had the veterinarian several times to see her but he does not say what causes the trouble. What would you recommend?—Subscriber, El Centro.

We do not think the cow is overfed. It is hard to say what causes the abscesses. One might suspect tuberculosis, and the fact of her getting fat might add to the suspicion because cattle when first taken with tuberculosis often gain flesh for a while. You cannot do much more for the abscesses than you are doing. Would advise having her tested for tuberculosis by the state.

QUESTIONS AND ANSWERS

(Continued from Page 14.)

erly. The larger cuts should be protected with white lead or asphaltum paint.—F. K. H.

Fertilizer—Cover Crop

Can you tell me if Mexican red beans would be good to raise in young vineyard for fertilizer? Also if Mococo would be good fertilizer for my orange trees.—Subscriber, Exeter.

There are perhaps some districts where Mexican red beans will be successful as a cover crop. This can be determined only by the amount of green tonnage which can be turned under. If they grow well in your district during the winter you can profitably use them. If not, then use some other legume which has proven a success. Mococo fertilizer is good for use when superphosphates are needed. This material is, of course, not a complete fertilizer and would not produce results on soils requiring nitrogen or potash to balance the fertilizer for the crop. In its place, however, Mococo brand superphosphate will give good results.—F. K. H.

Breeding Doe

How soon may goat be bred after kidding? Also how long before kidding should milking be discontinued?—Subscriber, Mountainview.

It is usually possible to breed a doe from seven to nine days after kidding. It is not considered best for a doe, however, to allow her to kid more than once a year. Milking should be dis-

continued six or eight weeks before kidding time if it is possible to do so.—G. B. H.

Stringy Milk

Would like to add to the answers to "Bitter Milk" and "Foul Milk" in "Questions and Answers" in California Cultivator of December 10, that generally a cow will eat something that is not fed to her. Chicken droppings and hog droppings about a coral or pasture will be picked up by a cow and will cause bitter or foul milk, also impure water or unclean drinking vessels. One should watch a cow closely for a day to see what she is eating. Some weeds or plants will also cause the same trouble. Perhaps the above will help those troubled in this way.—Frank Littig.

We may also add the following taken from "Diseases of Cattle," a publication issued by the department of agriculture:

"This may be caused by fungi developing in the liquid, and that the spores are present in the system of the cow may be safely inferred from the fact that in a large herd two or three cows only will yield such milk at a time, and that after a run of 10 days or a fortnight they will recover and others will be attacked. I have found that such affected cows had the temperature raised one or two degrees above the others. Like most other fungi this does not grow out into filaments within the body of the cow, but in five or six hours after milking the surface layers are found to be one dense network of filaments. If a needle is dipped in this and lifted the liquid is drawn out into a long thread. In one case which I investigated near Ithaca, New York, the contamination was manifestly from a spring which oozed out of a bank of black muck soil and stood in pools, mixed with the dejections of the animals. Inoculation of pure milk with the water as it flowed out of this bank developed in it the fungus and the stringy characters. By fencing the spring in and giving the affected cows each two drams bisulphite of soda daily, the trouble was arrested promptly and permanently."

CARELESSNESS CAUSES TROUBLE AND ACCIDENTS

It is difficult to understand why a man will spend several hundred dollars for a tractor or some other machine and then, through sheer carelessness and indifference, proceed to run it without oil, cooling water, or with parts loose or out of adjustment, when he must realize that such treatment will cause damage, if not utter ruin. Yet there are hundreds of cases where this very thing happens. In fact it seems to be almost an exception to find a tractor which is given first class care in all respects, says Tractor Farming.

A factory expert recently spent two days in visiting the tractors which his company had sold in a certain locality. There was a large number of these machines in use on farms in the neighborhood and he went from farm to farm in an automobile, inspecting approximately 30 machines in the two days. The machines in question were equipped with an air cleaner which was designed to remove dirt from the air by passing the air through water. The instruction book which went with each tractor, as well as instructions printed on the air cleaner itself, stated very plainly that the water reservoir in the cleaner should be kept filled with water. Yet among all the machines which the expert visited in two days he found only one which had water in the air cleaner.

This is just one of the many examples which might be cited to show how the average tractor operator neglects his machine. And it is safe to say that a little later on when the pistons, rings and cylinder walls of those tractors are badly worn because of the dust which has been taken in through the air cleaners with dry reservoirs, the owners will lay a large share of the blame on the manufacturers, just as frequently happens when the wrong kind of oil has been used or an engine has been overheated because the operator neglected to keep water in the cooling system.

TRAVELING REPAIR SHOP FOR TRACTORS

It is easy enough to get an automobile into the garage but it is not always so easy to bring the tractor round when repairs on it are necessary. For this reason it is altogether possible that the tractor repair plant of the future will be a portable one, and indeed some such have already been built and are in use. In some respects they are similar to the portable repair outfits used by the artillery during the war. They are equipped with a full set of metal working tools, a small forge, and some even have an electric welding outfit. The current for the welding is generated by an electric machine which derives its power from the engine of the vehicle which furnishes the motive power.

With a machine of this kind farmers will have at their beck and call a ready repair outfit which will handle anything in the way of repair jobs on farm machinery.

PRICE CATALOG

Leonard Coates Nursery Company of Morganhill is mailing out price catalog of convenient pocket size of fruits which have been tested and tried on the grounds of the company at Morganhill. Of course the leader of this company is still the Coates No. 1418 prune. The effective illustration on the cover indicates the actual size of that fine fruit.

TWENTY-NINTH ANNUAL

The Aggeler & Musser Seed Company, Los Angeles, is mailing its twenty-ninth annual catalog. It takes literally tons of paper to produce this 116 page book. Catalogs have been going out from the print shop at the rate of a wagonload a day. Mr. Musser is an authority on the subjects he has so ably handled in this book which farmers, growers of vegetables, fruits, flowers, grains, grasses, poultry, hogs and stock will welcome as a valuable addition to the reference library. Twenty-nine years in the seed business have given this firm a wonderful insight into conditions in Southern California, and this experience and knowledge are the basis of the catalog.

Motor Troubles Ended

New Invention Creates Wonderful Spark—Doubles Power, Makes Winter Starting Easy, Stops Oil Pumping, Eliminates Carbon, Saves Gas—Free Trial Offer

Any car owner who is bothered with a motor which pumps oil, fouls spark plugs, wastes gas or carbonizes badly can stop these troubles by using a remarkable device called Warren Transformers, perfected by W. H. Warren, a Kansas City motor expert.

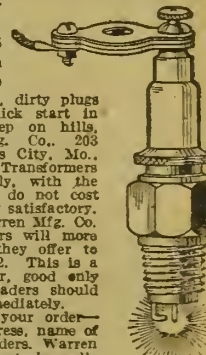
In two minutes a boy can attach Warren Transformers. Then you will be amazed to see your car go whizzing up hills on high where you formerly had to shift gears. You will also notice a big increase in mileage and instant starting in coldest weather. Spark plugs that formerly fouled and cylinders that pumped oil will be clean and dry and fire with full power.

If you want to save 25 per cent to 50 per cent on fuel and repair bills, be rid of missing cylinders, dirty plugs and carbon, have a quick start in coldest weather and pep on hills, write the Warren Mfg. Co., 203 Gateway Station, Kansas City, Mo., and a set of Warren Transformers will be sent immediately, with the understanding that they do not cost you a cent if not entirely satisfactory.

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Send no money with your order—just your name and address, name of car and number of cylinders. Warren Transformers will be sent immediately.

When they arrive merely pay the postman \$2 and postage. Use them 10 days. If not satisfactory return and your money will be refunded. Write today and end your motor troubles. This offer is fully guaranteed.—Advertisement.

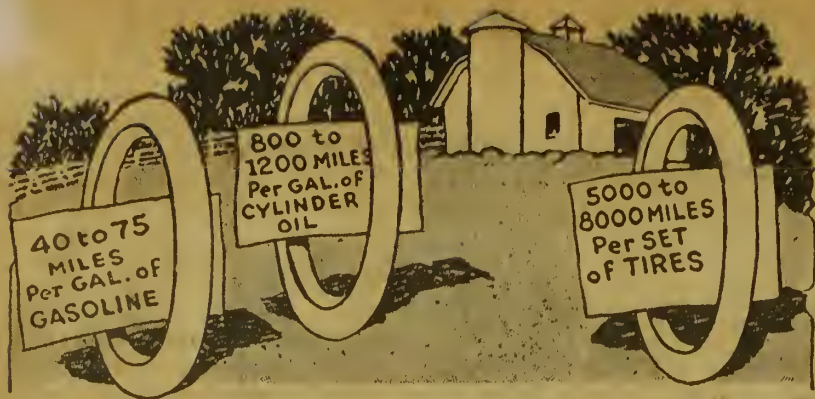


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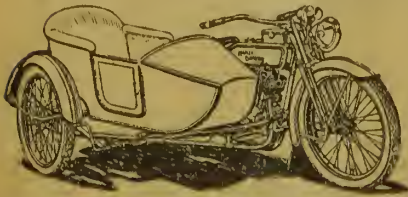
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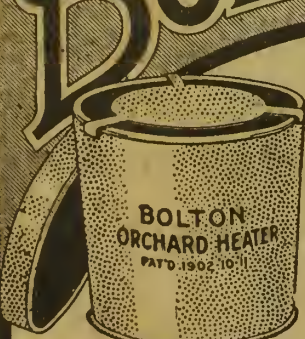
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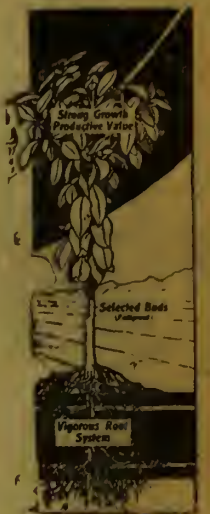
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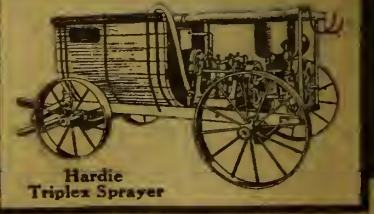
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and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

January 14, 1922

No. 2

Distributing Capri Figs in Smyrna Orchard



In the San Joaquin Valley, California's Great Fig District

Established 1877

Forty-fourth Year

CALIFORNIA CULTIVATOR

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901,
Combined with California Cultivator 1916

Vol. LVIII

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R. M. Teague, Pres. and Manager.
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Ernest Brauntton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
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Regular Contributors
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Saturday, Jan. 14, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Since the organization of the fig growers the industry promises great development. California has the only commercial fig orchards of importance in the United States. The fig is grown in many of the southeastern states but only in an experimental or home orchard way. The growth of the industry has been all too slow, but we believe within the next few years the increase will be vastly greater.

Oroville is anticipating material increase in prosperity because of organization of new irrigation districts. The latest one contemplates bringing under the water at least 20,000 additional acres, and the reclamation work will cost approximately a million dollars. Two other districts of comparatively recent formation have brought 30,000 acres under more intensive cultivation in what is known as the Oroville-Wyandotte district and 32,000 acres in the Honcut-Yuba district.

"Faith, friendliness and gumption are three American farm products on which the market never slumps." That's why California cooperators have succeeded.

Many chambers of commerce and too many of the newspapers of California are conducting campaigns against the power act to be voted on next November. Perhaps it's all too long a subject to take up completely so far in advance, still we are aware that many farmers are asking: "Why this opposition to a measure which offers relief from excessive power rates?" There are several others who are also wondering why.

AGRICULTURAL CONFERENCE

Secretary of Agriculture Wallace has called the National Agricultural Conference which was requested by President Harding to convene in the city of Washington, January 23. The majority of those who have been invited to attend are farmers or leaders in farm cooperative effort. There will also be representatives of industries depending on agriculture, and especially friends of the federal farm loan. California delegates who have been elected and accepted are Dr. W. H. Walker of Willows, representing the farm bureau, and G. Harold Powell of the Fruit Exchange.

BUILD STRONGER

We need longer lived highways. The base should be thicker; the reinforcing more general and, if possible, the width greater. This because of the destruction from overloaded trucks. Then is it not more reasonable to put into effect certain control measures as to weight of load on these trucks? The Berkeley Gazette has stated:

"There is not a highway in the United States today that will stand up under truck traffic. No one has yet discovered how to build one that will and, even did we know, the cost would probably be prohibitive at present. We do not know that roads which cost \$50,000 a mile will stand up under the pounding."

If we start in to build roads which will stand up under this terrific pounding we will go bankrupt, and perhaps accomplish little. We should have a campaign of education in the matter of proper use of our highways.

WASTED FERTILIZERS

It has been stated that millions in value of fertilizer is wasted annually in the state of California because of the application of those fertilizers on lands where the soil is in such condition that the tree cannot take up the plant food. Time was when we felt that the application of a chemical, or possibly of three chemicals, would result in greatly increased production. But, as has often been stated in the Cultivator, greater fertility is the result of soil building rather than of the simple application of chemicals. If the physical condition of soil is at fault, whether because of too much or too little water, lack of humus or vegetable matter which permits of more complete bacterial action, or if the soil is too cold or too warm, all the chemicals we may see fit to apply will fail to function. A pound of organic matter in the soil increases its water holding capacity seven or eight pounds. This is a point for the irrigator, as well as the one who would apply fertilizers, to consider.

Don't doctor the soil; build it.

COLORADO COMMISSION

The first conference of the Colorado River commissioners has been called by Secretary of Commerce Hoover in Washington, January 26-28. Secretary Hoover hopes "that this con-

ference will outline plans for development of the greatest irrigation and power project ever yet undertaken." It is estimated that the ultimate expenditure in this great scheme will be in excess of \$600,000,000. There is a possible 6,000,000 electric horsepower development, and the ultimate bringing under the water of a total of more than 5,000,000 acres of land. This all within the seven states of the Southwest. Secretary Hoover says: "Our first step will be the collecting of data. After that is gathered we will go forward." The secretary will be in California making investigations early in February.

Commissioners appointed are State Engineers McClure, California; James G. Scrugham, Nevada; R. V. Caldwell, Utah, and Frank C. Emerson, Wyoming; Water Commissioner W. S. Norviel, Arizona; Attorney Delph Carpenter, Colorado, and Stephen B. Davis, Utah.

MORE COOPERATION

Nearly two score mutual fire insurance associations held their annual meetings last Monday. California has a most excellent enactment which permits the association of home owners with each other to guarantee protection against loss by fire. Some of these associations have been in existence nearly a quarter of a century and have saved hundreds of thousands in the cost of insurance. The companies are organized without capital other than that of integrity and the cooperative spirit of the members. Premiums are about half those of the "old line" companies. In most of the companies this amount has been sufficient to gradually create a reserve fund and in the eyes of some increase their security. In the eyes of others the best security on earth is the integrity and cooperative spirit.

One of the best features of these cooperative insurance associations is the encouragement given to fire prevention campaigns. Actual ownership in the company which is protecting the home owner encourages a greater public spirit and determination to protect more fully one's own. We believe these insurance companies might well enter more actively into the educational side of fire prevention campaigns.

AGRICULTURAL BLOC

Now the agricultural bloc is going to get its turn in the limelight. It's about the first time the farmer ever had a chance in a large legislative way, and no sooner does he begin to accomplish something in the matter of legislation, especially legislation which gives him a fighting chance, than all the country holds up its hands in horror because of class legislation. Washington dispatches announce: "President Harding today in a conference with Senators Capper of Kansas, Kellogg of Minnesota, and Kenyon of Iowa opposed having his hands tied by the bill now pending before the senate requiring the president to put a farmer on the federal reserve board. Senators Capper and Kenyon are prominent members of the agricultural bloc, and Senator Kellogg, though not identified with the bloc, has taken an active interest in various agricultural measures and has been urging legislation to put a farmer on the reserve board."

Other dispatches say: "The president, it was said by bloc members, stated he desired in every way to promote the interests of the farmers but that the pending legislation would tie

the hands of the executive with respect to appointments."

Many statesmen, more politicians, are looking with great disfavor on this so-called class effort. It is so entirely unheard of that the farmers should cooperate and stick together in the effort and secure simple justice for themselves that the politicians are finding willing ears as they raise the shout of "class legislation." There has certainly been no injustice done by anything accomplished by the bloc so far. We are glad to give this week a statement made by Senator Arthur Capper in The Forum. This article gives fullest particulars as to the activities of the bloc and of the handicap under which the farmers have labored in their scattered effort to prevent middlemen and others from dominating in tariff and other legislation.

FLOOD CONTROL

The recent storm proved several things. One of the most striking was the efficacy of flood control. The heaviest precipitation in the entire state was in the Sierra Madre. Four canyons draining those mountains in northern and eastern Los Angeles County are Arroyo Seco, San Gabriel, San Dimas, San Antonio. The Arroyo Seco was the scene of devastation a few years ago at the time of a similar flood. Nearly a score of houses within the city limits of Los Angeles were torn to pieces and washed down the stream. The devastation of that flood called for action and flood control measures. A dam was built at Devil's Gate a few miles north and west of Pasadena. It was sufficient to hold the waters pouring out of the canyon during the entire storm, and the damage from the floods was nil. As the storm ended the gates were opened and the waters allowed to escape.

The next canyon to the east, the San Gabriel, has as yet no control of its floods, and along the course of this stream bridges were washed out, much roadway destroyed and great damage visited on high priced orchard properties.

The next canyon, the San Dimas, like the Arroyo Seco, had been protected. There was no damage whatever.

San Antonio, with still greater watershed area, is not yet supplied with dams. It is, however, given a measure of protection by distribution of its waters over the coarse gravel beds of the great "fan" at the mouth of the canyon. People of Pomona and Ontario districts made preparation for handling the floods in these gravel beds, but the amount of water pouring out of the canyon was altogether too great to be handled effectively, hence much damage, especially in Pomona, whose streets were ankle deep.

The complete protection Arroyo Seco effected a saving sufficient to cover the entire cost of Devil's Gate dam. All who have interests in the path of floods from these canyons are free in their prediction that still greater efforts at flood control must be made—and immediately.

Only last week there was held in Los Angeles a conference called by Dr. Clements of the agricultural committee of the chamber of commerce, in which members of the farm bureau and others participated. At this conference it was urged that the Los Angeles County board of supervisors make an appropriation sufficient to cover surveys of the watershed in and above the San Gabriel canyon. There are known to be many sites suitable for storage and control. This survey will doubtless develop the fact that the cost of some of them will be great, but past events show that the cost of no-protection is greater. Without question the present season's flood will prove a good teacher.

California Cultivator

Vol. LVIII, No. 2

Los Angeles, January 14, 1922

One Dollar Yearly

Reasons for the Agricultural Bloc

By Hon. Arthur Capper in The Forum



CRITICISM of the so-called agricultural bloc in the present congress as a "class group" has come, so far as I have observed, from class groups who fear recognition of the primary national industry by the government. These men in congress, comprising about 100 in the house and some 22 in the senate, largely from the West and South, who know the needs of agriculture, are accused by representatives of other interests of seeking class legislation for the farm.

The legislation which the agricultural bloc supports as its contribution to the general welfare, however, speaks for itself. As one who has actively supported and advocated these measures, I have no sympathy with class legislation, and I need hardly say that I see nothing of the evils of class legislation in the agricultural program.

Base of All Industry

It is trite to say that "agriculture is the basis of our prosperity." But threadbare as the statement is, it has needed repetition and emphasis. At the base of all industry is the oldest industry of the land itself. We may say that until quite recent years we regarded the farmer as valuable in his capacity as a producer of the first needs of life, but all great business now equally considers him as purchaser. He produces the raw material for the factory and he supports the factory in his immense consumption of finished products. Our entire business structure rests upon the land. The farmer not only feeds us and clothes us, but is, as a class, our best customer. Without him the railroads would languish. The steel industry without the railroad demand for rails and other materials, and the demand of the harvester and farm implement industries for steel, would perish. Unless the farmer prospers there can be no prosperity of a single industry. So efforts to improve and stabilize conditions surrounding this ultimate industry of food production are of as vital consequence to the city and to business in general as to the farmer himself.

Heretofore government aid to agriculture has consisted in the support of agricultural colleges and experiment stations, and the department of agriculture. Valuable as this service has been in promoting better farming, improved seed, soil culture and livestock, it has no relation to other and increasingly pressing problems of the farming industry which concern such subjects as financial credit and markets, and marketing machinery and processes.

Left by Wayside

Farming is a peculiar industry. It has not participated in the modern synthetical processes of industrialism, the centralization of control, the combination of capital into great units. In the immense development of the division of labor in the factory system and through the corporation, agriculture has been left by the wayside. It remains as individualistic as a century ago, when all industrialism was

individualistic. The farmer is the sole survivor of an earlier industrial order, when the shoemaker made shoes on his knees in his shop, when domestic industry flourished, and the household spun its own wool and was sufficient unto itself. With the development of the factory system and the corporation, and the corresponding evolution of credit and banking with relation to these new forms, agriculture has been overlooked. Farming is the only business left that buys at retail and sells at wholesale; that pays what is asked when it buys, and accepts what is offered when it sells. The farmer remains merely a producer of the necessities of human life. After he has produced them other organizations take them over at their own price for distribution. This is true of no other important industry. The producer gets only one-third of every dollar paid by the consumer for the products of the farm. Our expensive and antiquated marketing system takes the other two-thirds.

To Distribute our Products

The marketing and distributing agencies, well equipped with credit, closely affiliated and linked with the highly organized industrial order, do not, like the farmer, dump the farmer's products, after they have passed into their hands, at once upon a congested market. Facilities have grown up, the warehousing system, the elevator, the cold storage plant, the grain, cotton and other exchanges, that nicely adjust supply to demand, and the "middlemen" feed out the world's food supplies as demand calls for them. Just as these merchants hold and store and distribute in accordance with demand for consumption, thereby obtaining what the products are fairly worth during the entire year, so the farmer is now proposing through self-organization to dispose of his products, to control elevators, warehouses, credit, to be represented on exchanges, to market his own products. This is the first agricultural bloc aid to the farmer, in the Volstead-Capper bill authorizing farm cooperative marketing.

Farmers Handicapped

The farmer's individualistic industry, the single farm being the unit, not the corporate aggregation of many farms, is not adapted to the uses of the modern corporation. What is suited to agriculture (unless it is to be taken over bodily by big business in great trusts) is cooperation. There is not an economist nor an authority on agriculture who believes that the method of the corporation will answer the needs of agriculture. Cooperation differs from the corporation in several important features, but it is unnecessary to mention more than that in cooperation the amount of stock shall be limited to any one stockholder to the cooperative project, and the stock dividends shall be limited to a fixed rate having no relation to the earnings, as in the corporation, but having regard to the ruling rate

of interest for money or capital. Only by these limitations can the farm marketing enterprise be protected against control by a few, and the vital cooperative spirit maintained. In cooperation capital and labor are one. The farmer supplies the capital and it is he who turns out the product. The ultimate earnings dividends are rated not on the capital invested, but on the product contributed. This is true cooperation.

Middlemen Object

What the agricultural bloc discovered is that existing "middlemen" through their organizations are determined to prevent the rise of farm cooperative marketing. Aspiring local cooperative organizations of farmers were attacked by these interests in the courts for violation of the anti-trust acts, and the cooperation was obstructed and discouraged by these and other measures.

Convinced that farm cooperation is desirable, the last congress by an amendment of the federal trade act undertook to release it from any suspicion of attempted monopoly by exempting combinations "not for profit" from the scope of the anti-trust acts, acts designed for wholly different forms of organization. The amendment proved ineffective, and the Volstead-Capper bill now being pressed by the agricultural bloc, authorizes and validates farm cooperation as such.

Leads World Per Man

The American farmer leads the world in production per man, but he can never be an efficient salesman of his own products without the clear legal right to market them collectively. This right is given by the bill. Mr. J. D. Miller, representing the National Milk Producers, testified before a commission of congress that it "will do more for the ultimate prosperity of America's farmers than any other measure." This nation stands alone in the world in its inhibitions against farm marketing cooperation. The agricultural bloc is not asking special class legislation for the farmer, but merely the removal of legal obstructions to the farm cooperation and the placing of the American farmer on the same footing as his competitor in every other country on the globe. Danger of an agricultural monopoly through cooperation is not seriously urged, but only for political purposes by special interests. Agricultural monopoly through cooperation is impossible, because by the nature of the cooperative enterprise it has been found to be ineffective except by producers of the same products locally organized. Farm cooperation has not been successful either in Europe or in the United States where the members are widely scattered, or where they are engaged in the production of different products. A universal agricultural cooperative enterprise is utterly impracticable and contrary to all cooperative experience.

Cooperation the Remedy

But it is a sufficient defense of

farm marketing cooperation to say that every economist who has made a study of agricultural history and every advisor, from so high an authority as Secretary Hoover or Mr. Bernard Baruch down, agrees that cooperation is the remedy and the sole practical remedy for his marketing losses. In a recent interview Mr. Baruch said:

"I do not believe the farmer receives a fair share of the value of his products. And this is aggravated by practices of undergrading, overcharging for services, and under-payment. The theory of my belief is that the farmer should be put on an equal footing with the man who buys his products."

Mr. Hoover, in an address before the Kansas state board of agriculture on Farmers' Problems, stated that "our marketing system today in certain commodities is extravagant, it is wasteful, and it imposes great penalty upon the farmer." On the question of monopoly Mr. Hoover remarked in this address: "My own opinion is that price cannot be controlled in a long term of years by any form of organization. It can, however, be influenced toward the elimination of intermediate fluctuation, and speculation can be greatly eliminated."

Not Seeking Special Favors

In clearing the way for farm cooperation the agricultural bloc is not seeking to give a special advantage to the farmer over other industrialists, but to open the way for the farmer to adopt a plan of industrial organization as suited to the conditions of his industry as the corporation is suited to others. Other measures to which the so-called farm bloc has given its sanction include the Capper-Tincher anti-grain gambling bill already enacted into law. This is a measure, not for class legislation, but of correction of abuses on grain exchanges. It abolishes the practice of "puts" and "calls," condemned by grain exchanges themselves and many years ago prohibited by their own rules. But the main provisions of the bill give the secretary of agriculture power to investigate and report any suspected manipulation of the grain market, to check the books of market operators, and to prescribe rules for boards of trade. Other measures included are Senator Dial's anti-cotton gambling bill, bills regulating cold storage and providing control of the packing industry, the Capper-French truth in fabrics bill—applying to fabrics provisions similar to those of the pure food act—and bills creating more liberal banking credit, particularly personal credit on crops and farm machinery, making such paper more easily discountable.

Of these measures the only one susceptible to the accusation of "class legislation" is the last, since it does attempt to enlarge the banking credit of agriculture. People in cities or engaged in mercantile, manufacturing, brokerage or other business associated with cities are not aware of the extent to which bank credit has been evolved with relation to the needs specifically of such industries, and the extent to which the evolution of bank

(Continued on Page 34.)

Agricultural News Notes of the Pacific Coast

Northern California

Japan is importing rice from Northern California.

Napa County shipped 600 carloads of grapes last season.

Something over 16,000 cattle brands have been filed with the state.

The California Fruit Distributors announces 40,308 carloads of green deciduous fruits harvested the past season.

The California Asparagus Growers Association was organized at Walnut Grove recently.

The state laboratory opened at Sacramento January 1, under supervision of W. S. Wilkinson, Jr.

The supervisor of Lassen National forest reports 932 sheep killed by wild animals during the last year.

The James Mills orchards near Maxwell will furnish 60 carloads of oranges for shipment this month.

California's rice crop for 1921 amounted to 5,088,000 bushels, according to federal bureau of crop estimates.

The Vetch Growers' Association of Humboldt County is making arrangements for extensive plantings this spring.

Local meetings of Glenn County farm bureau: Willows, January 16; Capay, 18; Plaza, 20; Grapevine, 25; Glenn, 27.

Placer County fruit growers are urging establishment of a branch deciduous fruit experiment station in that county.

Twenty-one thousand pounds of Tehama County wool of the 1921 clip has just been sold at prices ranging from 19 to 30 cents.

During December cost of operation of Poultry Producers of Central California dropped to 2.92 per cent of sales, lowest of the year.

It is announced that work will soon be started on the poultry experiment station at Petaluma. It is to be under supervision of the state university.

The sale exchange of the Rice Growers Association opened January 5 at Sacramento. It will be open Tuesday, Wednesday and Thursday.

The Sutter County farm bureau is this year making distribution of purple vetch seed to members. The purple vetch has proven very satisfactory in that section.

Automobile transportation companies of California having gross operating revenue of more than \$20,000 must have a uniform system of accounts after January 1, according to an order made yesterday by the state railroad commission.

W. E. Rust, parasite collector for the California department of agriculture, who has been working in South Africa and Australia since July, 1919, reached San Francisco December 20. He brings with him valuable parasite material that will be reared and cared for at the department of agriculture insectaries.

The California Almond Growers Association has telegraphed the senate finance committee Prof. Jaffa's analysis of food values of California and imported almonds. This in protest against claim of the National Confectioners Association that California nuts are inferior, hence should not be given protective tariff.

Central California

Fresno supervisors have approved a number of road contracts.

Fresno County supervisors are considering truck load regulation.

A new Stanislaus County cow testing association is being organized.

The sixth annual fig institute was held at Fresno yesterday and today.

Reedley grammar school district in Fresno County has 1,122 children registered.

The Potato Growers Association of Shafter has bought \$35,000 worth of potato seed.

The California Fig Growers Association foresees a bright future for fresh fig shipping.

Fowler chamber of commerce, Fresno County, is to start a home building organization.

No farm home department meetings are planned by the Kern County farm bureau during this month.

Contracts have been given for the construction of three bridges on the Sanger-Centerville road, to cost \$4,420.

Sanger Citrus Association shipped 75 cars of navel oranges this season and the Stewart Fruit Company about the same.

P. G. Grundt of Wasco is chairman of the dairy department of the Kern County farm bureau. Mrs. Viola E. Rasmussen of Bakersfield is secretary.

Farm bureau meetings in Kern County: Mountain View, January 16; Pond, 18; Inyokern, 19; Rosedale, 20; Shafter, 23; Arvin, 27; directors at Bakersfield, 28.

The Santa Fe has taken over the operation of the railway line running from Bakersfield through Pentland, Maricopa, Taft and Fellows for a period of five years.

Farm bureau hog auction sales at Merced, January 17; Turlock, 18; Madera, 19; Fresno, 20; Bakersfield, 21; Tulare, 24; Visalia, 25; Hanford, 26; McFarland, 27.

The new citrus packing house at Sanger, Fresno County, has closed after putting out the 40 carload crop of the season. Lindsay, Porterville, and Exeter houses have also closed.

The California Peach and Fig Growers has employed a specialist to study causes and control of fig smut and report of his investigations was made at the institute just closed at Fresno.

The commission on agricultural education appointed by Governor Stephens will inspect the Kearney vineyard at Fresno, January 20. The commission will then visit southern agricultural schools.

As a Christmas present to the people of Tulare County, the new concrete highway into Globe from Porterville was opened the day before Christmas. Only a short distance now remains to complete the highway into Springville.

The 12 million dollar bond issue of the Merced irrigation district has been validated by the state irrigation bond commission. The proceeds of the issue will be expended in irrigating some 180 thousand acres in Merced County.

Senator Dennett spoke last week in favor of the proposed state water and power act before the Rotary Club at Porterville and the Terra Bella chamber of commerce. Senator Dennett is counsel for the Terra Bella irrigation district.

Southern California

Work is soon to begin on restoring the San Diego mission.

A chamber of commerce for San Dimas is being agitated.

Fourth annual institute of walnut growers, Santa Ana, January 13.

Hemet feels assured of tremendous fruit crop after the 12 inch downpour.

The California Walnut Growers association is perfecting a brand stamping machine.

Los Angeles County Supervisors are at work on an ordinance to control overloading of trucks.

Irrigation dam of the W. J. Hole ranch near Riverside was broken by the storm. Damages totaled \$15,000.

California poppies will be featured in the electrical decorations of the National Orange Show at San Bernardino in February.

The Apple Growers association of Costa Mesa, Orange County, is now formally incorporated. First meeting will be held February 7.

The city of Anaheim and the Santa Fe cooperated in putting a big bunch of men at work with sand bags closing the gap in the Santa Ana.

Clam beds along the Santa Barbara coast have been raided by piggish diggers recently so that the game warden has had to be appealed to.

Many visitors have motored to the Devils Gate dam above Pasadena to see the great lake formed by impounded waters of the Arroyo Seco.

The state commission on agricultural education will visit Chaffey Junior College, Riverside citrus experiment station and the Meloland station.

Five demonstrations of correct methods of pruning one year grape vines were given in Imperial County the past week by Prof. F. T. Bioletti.

D. C. Milbrath, formerly specialist in plant disease at the United States station at Alhambra, has taken up work of the state department of agriculture.

The opening reunion for state societies for the season will be the Utah-Idaho rally in Sycamore Grove Park, Los Angeles, Saturday, January 14.

Orange vinegar is being manufactured at the San Dimas plant of the Exchange Orange Products Company. The finished product is ready for use within five days from extraction of juice.

Citrus shipments by the Placentia Mutual Orange Association for the fiscal year ending November 30 were 67 per cent greater than for the same period last year, according to Manager H. I. Easton.

Home department meetings of the Imperial County farm bureau at Jasper, January 17; Seeley, 18; North End Calipatria, 19; Mount Signal, 20; Westmoreland-Trifolium, 24; Magnolia-Mulberry, 26; Eastside-Sunset, 31.

Horticultural Commissioner Call of Ventura County in his report on biological control of the citrus mealy bug says that during the past month the citrus mealy bug has made a decided increase in the citrus orchards of this county. Nearly the entire time of one inspector has been devoted to the collection of food and the rearing of the natural enemies of this pest.

The Coast and General

Bitter Root Valley, Montana, shipped 700 carloads of apples the past season.

Orchardists of Washington are also beginning to appreciate the value of alfalfa as fertilizer.

Many farmers in the Silverton district of Oregon have set walnut trees in their home orchards.

Picking of olives, interrupted by the rains in the Salt River Valley of Arizona, has now been resumed.

Alfalfa is growing nicely in the Yuma section of Arizona where the ground is still too wet to work.

Sixteen carloads of hops were sent from Yakima, Washington, recently to England. Price around 30 cents.

Hop raising has almost been discontinued in Lewis County, Washington, only 257 acres being planted last season.

The Tillamook County Cow Testing Association will market calves from tested cows through County Agent W. D. Pine.

The directors of the Washington Holstein-Freisian Association met recently at Seattle to plan their activities for 1922.

Cotton picking has been much delayed in Arizona by the wet weather. Only about two per cent of the crop remains unpicked.

"A flock of chickens and a patch of berries is the best opportunity for the small farmer in this part of the county," says J. R. Stewart of Kirkland, Washington.

Farming operations in Arizona have been somewhat delayed by recent rains but on the whole benefit has accrued to crops, particularly to late planted lettuce, which has made considerable progress.

At the recent annual meeting of the Farmers Union of Washington and Northern Idaho J. I. Adams of Spokane was elected president to succeed W. J. Robinson, who has become manager of the Washington Wheat Growers Association.

The first dividends paid by the Lower Columbia Dairymen's Association gave shippers of butterfat two cents per pound above the Astoria market, four cents above Portland and six cents above Junction City. The association paid its patrons 49 cents.

Range steers in the White Mountain section of Arizona are still in fit condition for beef as ranges were covered with excellent pasture all autumn and the water supply adequate. Roads have not been damaged but will be too soft for auto travel for some weeks.

The Oregon Wool and Mohair Growers' Cooperative Association has changed its name to Pacific Cooperative Wool Growers, to include growers from Washington and California. It now has 1800 members. The association handled about 2,000,000 pounds of wool this season.

Range conditions in Arizona and New Mexico have been greatly improved by the heavy rain and snow, although a depth of from eight to 12 inches of snow in some portions of the north has interfered with the pasturing of stock. In the Flagstaff section an average of eight inches covers the ground while in the Grand Canyon section five inches of wet snow separates stock from feed.

The Bulk System of Grain Storage

By Arthur L. Dahl

THROUGHOUT the entire Pacific Coast the method in vogue for many years for handling grain is in the sack.

The cost of sacks, however, has been gradually increasing and during the war their price went way up, and as a result more thought has been given to the bulk handling of grain.

As one travels on the train through the great grain states of the Middle West there appear elevators of every description, some of them standing out like lighthouses in a sea of grain fields, while others are grouped at terminal points along the line. There are thousands scattered everywhere, many of them owned and operated by farmer associations and communities. Bulk handling of grain has been found to be the most efficient and economical system yet devised, and many of the largest milling companies of California are adopting the system, and even though the grain is received at the warehouse in sacks it is immediately emptied out and the grain merged with that from other sources and thereafter handled in bulk. The railroads make provision for bulk handling, furnishing proper cars and adjusting their tariff regulations accordingly.

Manufacturers of combined harvesters have developed their machines to permit of the handling of bulk grain from the time it is cut until loaded into wagons for hauling to the elevator, and the only thing necessary for the farmer to do is to provide the necessary storage facilities on the ranch to take care of the grain until it is sold and delivered to the purchaser.

Sacked grain, when stored in the open, or even under temporary shelter, is subject to many kinds of deterioration. Moisture is apt to be communicated to the contents in one way or another and rats and mice inflict serious damage to sacks in very short order. Insurance rates are so high that many farmers do not carry any in spite of the fact that their whole season's work is tied up in a stack of

grain that might be destroyed over night.

A practical solution of the storage problem is the maintenance of a metal storage bin on every grain farm. This bin occupies the same place toward grain that the silo does toward forage crops, and with a proper place to keep grain stored the producer can sell when and where he pleases.

The necessary equipment for the handling of grain in bulk can be purchased for a comparatively small amount of money, and the cost of this equipment will in most cases be returned in the form of savings in a few years. Farm wagons can be easily converted to carry bulk grain, and the purchase and handling of sacks be avoided.

Metal grain bins can be purchased in a size to meet the needs of the most modest ranch, or by combining a number of units the capacity of the largest grain field can be met. At numerous points on the Pacific Coast grain farmers have tried out the system of storing their grain in metal bins, and invariably they report after a year or two's trial that they would not go back to the sack method.

The Crocker-Huffman Land & Water Company purchased two 6,000 bushel metal bins which were installed on their ranch near Merced in 1918, and since that time these bins have effected great savings in handling and storing. Fire hazard is practically eliminated as well as damage by rodents.

Frank S. Reager of Orland reported that his metal grain bin effected a saving of more than \$600 in the handling of his 1919 crop. The harvesting was done more quickly and with less men and the bulk handling resulted in saving many bushels of grain that would have been lost through defective and torn bags, and once this grain was stored in the rat-proof bin it was safe until sold.

A metal bin 6 feet high and 12 feet 7 inches in diameter will store 600 bushels of grain, and by increasing the height and diameter the capacity is increased so that one 18 feet high and 22 feet in diameter will store about 6000 bushels of grain. By providing a proper foundation, and choosing a bin made from rust resistant material it will last indefinitely and will serve as a store room for corn or other crops if grain is not grown.

That the metal bin is an ideal type of storage for grain and other farm products is shown by the fact that many of the big commercial warehouses and milling companies are using the bins for the storage of their grain. In communities where farmers form cooperative elevator associations for handling their products the metal bins can be used to form units that can be expanded indefinitely to meet the increased needs of the members. In one such case a system has been worked out whereby a total storage capacity of 72,000 bushels can be obtained at one plant by the use of 12 bins, each of 6000 bushels capacity, arranging them in two parallel rows with each bin mounted on a conical reenforced concrete base. Each of the bins is connected with a conveyor system for handling the bulk grain, and an operator stationed in the tower over the workhouse regulates the delivery of the grain to any particular bin. Chutes lead from these bins to the workhouse so that grain cars can be loaded directly from the workhouse just as is done in the large commercial elevators. The grain is delivered at the plant by the farmers into a receiving pit below the level of their wagons, from which it is conveyed to the bins by mechanical elevators.

A metal grain bin on the farm will prove of value in many other ways, for it serves as excellent storage space

for all kinds of material. The bins are usually provided with ventilators at the top so that it is possible to regulate the temperature and humidity inside. Such a bin is excellent for storing seed corn or other seeds grown on the farm and kept over from one season to another. The absence of moisture, freedom from rats and other pests will permit the keeping of seeds so that their full germinating powers are not impaired, and where corn is kept for feeding to work animals it has been the experience of many farmers that animals will eat more of the corn kept in metal bins than in wooden corn cribs. Where the latter are used it is practically impossible to keep rats out and their running back and forth through the corn imparts an odor and taste that is disagreeable to stock. Where corn is kept in a metal crib or bin it is not subject to the changes in atmospheric moisture and it can be kept dry and wholesome for many months.

In modern agriculture the tendency has been toward making the farmer more independent and free from influences and conditions beyond his control. The tractor and other power machinery enables him to do more work himself and frees him from reliance on hired help. Improved farm implements enable him to plant, cultivate and harvest his crops in less time and with less labor than formerly, and the only thing needed to perfect their independent position is in the matter of storage for their products until a desirable market is found. When everybody is selling is not the time to sell, if one has the facilities to keep products free from deterioration until the demand is keener and prices higher. A metal grain bin installed as storage equipment on the farm will soon pay for itself in many ways, and such an investment will be another rung in the ladder on which a farmer can mount to prosperity and independence.

The Decline of Old Citrus Orchards

From Address by A. D. Shamel Before
State Fruit Growers

THE time is not far distant when the problem of the old orchard will be of much greater importance than it is now.

There are in California a few commercial orchards of Washington Navel, Valencia and Seedling orange, Eureka and Lisbon lemon and Marsh grapefruit varieties which are ordinarily called old orchards. I have also had the interesting experience of studying Navel orange orchards at Bahia, Brazil, where some of the trees are known to be about 100 years old. The ideas presented in this paper have been developed as a result of my studies and observations of tree conditions in these older orchards.

Vitality of Citrus Trees

The productive life of citrus trees has not been determined so far as I am aware. In Spain there are citrus trees more than 500 years old. At Bahia there are citrus trees producing satisfactory crops that are known to be about 100 years old. In California there are productive seedling orange trees that are known to be more than 50 years old. In Ventura County there are Eureka lemon trees in full production that are about 50 years old. In Santa Barbara, San Diego, Los Ange-

les, San Bernardino and Riverside Counties there are a few commercial orchards of some of the established citrus varieties in which the trees are from 30 to 45 years old. In some cases these trees are productive and vigorous.

The culture of citrus in California has not reached sufficient age to warrant definite conclusions as to length of time trees under favorable conditions may be expected to produce satisfactory crops. The decadence of individual trees or of orchards is dependent to such a great extent upon local environment that it is difficult to draw final conclusions. Furthermore, it is my opinion that the trees of different varieties possess characteristic constitutional vigor and that they may need particular care with regard to varietal considerations, such as the kind of root stocks, the type of pruning and the necessity for tree renewal, the location of the orchard and the cultural treatments which may be expected to prolong the life of the trees in a satisfactory condition of growth and production. Little is known about

these problems as yet. Until they are settled it will be impossible to state very definite opinions as to the ultimate length of productive life of citrus trees or varieties.

Causes of Decline

There are several known conditions which lead to the decadence of citrus trees in California. I will attempt to mention and discuss briefly only a few of those which have come to my attention while carrying on our bud selection studies during the last 12 years.

It seems definitely settled that the kind of root stock is related rather definitely to the health and vitality of citrus trees. I often think of the influence of the root stock upon the tree as somewhat comparable to the relation of the foundation to the stability of the building standing upon it. If the foundation is unsuitable or weak the building is likely to be short lived. Sufficient time has not elapsed to state finally the best kind of stocks for all varieties and under all conditions. The resistance of the sour stocks to diseases, including gummosis, which

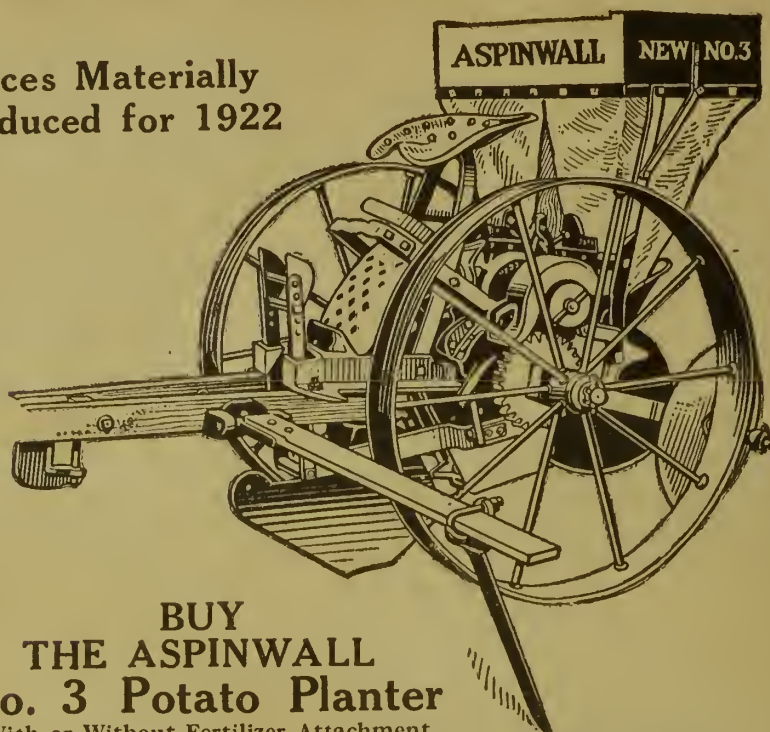
has been definitely established by a study of the behavior of citrus trees grown on sour orange root stocks in some of our older citrus orchards, is an important consideration in this connection. Until some better kind of stock is introduced commercially it seems apparent that we should use for most conditions sour orange root stocks in propagation of the trees of all commercial citrus varieties for the Southwest.

The lack of satisfactory production in some of the older orchards has been found due to presence of trees of vegetative strains. Healthy trees of vegetative strains can usually be successfully top-worked with carefully selected buds. Vegetative branches can be cut out in otherwise satisfactory trees and through continuous pruning largely controlled. Unfavorable soil conditions are responsible for tree decadence in some of the older orchards, due in some instances to grading to level land for irrigation. By resurfacing such areas the unproductive trees have been brought back to profitable growth and production.

Where use of fertilizers containing injurious substances has developed unfavorable soil conditions their use should be discontinued and an effort

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made to correct the unhealthy soil conditions. Where soil has become heavily charged with injurious substances or brought into poor physical condition by use of improper fertilizers or faulty irrigation water, there is doubt as to whether it can be brought back economically to a favorable condition for citrus culture. The best plan may be to remove the citrus trees and replant with some other crop.

Undesirable cultural practices or neglect frequently lead to decadence. Amongst the most common of the undesirable cultural practices may be mentioned the cultivation of the heavier soils too soon after irrigation or rainfall so that the soil becomes puddled and hard upon drying out. This interferes with the normal development of roots. Soil thrown up or washed up against the tree trunks is likely to be injurious. If such soil is continuously moist this frequently favors the development of serious citrus tree diseases. If the soil reaches above the bud union adventitious roots are likely to develop which seem to be particularly detrimental to the health, growth and fruitfulness of lemon trees. The liberal use of organic fertilizers, rich in humus and nitrogen, and thorough cultivation are now considered the most efficient means for improving soil conditions in orchards suffering from neglect.

Severe frost, heat and wind injuries without adequate tree protection and care have been known to lead to citrus tree decadence. The problem of frost protection is peculiar to the individual orchard. The damage from excessively high temperatures seems to be less in orchards where the trees are in good physical condition. Wind injuries can sometimes be avoided or minimized by suitable windbreaks. Lemon trees are not so resistant to extremely low temperatures as orange and grapefruit trees. A knowledge of the local climatic conditions through a study of climatological records and previous orchard history will often prove helpful in considering location of the orchard and the advisability of frost and wind protection.

Fungus diseases are important

causes of citrus tree decadence. Some of the commonly found fungus diseases can be controlled by systematic treatment. The development of some of the most injurious of these diseases is favored by unfavorable soil conditions. In these instances it is necessary to remove or correct the objectionable conditions as well as to treat the diseased trees. In other cases the diseases develop as a result of tree injuries such as those due to careless pruning or the reckless use of orchard implements. The treatment of such injuries when practicable is usually expensive and the necessity for it should be avoided wherever possible. In order to renew decadent citrus trees all scales and other insect enemies must be killed or controlled before good results from other care can be expected.

Rodents sometimes girdle or otherwise injure trunks and roots. In severely girdled trees inarching or bridge grafting can sometimes be successfully used. In all cases the wounded areas should be carefully treated, protected with a suitable covering such as grafting wax, and the tops cut back somewhat in proportion to the severity of the injuries.

The foregoing discussion is only a brief summary of some of my ideas as to the causes of citrus tree decadence. In this connection I would like to say that as the problem of the old orchard becomes more acute there is a tendency to attract the selfish interest of so-called tree doctors who advertise the cure of all tree ailments by mysterious or secret treatments. We have something of a parallel to this condition in the case of the human family. Physical ills are likely to develop which on account of our lack of knowledge may be difficult or impossible of cure. Here is the quack's opportunity. He blandly offers a free diagnosis and makes extravagant promises of a sure cure for all and every trouble. I would like to suggest that the grower beware of all extravagant claims for success in treating decadent citrus trees until local orchard experience has demonstrated the value of any particular treatment.

Bureau of Plant Industry



THE government's services to the plant life of the nation, during the past fiscal year, from its role as physician to ailing trees and cereals to the part it took in importing new and valuable species for ultimate use on American dining tables, is set forth in the annual report of the bureau of plant industry, United States department of agriculture.

As usual the bureau's activities during the year covered a wide range of scientific and practical work. From investigational work, with increasing corrective benefits in the wheat and corn fields of the country, the bureau extended its activities to a study of ailments affecting truck crops, grapes, oranges, lemons, pecans, figs, tobacco and other products in common use. Its work of this character in the orchards of the country resulted in valuable contributions to the knowledge of fruit tree enemies and diseases, and an extensive inquiry into troubles affecting the cotton crop was conducted; further work in combating the blister rust, which has played havoc in white pine forests of the New England and Lake states, was continued; the cause of the hardening of irrigated lands, which in some cases become so impermeable to water as to be unsuited for crop production, was determined and a preventive found; plant nutri-

tion and soil fertility investigations were continued; further progress was made in the identification and study of poisonous plants.

The widespread demand among individuals for information and plans with which to start grape growing was noted during the year. Two important new grape industries started during the year. The growing and curing of the currant grape and the growing and shipping of the Ohanez and other Mediterranean varieties in America owe their origin to the bureau's activities. Methods of pruning citrus trees and of growing prunes were studied, and valuable recommendations made. The apple, too, came in for study, especially its behavior during the various stages of evaporation. Fruit juices were studied and an investigation made of the troubles encountered by pecan growers.

Rubber can probably be produced in the United States, and a few native species of plants containing gums that can be used as rubber substitutes are worthy of thorough investigation.

In its study of diseases of fruit and nut trees the bureau reports continuation of the destructive inroads of pear blight; more prevalence than usual of peach yellows; and the severity of apple cedar rust, especially during the spring of 1921. Brown rot among plums and peaches, scald of apple,



Australian Brown Onions

pineapple diseases, and apple powdery mildew, were studied during the year with resultant acquisition of knowledge upon which to base campaigns against these plant diseases. The brown rot disease of prunes and cherries in the Pacific Northwest, the bureau reports, can be completely held in check by spray.

Among vegetables the bureau continued to fight against potato mosaic and leaf mold, potato tuber rots, sweet potato diseases, cucumber mosaic disease, nailhead spot among tomatoes, and onion diseases.

The campaign to eradicate citrus canker in the Gulf Coast territory west of Florida continued without abatement during the year. Renewed interest was awakened in the tangelo, a hybrid of tangerine and pomelo, which is found especially well adapted for the fancy fruit store and mail order demands. Why the flesh of this fruit dries out on maturity has been discovered, and suggestions for its prevention made.

Citrus canker has been practically eliminated from the Gulf states as the result of a vigorous campaign conducted in cooperation with the bureau.

Some of the most fertile irrigated lands of the West have become so hard after a few years of irrigation that cultivation has become increasingly difficult and in some instances the lands have become nonproductive. Into this situation the bureau has conducted an investigation, and has found that the hardening of the soil is due primarily to salts of soda, carried in irrigation water. "Indications are that it is possible to prevent the injury caused by the sodium salts," the bureau asserts, "through corrective applications of salts of calcium, iron, or other salts, and it may be found practicable to reclaim and bring into profitable production areas of land that have been abandoned because of injury from sodium salts."

FIG SMUT CONTROL

Report on investigations into control of fig smut was made at the fig institute held at Fresno yesterday and today, January 13 and 14. From the Lindsay Gazette we take the following. Report from the institute we hope to give in the Cultivator soon.

"The fig tree and fruit are often regarded as being 'fool proof,' able to grow anywhere and anyhow and not subject to many pests. Growers of figs have long since learned that some insects and diseases affect either tree or fruit and often cause serious damage. Among the fruit troubles, the disease known as fig smut has given more concern than any other, both in the field and packing house.

"This is a black fungus which invades the fruit and turns the interior into a mass of black powder. It is often difficult to detect from the outside and is therefore troublesome to packers who desire to put out a clean product.

"The California Peach and Fig Growers, after receiving the 1920 crop of figs on consignment perfected a machine which would tear open the individual figs sufficiently to enable girls to pick out the smutted specimens. Believing, however, that control in the orchard was the logical procedure, the board of directors authorized their horticulturist, Professor I. J. Condit, to employ a specialist in plant disease to make a thorough study of the smut and its life history and to work out practical methods of control. Miss Edith Phillips of Berkeley was therefore employed in December, 1921, and has spent all of her time in the field and laboratory working out the identity and the various stages of the smut fungus.

"The smut spores or seeds are very abundant in fig orchards and are blown about freely by the wind all winter, spring and summer. They are produced in stick-tight figs, in dead twigs, and in bark, and are undoubtedly present in the soil throughout most of the year. The spores are very minute and have no difficulty in getting into the eye of a fig with the aid of the wind. It is believed, however, that dried fruit beetles which are so numerous in fig orchards during the drying season, are largely responsible for spreading infection. Beetles which crawl into a smutty fig come out thoroughly covered with black spores and these are carried into both green and ripening figs. In some cases the smut fungus causes the fruit to rot with a characteristic pink discolora-

tion. In other cases the fungus grows and fruits on the inside of the fig and there is no indication of its presence from the outside except a slight darkening at the eye. While smut has been regarded as primarily a fig disease, similar if not identical smuts have been found on peaches, grapes, and in pomegranates, facts which complicate the situation and make control measures more difficult."

IMPROVED CROP REPORTING

One of the newer forces of value to producers, which has been introduced by the department of agriculture, is the crop reporting service. It has failed at many points; it has succeeded at others. Those in charge are determined to make it more complete and as nearly as possible perfect. Making address on the work of the service, Leon M. Estabrook asks suggestions from those connected with the service who know of deficiencies, and from all who are interested in marketing and know of marketing conditions. The service has tried every known method for estimating and arriving fairly accurately at crop and livestock production, but still wants other suggestions. Mr. Estabrook said:

"There is growing and insistent demand that the estimates be localized by counties. During the last three years the department has gradually extended its system to making

county estimates through its state statisticians. It is hoped now to publish maps for each state at or about harvest time, indicating surplus and deficient production by counties for each of the important crops.

"It is planned to issue figures showing the marketable surplus production, that part of the crop that is sold and actually leaves the farm and goes into the channels of trade. Up to the present time the department has simply estimated total farm production because of lack of funds except during the war period when emergency appropriations permitted estimates of commercial production of fruit and truck crops.

"Complete, accurate, and timely information with respect to livestock production is needed, perhaps, more than anything else," Mr. Estabrook said. "Additional funds would allow the department greatly to enlarge its livestock reporting service and to forecast the production of beef, hogs, lambs, wool and dairy and poultry products with the same frequency and degree of accuracy as the staple crops of the country are now estimated.

"An improved foreign information service is needed that will give timely, unbiased and dependable information at all times with respect to crop and livestock production, stocks on hand, consumption, imports and exports, surpluses and

deficits for all countries. The department now receives regularly the official reports of the International Institute of Agriculture at Rome and direct reports from the adhering governments. While valuable, these reports are not timely, as they are too slow in reaching this country. It is, therefore, necessary to supplement these sources of foreign crop information, and the department is advocating the employment of agricultural attaches in the same way and for the same purposes as these officials are now employed by many foreign governments.

"It is planned, also, to improve the methods of presenting the data obtained by the department. The commodity economists will be expected to prepare careful analytic statements in popular form, setting forth the essential facts with respect to relative supply and demand, for publication in periodical and special reports and in the press. These reports will be brief and well illustrated by maps, diagrams, and charts so as to be readily understood at a glance even by those who are not accustomed to analyzing statistics."

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P. S.—Ask The Tioga Tractor Sales Company, 1957 So. Los Angeles St., Los Angeles, Calif., when and where there will be a demonstration near you.



TIOGA
STRENGTH TESTED
TRACTORS

Tanning Skins

THE Cultivator is repeatedly requested to give information regarding tanning and curing skins for leather or to retain fur. Here are a number of methods which have been given in former Cultivators, now gathered together and repeated in these columns.

Rawhide

The skin should be salted on the flesh side as soon as the hide is cooled after removal, using ten to 12 pounds to a full sized skin. After salting roll the hide tightly. When ready for tanning place the hide in "soak," simply water to remove blood and salt. After being left in this 24 hours the tail and feet may be cut off, after which the hide should be placed in lime water. To make the lime solution take a bucket of water to each quart of lime.

When thoroughly slaked and mixed, immerse the skin and allow to lie for three to four days. Thoroughly wash in cold water. Scour and pound in good soapsuds for half an hour, after which take white vitriol, alum, and salt, one tablespoon each to skin, and dissolve in sufficient water to cover skin. Let remain in this 24 hours. Wring out and dry. To soften, oil with neat's foot oil or currier's oil. It may again be washed out in soapsuds and hung until nearly dry, when it should be worked and softened. If it should remain hard and refuse to soften, repeat the soaking in suds.

Government Formula for Leather

To each gallon of water add one quart of salt and one-half ounce of sulphuric acid. This mixture should not be kept in a metal container. Thin skins are tanned by this liquor in one

day; heavy skins must remain in it longer. They may remain in it indefinitely without harm.

When removed from this liquor, the skins are washed several times in soapy water, wrung as dry as possible and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle, hung lengthwise over a line, hair side out, and left to dry. When both surfaces are barely dry and the interior is still moist, they



Every Man's Hand Against Him
The United States Biological Survey is cooperating with various counties in California and Arizona in shooting and poisoning coyotes.

are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn flat file, or a similar blunt edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed and twisted until quite dry. If parts of a skin are still hard and stiff, the soaping, drying and stretching process is repeated until the entire skin is soft. Fresh butter or other animal fat, worked into skins while they are warm and then worked out again by a hasty bath in gasoline, increase their softness.

Curing Fur

To prepare skins for making ladies' boas, muffs, capes, etc., take the skin off whole by cutting from hock joint across vent to hock joint on opposite side and draw the pelt off over the head and cut off at a point back of ears; or, if the ears are to be left intact, let the cutting be done on a line extending around the point of nose. Then place the pelt on a stretcher made of half-inch board six inches wide at the top and four inches wide at the bottom. Cut this in two parts, from end to end. Stretch the pelt over the two, place edges together and rub salt over the pelt while fresh, and then sprinkle with powdered alum and allow it to dry. When about dry remove from boards and rub with the hands until dry. The skin will then be as soft and pliable as buckskin. Place your pelts where there will be plenty of fresh air, yet not in the direct rays of the sun.

Another method is to tack the skin taut, the fur side under, on a board, and after scraping the bits of fat off, moisten all over and sprinkle with a mixture of seven parts salt and one part pulverized alum. Leave about two days to absorb the salt. Then wet it again and repeat the mixture. About the fifth day wet it again and sprinkle with a mixture of two parts alum and one part salt. When dry it is cured and can be taken off the board. The above is from the "Belgian Hare Guide."

Here is another method of retaining fur:

There are numerous ways to tan a deerskin so the hair won't come out. Many processes will cause the tanned skin to be hard and stiff. The following will leave the hair on, yet the skin will be soft and pliable:

Soak skin in water over night, then remove all flesh and fat. Be careful not to cut the skin. Put good hard salt one-quarter pound, and alum three pounds, in sufficient water to cover the skin. Set over fire and boil until salt and alum are dissolved. When it cools to lukewarm put in the skin and soak five days. Work it well with a blunt stick once or twice every day. Then take it out and dry in a warm place in the shade. When apparently dry heat the tan water again and soak four days, working it every day as before. Then wash in several waters, soaking an hour or two in each. This is to get all the salt and alum out. As soon as the washing process is complete, beat with a wooden mallet until quite soft, then dry again in the shade. From time to time until it is thoroughly dry, rub and work the skin with the hands. This seems a good deal of work, but a soft pliable skin can only be obtained by work.—Rural New Yorker.

Still another: Remove all particles of flesh from the skin and give it a heavy dressing of equal parts of salt and powdered alum wet with a solution made from two parts of water to one part of liquid muriatic acid. Mix the salt and alum thoroughly dry. Mix the two parts of water to one of muriatic acid thoroughly, then use enough to wet the dry substance just enough to make it moist, but not really dripping. Having rubbed this into the flesh side of the skin, leaving a good dressing all over, fold the edges of skin in until they meet in the center all around. Do not let the dressing get on the fur side of the skin; when all folded right, roll up tight and place where it will be cool for 24 hours. At the end of this time examine the hide and, if dry, apply the dressing again and leave for 48 hours well rolled as before. At the expiration of the stated time unroll, stretch on a board and tack firmly in place. Melt up half a bar of soap and add to this as much cottonseed oil as it will

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propagating plants
in CALIFORNIA
-one in Oregon-
-one in Arizona

absorb by shaking hard. Rub the skin soft as desired; apply this again and one that should not be trouble with rub till about dry. This simple rule followed exactly should insure a smooth, soft, whitely tanned hide and one that should not be troubled with moths or insects. We have had a home tanned wolf skin rug in the house for many years and it has never had a moth in it and it is soft and pliable as need be. This is a simple and reliable rule and anybody need not fear to tan the skins he may get in hunting or trapping.

ALFALFA GROWERS' LETTER

The year closes without any material progress having been made in the solution of the most serious problem facing the farmers of the country, and indirectly all other interests, that of the great discrepancy in price between what the farmer has to sell and what he has to buy.

The cause of this discrepancy is undoubtedly to a large extent to be found in the heavy taxes and interest, besides his own, which the farmer has to pay. Manufacturers, railroads, merchants, etc., all add their taxes and interest "overhead" to their prices and thus pass it on from one to the other until it reaches the farmer, who pays for all in the prices for what he has to buy. The farmer is the last man in the line and cannot pass these charges on because under the existing marketing system his cost of production is not taken into consideration at all in the fixing of prices for his products.

The solution of the problem would therefore seem to depend on the finding of a marketing method by which his cost of production is the principal price determining factor. So far it has not been possible to find a general solution along this line. A partial relief has, however, been afforded by cooperative marketing. It cannot be denied that where farm products have been marketed by cooperative growers' associations, the prices obtained have usually been materially better than where they were marketed without such associations and, generally speaking, these prices were comparatively best where these associations were strongest in membership and efficient management.

Taking as an illustration our association: Though the cooperative marketing of our product, alfalfa hay, presents probably more difficulties than most other farm products, and though our association is still comparatively weak in membership it has nevertheless been able to secure for the California growers considerably better prices than they would otherwise have received, and also better than the growers in other states, without organization, have been able to obtain under otherwise similar conditions. In other words, cooperative marketing is the only way in which it is at present possible for the farmer to obtain some slight recognition as a price making factor on basis of his cost of production.

We do not claim that cooperative marketing alone will bring back prosperity to the farmers of the country, in fact we do not believe it will, but we feel sure that without cooperative marketing their fight for existence will be all the harder and the final outcome all the more doubtful.

POTATOES AND NEMATODES

The nematode question is becoming more and more serious to the potato grower. Touching upon its spread and the greater care required of potato growers Horticultural Commissioner Ryan of Los Angeles County says:

"Increased attention of recent years by state and county horticultural officials and growers to the nematode, or eelworm, problem has resulted in an agreement that thorough inspection of trees and nursery stock and the rigid exclusion of infested material must be supplemented by stringent rules directed against the sale of infested potatoes.

"It is expected that the state department of agriculture will soon issue rulings which will insure uniform procedure throughout the state. The Los Angeles County horticultural commissioner's office through the district inspectors is urging necessity of inspection of all potatoes used for seed purposes during the spring planting season. The thorough cooperation of

grower and dealer is necessary to accomplish comprehensive results in this work.

"The sale of potatoes from one grower to another must be followed by inspection. The planter of potatoes which were grown outside of his ranch who neglects to notify the inspector so that an examination may be made before planting is not only violating the state law but is taking a chance of growing a crop that may be denied a

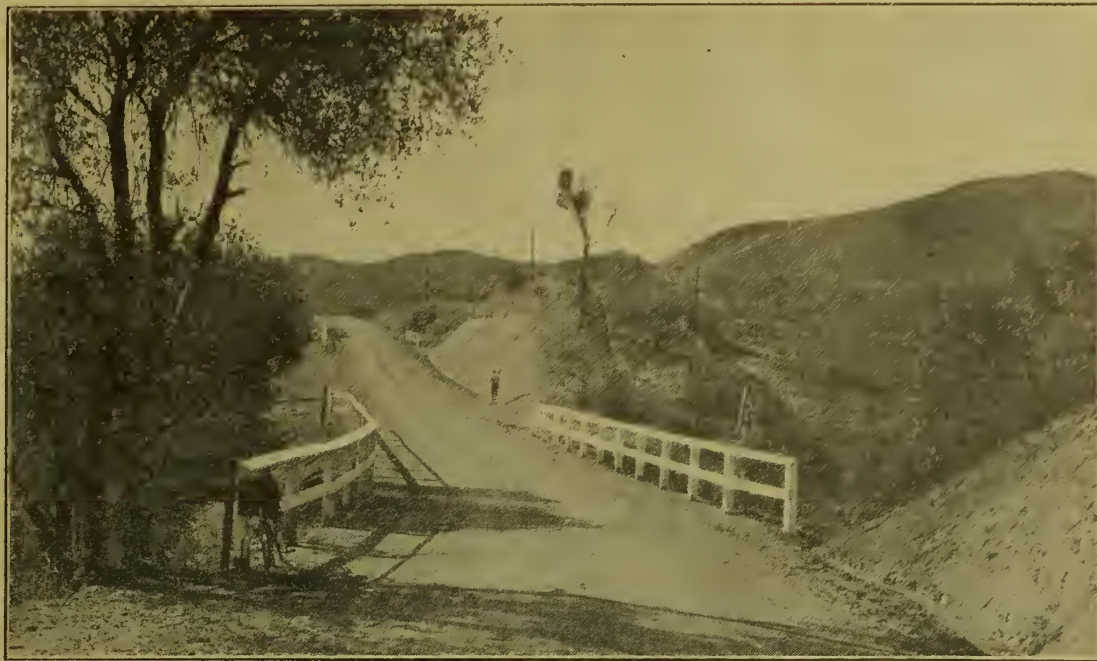
market next fall if they should prove to be infested with eelworm.

"In the opinion of the officials and growers who are best acquainted with the menace of the nematode an effective check against further spread of the eelworm will not be secured until the sale of infested potatoes for any purpose is forbidden. Such a ruling, because of its far-reaching effect upon market conditions, cannot, however, be put into effect without due notice to

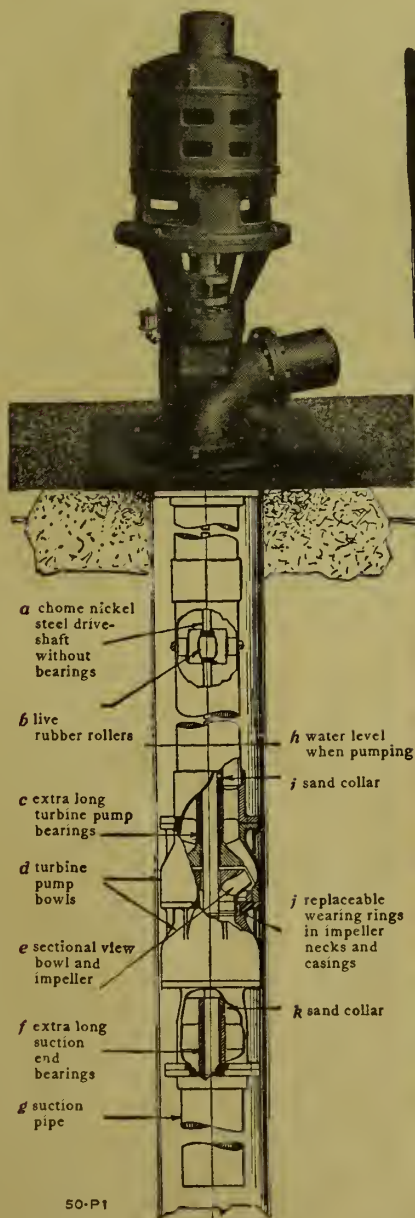
producer, consumer and dealer. In the meantime every effort should be made to insure the planting of clean seed potatoes and to prevent the planting of any potatoes in infested ground."

DIDN'T START IT.

His wife reproved him sharply
When he his razor cursed.
"Why don't you curse the blade?" he said,
'It lost its temper first.'



A Bit of the State Highway in Mendocino County



The NEW Bean Turbine Pump

Here is an entirely new idea in turbine pump construction—new, in the sense that it has not been offered generally to the growers of the state, although during the past year and a half there have been nearly a hundred of them installed in the Santa Clara Valley and elsewhere, and they have surpassed our highest expectations in efficiency, economy, and freedom from trouble.

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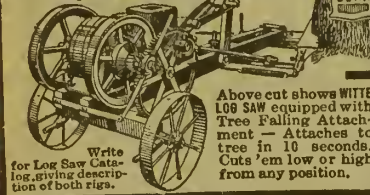
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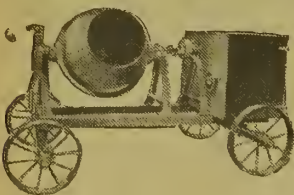
You get Log Saw at new cut price of \$99.50 and the \$35 Tree Saw Equipment Free, if you buy NOW Every WITTE Rig sold on Lifetime Guarantee—Cash or Easy Terms. Immediate shipment. If in a hurry, Wire.

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Attaches to
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logue, giving descrip-
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REASONS FOR THE AGRICULTURAL BLOC

(Continued from Page 27.)

credit has overlooked the peculiar conditions of agriculture.

Not Devised for Farmer

Commercial paper is the key of banking credit. Credit machinery and facilities have accommodated themselves to the needs of commercial and manufacturing business. Since this business ordinarily has a turnover measured in weeks, bank credit has adapted itself to such periods of duration and renewal. We have the thirty day, sixty day, and at most ninety day note, and this arrangement perfectly suits commercial business. In fact that is the reason we have it. It does not suit farming business, yet this fact has not in the least modified the practice, demonstrating conclusively that bank credit does not concern itself seriously with the industry of the production of the world's food supply. The farmer's turnover is

of the facilities of bank credit for the special benefit of merchants and manufacturers, and their particular function is to find the widest market, often in the small country or farm bank, for the paper of great commercial houses.

But where do we see any extension of bank credit that helps the farmer finance his business? He has paid the highest interest rate for working capital, not because his credit is naturally inferior to that of commercial business, but because the banking system has grown up in places and under conditions remote from those of farm industry.

To Fill Credit Gap

It is not the purpose of the agricultural bloc in the banking credit measures it advocates to supply the farmer with a more generous line of credit than other industries, but to fill the wide gap that has existed between his industry and the credit that all other industry enjoys. It is merely a belated effort to meet a profound need of agriculture. The purpose of the credit bills is to create banking facilities for the farmer adjusted to the times and seasons of his need, not



Bordered With Olives

Many ranchers, especially in older settled sections of California, have utilized the olive as a street tree.

mainly once in twelve months. Furthermore, the supply of bank credit has no relation to agriculture, but regards commercial and manufacturing business only. The banks have mainly concerned themselves with supplying the credit needs of "business," in which farm business is not consciously included. But even so, the banks have not adequately met the need of commercial business. This appears by the development of one auxiliary credit organization after another. We have the discount companies or commercial credit companies that buy accounts of merchants and manufacturers to increase mercantile and manufacturing working capital. These modern institutions of very recent creation now do an extensive business of auxiliary banking for the benefit of business in cities. Of recent origin too, are the commercial banking departments of trust companies, under more liberal regulation than banks, created to meet the demands of commercial and manufacturing industry. And finally we have the commercial paper houses. According to Prof. H. G. Moulton, of Chicago university, in his book recently from the press, "The Financial Organization of Society," these last did a business in 1919 of upwards of \$4,000,000,000. They are an extension

to give credit where credit is not warranted. The bills provide for ample security for any credit the farmer asks, but they take notice of the longer period of his business turnover both as to crops and as to livestock. The farmer in the past has had the credit facilities only of the little country bank. The agricultural bloc was instrumental in obtaining the enactment of the agricultural credit bill, through which a maximum of \$1,000,000,000 credit may be extended to farm loan organizations and to banks and trust companies making loans to farmers, and through which the War Finance corporation may make advances not exceeding one year to producers or dealers in the event of a market glut, and may advance credit to any cooperative association, bank or trust company which has advanced funds for agricultural purposes, as well as credit for the breeding, fattening and marketing of livestock.

Fed Up on Oratory

Many Americans give little thought to the agricultural industry. It is removed from the populous centers of the country. The farmer is isolated, he stands alone, the last of the individualists, depending for his success upon his own efforts unassociated with

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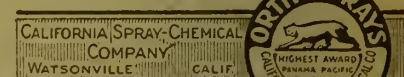
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others. Yet he conducts an industry aggregating an investment value of \$80,000,000,000, and with a normal output of something like \$20,000,000,000. He is "fed up" on political camouflage and promises, on Fourth of July oratory extolling his loyalty, his industry, his patience, and his fidelity to his job. He is weary of hearing that he is the "backbone" of the country, its "bone and sinews," only to be forgotten when business is to be done and results harvested. He is asking for a square deal and equal treatment and consideration with others, for the right to act in cooperation and to handle his products through to their ultimate market, with adequate credit facilities. Oratorically the farmer has been well treated. Practically his needs have been neglected by those who have made the laws and the modern machinery of the industrial order. He has awakened to his own situation. When the after-war collapse occurred it was the farmer who was without the organization and machinery to protect himself, and he saw his products made the football of speculation and gambling.

Should be Hailed with Joy

When an \$80,000,000,000 industry capable of supplying the nation annually with \$20,000,000,000 of new wealth, and 50 per cent of its bank deposits lies flat on its back, it would seem that rescue parties might better be hailed with joy than viewed with alarm, and that whatever will promote the primary industry of food production might well be regarded as of the common good, rather than as class legislation and a menace.

Selling Olives

By request we recently wrote the state board of health asking as to the present ruling in the matter of producers selling olives cured by the cold lye process. Secretary Dickie writes:

"In reply to your letter, would beg to state that the rules and regulations of the California state board of health are still operative in reference to the requirement that all olives offered for sale or consumption shall be sterilized at a temperature of 240 degrees Fahrenheit for a period of not less than 40 minutes by means of a retort or autoclave which shall be controlled by an automatic self recording thermometer or heat measuring device in proper working order.

"It is not our desire to work an injustice upon the growers, but after the unfortunate occurrence of botulinus poisoning from ripe olives and the exhaustive investigations that have been made by the foremost scientists on food poisoning (especially botulinus poisoning) we feel the necessity of rigidly enforcing these regulations, and desire in the interests of the public health the cooperation of the olive industry as a whole."

In addition Mr. Dickie encloses a circular letter which gives much information as to the effort to restore confidence with the Eastern trade.

"Because of the occurrence of an olive poisoning case in Greensburg, Pennsylvania, on June 21, 1921, and the consequent newspaper publicity thereon, the impression probably has gone forth that ripe olives are still dangerous or that the regulations of the California state board of health issued last year have not been effective. Both these assumptions are incorrect. The olives in the Greensburg case were of the very large or Ascolano variety and were packed in glass. The temperature at which they were cooked did not exceed boiling point. They were found to be a part of a lot that were processed in November, 1919, nearly a year before the California state board of health issued its ruling requiring the cooking of all ripe olives at 240 degrees Fahrenheit for 40 minutes.

"The rules and regulations of the California state board of health require that all olives offered for sale or consumption shall be sterilized at a temperature of 240 degrees Fahrenheit for a period of not less than 40 minutes by means of a retort or autoclave which shall be controlled by an automatic self recording thermometer or heat measuring device in proper working order, and that the temperature records shall be available at all times to the representatives of the state board of health, and that the

Nobody can impartially study the history of agriculture and conclude that it has not been sorely neglected. It has "just grown." For a century and a half, nearly everything we have done, every system we have contrived in marketing, transportation and banking, has been built to fit the development, happiness, and profit of city life. A department of agriculture and a few agricultural colleges have been regarded as meeting our obligations to agriculture. And so they would, if all that agriculture needed was advice. But it needs to grow and prosper in organized efficiency like the rest of the modern, highly organized world.

Many Farmers Insolvent

In Central Illinois, the heart of the most fertile agricultural region on the globe, more farmers have gone bankrupt and been sold out by the sheriff in the last year than in many preceding years together. One of the most successful and respected farmers in the United States, J. R. Howard, president of the American Farm Bureau federation, has declared that 1,500,000 of the 6,000,000 farmers of the country are today insolvent. Agriculture is sick. The measures supported by the agricultural bloc are not proposals to give the farmer something for nothing, nor are they class legislation. They are the remedies urged by economists and students of agriculture, and above all by the farmers themselves, to uplift this fundamental industry to a place where it will be a blessing to the country because it is self sustaining and prosperous.

food and drug department of the state board of health is instructed to seize and quarantine all ripe olives which are not produced in conformity with the rules and regulations of the state board of health and to institute action for their condemnation and destruction.

"In view of the extensive investigations made in reference to the processing of ripe olives, especially with reference to botulinus poisoning, the California state board of health is persuaded that the enforcement of the above regulations removes all danger from ripe olive poisoning."

Notwithstanding the necessity for restoring confidence to the trade we should give justice to the producer and permit disposal of his product if he can do so without menace. It is worthy of most careful consideration on the part of the board of health and the growers. Meantime, if the regulations are to be enforced the only recourse open to the producer is to sell to packers who are fitted for the processing of olives or provide his own sterilizer. This latter may be done without prohibitive cost.

DEHYDRATER EFFICIENCY

"Some Factors in Dehydrater Efficiency" is title of Bulletin 337 just issued by the University of California Press. It is written by W. V. Vuess and A. W. Christie and gives results of careful investigation and experimentation in much practical detail. It may be secured by request to Agricultural Experiment Station, Berkeley, California. From summary and conclusions we quote:

The cost of a dehydrater erected by the average fruit grower for operation during a season of only one or two months must be as low as is compatible with reasonable efficiency if it is to be profitable.

A completely equipped and satisfactory dehydrater can be built for \$500 or less per green ton capacity per 24 hours.

The air blast tunnel type of dehydrater is the most economical to operate in regard to both fixed charges and operating costs.

For efficiency, the velocity of air across trays should not fall below 500 feet per minute, while the total volume of air per 100 square feet of tray surface should not be less than 250 cubic feet per minute.

In order to reduce static pressure and secure maximum fan capacity, all air passages should be as large in area, as short in length, and as direct as possible.

Inefficiency will result unless all the heated air flows between the trays of drying fruit and is equally distributed among the several trays. This can be accomplished readily by proper relative dimensions of the drying chamber and trays, supplemented by the intelligent use of baffles and dampers.

Multivane or steel plate fans, although more costly, more than repay their extra cost by their greater efficiency, especially in large dehydraters where high static pressure must be overcome.

Fruits which are sulphured should be dried on wooden trays, preferably with slat bottoms. Unsulphured fruits are most rapidly dried on screen trays.

Air of 20 to 50 per cent relative humidity is advantageous in the dehydration of fruits which case harden readily. Such moist air permits the steady evaporation of moisture from the fruit at relatively high temperatures.

Prunes and grapes are most rapidly dried if previously dipped in a boiling lye solution. The first requisite of any

dipper is a source of heat sufficient to maintain the lye solution boiling constantly during operation.

TARIFF OR BUST

Manager Tucker of the California Almond Growers Exchange writes: "The situation in which 5,000 California almond farmers find themselves is more acute than ever. They have reached the limit of their ability to take losses. Unless congress grants the five and 15 cent import schedule asked by our growers against the flood of peasant raised almonds of Southern Europe, we who have nurtured almond growing in California for the past 12 years hesitate to reckon the sacrifice."

Examination of candidates for county horticultural commissioner and deputy will be held at Los Angeles, February 16-17; Fresno, 20-21; San Francisco, 23-24; Sacramento, 27-28.

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SELECT Fruit Trees

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Fourteen best selected varieties of Avocados, new grafted Feijoas—large fruit; and other tropical fruits.

In Peaches, Plums, Pears, etc., our list covers the season from early to late. We have nut trees, berry plants, including La France, the new Giant Everbearing Raspberry, and forty-six varieties of table, raisin and wine grapes.

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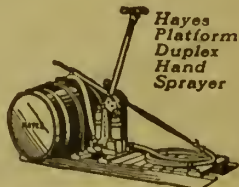
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Legal Queries

Louis B. Stanton, attorney, 343 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Who Gets the Rent?

I agree to sell rental property to a party through title company and give instructions to the escrow office to make search of the title. The purchaser deposits the money with the escrow office with instructions to pay over when the title search shows a clear title. The title search is accordingly made and the deed passes about three weeks after the purchase money had been deposited. The vendor claims the rent of the property up to the date of recording of deed. The vendee claims the rent from the day of deposit of purchase money. Is he entitled to this rent?—Subscriber, Glendale.

The vendee deposited the purchase money upon condition that the title search show a clear title. If there had been a defect in this title, by the terms of this deposit he would not have considered himself at all liable for the payment of the money. He merely deposited this money with his own agent, the title company, for the payment to the vendor in case the vendor's title was good. This condition was not fulfilled until the date of the recording of the deed. Therefore the vendor was the owner of the property up to the date of delivery of the deed. When the title company made delivery to the vendee, recording the deed, then title passed. The vendor would accordingly be entitled to the rent of the property up to date of delivery or recording of the deed.

Better Make Will

My aunt desires to build a house on my lot so that I may look after her during her lifetime, settle her affairs after her and retain the balance. The moneys in the bank are deposited in joint name, payable to both her and myself. On her death does the house revert to me as owner of the real estate? Should there be any other provisions concerning the money or the property so as to eliminate any trouble from other heirs?—Subscriber, San Bernardino.

It is true that a house erected upon land of another becomes a part of the real property and therefore belongs to the owner of the land. The money is subject to the check of either of the parties, but it would be a very wise precaution, especially where there are other heirs, to have the aunt make a will giving all the property to you in case of her death. It may be you would not be required to probate such will, but if it became necessary it would relieve you of much trouble and possible litigation.

Will Undated

My sister some time since made a will but omitted to put a date on the will. Is such a will valid?—Subscriber, Los Angeles.

If the will is an olographic will, that is, one written and signed only by the testator herself, it does not need to have witnesses, but must be fully dated by the testator. In the case of what is termed a written will, there is no requirement of law that it must have a date.

Wife's Signature

In case I have my bank account in my wife's name, is it necessary for her to sign her maiden name or married name?—Subscriber.

It seems to be the universal custom that after marriage a woman takes her husband's name, so it would seem to

be that she should sign by her married name.

Separate Property

A man has accumulated property during the period of his first marriage. The first wife died. He has two children. The husband again married. Should the man die without a will, what share would the second wife receive under the law? In case the husband desires to have the wife and children share equally at his death, would this be done by means of a deed or would it be better to make a will?—Subscriber, Puente.

On the second marriage the whole of the property was the separate property of the husband having two children. On his death without a will, the wife would receive one-third and the other two-thirds be divided equally between the two children. This property being separate is absolutely at the disposal of the husband by will. The property can be disposed of by deed, but such deed must be delivered during the lifetime of the husband. The difficulty of such disposal of property consists in proving delivery where the deed is not in fact recorded. It is always better and safer to make a will in such instance.

Wife's Property Lost

In case of the death of a wife what share of the property goes to the children by a former marriage? When she married the present husband she had money of her own, which with her consent was invested in a business and lost.—Subscriber, Fresno.

The money which she had at the time of her marriage was separate property. As it was invested and lost it has gone and all property would be community property. In case of community property on the death of the wife the whole property without administration belongs to the surviving husband. Consequently in the event stated the wife would have nothing to leave to her child by her first husband.

Pasture Rent

A party has pastured three horses with me for some three years. He has never called for them nor paid pasturage. How can I settle this matter?—Subscriber, Caruthers.

Those who pasture horses are by law given a lien, dependent upon possession of such animals. If he be not paid the amount due for his pasture account within 20 days after the same shall have become due he may proceed to sell the animals or as many of them as may be necessary to satisfy this lien and costs of sale by giving at least ten days' previous notice of sale by advertisement in a newspaper in the county in which the property is located. The proceeds of the sale are applied to the discharge of the lien, the cost of keeping and selling the property, and the remainder, if any, is paid over to the owner; if default of such owner then in the county treasury.

Sewer Assessment

I purchased land last January. A deed and certificate of title showed the property clear. It now seems there is an assessment for sewer which was levied on the land prior to the time of purchase. Who is obligated to pay this assessment?—Subscriber, Arlington.

Frequently the title people reserve from the guarantee any undertaking for city assessments. So it would be necessary to look to the exact terms of the guarantee as to whether they could be held liable therefor. However, under the deed, if it is the usual form of grant deed, the grantor covenants by the use of the word "grant" just as though it was written in the deed, that the estate granted is at

the time of the execution of the conveyance free from encumbrances done, made or suffered by the grantor or any person claiming under him. Suit may be brought on this covenant to recover the amount of encumbrance which the grantee has been obliged to pay to clear the land. It would seem, therefore, that you should pay the assessment and then bring suit against the grantee.

Land Sold for Taxes

I purchased land in October, paid the taxes thereon, but when next year's notice came I saw that the place had been sold for taxes. It seems that a personal tax of the grantor's husband had been assessed against the property. Am I under obligation to pay this personal tax?—Subscriber, Hemet.

The tax was levied while the property was owned by the grantor and although the personal tax was that of the husband it was evidently assessed with the consent of the wife. The tax collector is not at all concerned with matters between you and the grantor, so it would be necessary for you to pay the tax, together with the penalties to date, and then you could recover this amount from the grantor.

Performance of Contract

A lease on land was made nine years ago by husband with option to buy inside ten years. The husband died, leaving deed of gift to wife, who wants to know if she is bound by contract which was not signed by her. Gift deed was prior to lease.—Subscriber, Charter Oak.

If the lease and option were recorded prior to the deed the lessee would undoubtedly be entitled to enforce this contract, not only with the husband but with any assignee or grantee of the husband. If the deed was first recorded, of course, the wife would not be bound. In case the property is community property it very probably will be true that the lease made without the signature of the wife would be insufficient to bind her and the lessee would find that he is not entitled to maintain any action for specific performance for this contract.

Which Pays Taxes?

Which party is expected to pay taxes on property sold September 21?—Subscriber, Covina.

State and county taxes become a lien upon real estate on the first Monday in March of each year, although the amount is not definitely fixed until later. Taxes upon all property sold after that date must be paid by the grantor unless it is otherwise agreed between the parties, and the grant deed of the grantor by express terms otherwise states.

Horses Break Pasture

Horses break out of a pasture and go on the state highway at night. A party driving on the highway runs into and hits two of the horses, causing damage to the car. The owner of the horses had a good fence but in some way the horses broke the fence down. Who is obliged to pay damages?—Subscriber, McFarland.

The motor vehicle act provides that no person owning or controlling livestock should voluntarily or negligently permit said animals to stray upon or run unaccompanied by a herder on the public highway either side of which is adjoined by property separated from such highway by fence, walk or building. Nor should the tether of such animals be permitted to lie across or on the highway; any person driving livestock upon the highway between sunset and sunrise must keep herders ready to keep the road open. It thus becomes a question as to whether there was any negligence

in permitting the animals to go on the highway. If there was a good fence and a good gate and it was only through some unforeseen circumstance that the horses got out, it would appear that this owner is in no way liable for damages to the car.

TRUCK PLANTS START 1922 BUSINESS DRIVE

By E. Y. Watson

That the motor truck industry is entering on a period of intensive merchandizing to realize on possibilities for better business that are presenting themselves is indicated in plans that several of the leading factory units are making to put the retail end of the business on a better basis.

Profiting by the experience of the readjustment period the factory executives now realize that truck salesmanship is going to be a process of education. They are going to "sell transportation" in reality and not merely offer it to the user more or less blindly as the practice has been in the past. In this respect, liquidation of business generally has resulted in a situation which favors the larger makers. The process of survival of the fittest, which has been going on for a year or more, has eliminated a host of the small fry who were flooding markets in all sections with assembled products. Their resources were small. Their trucks were poorly engineered and designed and the service they gave left them one step removed from the "orphan" designation. Schools of truck salesmanship have been conducted by several of the larger factories in the past but the results from them have fallen short largely because the business slump slackened normal demand and caused the effort of the "educated" sales force to be lost.

It is certain that the present outlook indicates a renewal of buying on a scale that will promote much factory activity.

HOME SEED TESTING

A very simple seed testing apparatus is one composed of two plates, china or tin, and two pieces of blotter cut to fit the plates. In the bottom of one plate is put one of the blotters which has been well soaked in water. On this piece of blotter is put a counted number of seed. On this is put the other piece of blotter, which has also been well soaked in water, and over it all the other plate. The tester is then put in a fairly warm house and looked at every day. If the blotters are dried they must be wetted again; otherwise nothing is to be done. At the end of ten days to two weeks a count is made of the seed that have germinated and from this one determines whether the seed is worth planting and how thick to plant it.

IN 1922

In a telegram to the editor of a western agricultural paper Secretary Henry C. Wallace made the following encouraging statement:

"The agricultural outlook for 1922 is favorable. We should see marked improvement over conditions as they have existed this year. Time will be required for full recovery, but we have reached the bottom and are on the upgrade. The most important things farmers should work for are the perfection of their cooperative selling organizations with a view to putting the marketing of farm products on a thoroughly sound business basis and the careful study of needs of the consumer and intelligent adjustment of production to these needs."

CANTALOUPE IN NEVADA

From a few small demonstration plats in 1917 the muskmelon industry in Churchill County, Nevada, has developed until 350 crates a day were shipped by express during the 1921 season, besides a carload to Pennsylvania and another to San Francisco. A goal of 1,000 acres has been set for 1922. A small acreage in 1919 was more than doubled in 1920. The county agent, employed cooperatively by the United States department of agriculture and the state agricultural college, assisted in the location of markets and advocated the organization of a cantaloupe association which was later effected.



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Lessons From the Recent Windstorm

By Robert W. Hodgson, Farm Adviser, Los Angeles County



GAIN the usual "unusual" thing has occurred. Although by no means as severe or injurious as its predecessor of two seasons ago the recent windstorm demonstrated that wind prevalence and exposure is an important item in relation to successful citrus and walnut culture. And while some districts suffered less than others it is now fairly evident that no district in Southern California can claim to be free from occasional injurious winds. If there be any special lessons which orchardists may derive from the occurrence of the recent windstorm, it seems primarily the realization that just as in the case of

frost wind probability exists as a definite hazard of the business which every well informed orchardist will prepare against insofar as the hazard warrants the expense.

Windbreaks

Windbreaks properly handled in districts where wind prevalence is normally high have accomplished wonderful results. The yearly lowering of the curve of mean wind velocity through extensive planting of windbreaks through the Fontana-Cucamonga section is a matter of scientific record and the best possible proof of the efficacy of windbreaks, and the same has been demonstrated most sat-

isfactorily elsewhere in numerous instances.

The writer feels, however, that as a means of insurance against wind injury in districts where only occasionally do injurious winds occur, the planting of windbreaks is a practice which may hardly be expected to prove a profitable investment. The space required for an effective windbreak, the ground taken out of profitable cultivation, the water necessary, and the frost hazard through banking up of still air, taken together may be sufficient to make a windbreak undesirable.

Framework

The most important means of insuring against wind injury is formation of the framework of the trees to secure maximum strength.

Much of the injury in the recent storm could have been avoided had more care been taken in the training of the young tree. In practically every case where citrus trees had split badly it was noticed that all the main framework branches, from three to six or eight had been allowed to come out at about the same point, thus focusing all the strain at one point in the framework system. The greater part of the breakage in walnut trees was observed to occur under almost similar conditions and especially where the open vase form for the main framework branches had been followed. In no case was a tree formed of a main central leader with well-spaced laterals found showing much breakage.

Bracing

With the majority of orchardists, however, the trees are long since past the period of framework formation and interior bracing is necessary. Movable props can only be recommended for unusually heavy crops and not as a means of prevention of wind injury. For this purpose the best system yet devised consists of permanent interior wire bracing, using a central ring from which wires extend to the principal framework branches. If the work is carefully done the strain is divided equally among the branches supported and breakage reduced to a minimum. This is not the case where cross wiring is resorted to, wires extending through the center of the tree and fastened to branches on opposite sides. With the former system if through accident one branch breaks, the others share the strain equally and no further breakage results. In the latter, if one breaks the other is almost certain to as well.

With citrus trees and most deciduous varieties ordinary galvanized wire about the size of baling wire is sufficiently strong, but with walnuts a much heavier wire and double strands are necessary. Wire should never be wound about the branch braced as this means girdling. The safest method of attachment is the screweye excepting where the branches are unusually large, in which event eye bolts extending clear through the limbs should be used, as is the practice with walnuts. Some walnut growers, however, favor use of heavy screweyes. Where the branches are not large an ordinary cement covered staple gives good results and is much more easily and quickly used. Heavy enameled or galvanized rings or strong washers are satisfactory. The use of long bolts is losing ground on account of the expense involved.

Once a year or thereabouts the bracing should be inspected and broken branches repaired and additional work done as may be necessary. The expense of such work varies from 15 or 20 cents per tree to a dollar and a half or more for large walnut trees, but if properly done is practically everlasting.

Treatment of Injured Trees

Many of the trees broken down during the recent storm may be salvaged if given proper attention. Few of them will ever again be as strong as before but may be saved for profitable bearing. Where breakage is severe it may be necessary to rehead the tree. In the case of citrus the broken branches should not be removed at this time but allowed to remain either temporarily braced or as they occur until late spring, when they can then be removed and the tree cut back to throw out new growth and form a new head during the coming season. Where the crotch limbs have been split the limbs should be pulled back into position as soon as possible and braced as

described above and in addition drawn tightly together at the point of splitting by means of slender bolts on both ends of which good sized washers are used. The shredded and dried bark should be pared away and all exposed surfaces covered with a good wound dressing. If the work is done carefully in two or three years the wounds will many of them be entirely healed up and the tree almost as good as ever.

In a number of instances where irrigation had just been completed or was under way large walnut trees were blown down. The majority of these may be saved by pulling back into position and propping until the ground dries out somewhat in the spring. Where breakage has also occurred topping may be necessary to secure a well balanced top.

FIGHTING THE PEA APHIS

By A. W. Morrill, Consulting Entomologist

The pea aphis has the reputation of being one of the particularly difficult species of plant lice to combat. Several methods of control have been used with more or less success. Spraying with soap mixtures is probably the oldest method, modified in late years by the use of nicotine sulphate combined with soap, the latter in a relatively minor proportion. Wet spraying with a nicotine and soap mixture by means of a power or traction sprayer gives good results when the pea vines are small. At the Maryland experiment station about 20 years ago a simple method of pea aphis control was devised whereby the insects were brushed or shaken off the vines into collecting pans which were drawn along between the rows, or were knocked off onto the ground and buried by following immediately with a cultivator. This method dispensed with insecticides except for a very small quantity of kerosene when the pans were used. This method has been modified in California with good success by several pea growers by shaking the insects off on one side of the row, turning the vines toward the opposite side and killing the aphids on the ground with nicotine dust. For small home gardens probably the best method of pea aphis control consists of covering a ten or 12 foot section of a row of pea vines with a sheet or a piece of canvas resting on a frame made of light scantling and fumigating with nicotine fumes by burning a small piece of nicotifume paper, leaving the cover in place for 15 or 20 minutes before moving it ahead in the row and repeating the operation.

During the last two seasons control of the pea aphis by dusting has become the principal method used in some of the leading pea growing sections. Nicotine is the "active ingredient," legally speaking, of the dusts used, but few who use these insecticides realize that the effective strength against insect pests is not measured by the percentage of nicotine or nicotine sulphate contained in the finished product or used in its manufacture. The so-called "inert" ingredients in the case of nicotine dusts are of the greatest importance in connection with the commercial value of the insecticide. Sulphur as a substantial part of the carrier or inert ingredient (leaving out of consideration its value in checking the mildew of the pea vines) may give nearly twice the effectiveness of a lime dust containing exactly the same amount of nicotine. It is also known that the different grades of lime used as a carrier give insecticides of different values with the same amount of nicotine. Without going further into this subject it is sufficient to say that the guarantees as to nicotine content or nicotine sulphate content are very likely to be misleading to one who does not understand the difference between nicotine sulphate and nicotine, and the difference in the effectiveness of different combinations of the "inert" ingredients. Everything considered it is safest to rely upon the reputation of the manufacturer and of the special brand of dust recommended for the pea aphis. Use the dust that gives the best results at the lowest cost regardless of the percentage of nicotine or nicotine sulphate guaranteed on the label.

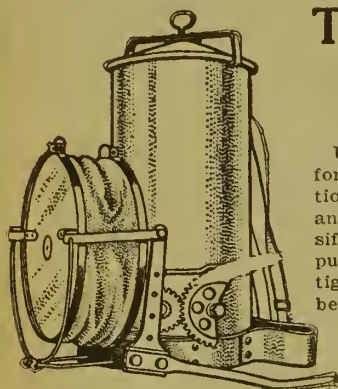
Ramona, San Diego County, received about 18 inches of rain during the storms from December 18 to January 2. This insures plenty of water in the wells for several years.

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Pea Vines of this year are having a hard fight against Pea Aphis. Protect your crop from this pest by dusting with Calispray No. 1 Nicotine Sulphur Dust—which kills Aphis instantly and prevents Mildew!

Citrus Trees should be examined at once for the appearance of Aphis. At the first indication of Aphis dust with Calispray No. 1 Nicotine Sulphur Dust to protect your trees and fruit. Insist on Calispray and be sure of results!



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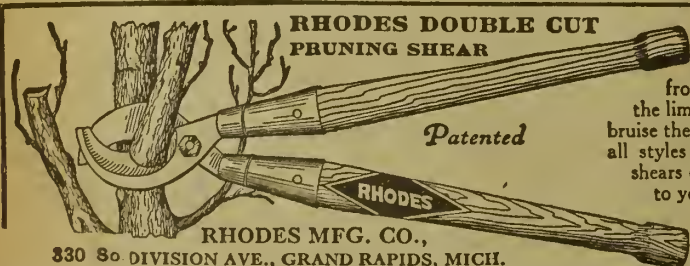
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Olive Association's Acreage Survey for 1920

Below is given the results of the latest olive acreage survey of California as made by the office of the

California Olive Association. A comparison is made with the survey of the previous year, 1919.

COUNTY	Total Acreage	Total Bearing	Available Factor- Unplanted Area	ies in County
Alameda	41	41		
Butte	5,210	3,839	30,000	5
Calaveras	35	28		
Contra Costa	86	86		
El Dorado	16	16		
Fresno	1,098	741	8,000	
Glenn	1,021	505	10,000	
Imperial	192	135	25,000	
Kern	1,227	646	100,000	
Los Angeles	3,047	2,776	14,000	5
Lake	55	45		
Madera	1,164	731	12,000	
Merced	460	349	200	
Mariposa	235	235		
Marin	25	25		
Kings	310	150	5,000	
Napa	202	202		
Nevada	5	5		
Orange	250	250	20,000	



Ventura County Olive Orchard

Placer	430	357	4,000	2
Riverside	2,499	1,994	10,000	1
Sacramento	2,147	1,169	20,000	2
San Diego	1,773	1,547	15,000	4
San Bernardino	1,413	1,047	20,000	3
Shasta	1,192	715	10,000	
San Joaquin	840	588	20,000	1
Santa Barbara	555	513	5,000	1
Stanislaus	413	240	10,000	
Sutter	90	65	10,000	
*Santa Clara	1,551	1,530		
**Sonoma	650	650		
Solano	20	20		
Tulare	5,460	3,292	50,000	2
Tehama	3,074	2,194	20,000	2
Ventura	1,234	1,234	30,000	
Yuba	1,139	734	7,000	
Yolo	215	121	20,000	
Total 1920 Survey	39,374	28,815	495,000	28
Total 1919 Survey	38,733	25,575	495,200	42

*Largely border rows and small acreages with many oil varieties.
**Groves generally neglected and of unprofitable varieties of fruit.

MARL

There is many an orchard in California planted on rich appearing surface soil, the growth of the orchard proving luxuriant for a few years and later leaves yellowing and showing sickly condition of tree. Some of these orchards have been found upon investigation to be underlaid with a marl or calcium carbonate formation which in such excess quantity proves injurious to some trees, yet, strange as it may seem, that same marl pulverized and applied to other orchards and fields under other conditions proves one of the most beneficial applications which could have been made. This form of calcium carbonate is a wonderful soil sweetener and where acid conditions obtain has proven a profitable application. Prof. Voorhees of the New Jersey agricultural experiment station says:

"Marl is an important amendment to the soils, not only because of its content of mineral constituents, but because these constituents are associated with products that exert a very favorable mechanical effect upon soils. Large areas of land in the state of

New Jersey, formerly unproductive, chiefly because of physical imperfections, have been made very productive mainly through the application of marl. Although lime has been employed as a fertilizer for so long a time, it is only in recent years that its action has been explained, and at the present time there remain for investigation many questions concerning the action of lime upon the soil."

Lime in the form of marl may be pulverized and prepared for application to the soil much cheaper than limestone may be ground and is abundant in many sections of the state. It has been declared to be a most convenient form to apply to citrus and walnut orchards and alfalfa fields.

REDUCES WALNUT LOSSES

Pursuant to provision of the act approved May 27, 1919, for the control of the walnut codling moth, Harry Stiner of the bureau of pest control, California department of agriculture, has returned from a three months detail in Southern California where he inspected the walnut packing houses in connection with the treatment of

sacks to destroy the hibernating stages of this destructive pest.

After the costly outbreak of the codling moth in 1918 it was found that the principal means of distribution of the pest was through the medium of empty sacks moving from the packing house back to the grove for refilling, thus in many cases nullifying the good results of spraying adopted by careful growers and causing infestation of clean premises.

The "sterilization" process consists principally of treatment with live steam, vacuum fumigation or ironing out the sacks on a laundry machine, and during Mr. Stiner's southern inspection trip some 650,000 empty sacks were so handled by the walnut packing houses.

INTERSTATE SEED EXCHANGE

Potato growers in all parts of the world have found that seed potatoes from other parts produce better than local seed, some for the first year only, but some continue vigorous for several years. Gardeners in the eastern states and elsewhere claim that sweetpea seed grown in California and flowered in damper climates produces the finest blooms on the longest stems. It is well known that sections of the great United States are so remote from each other that fine strains of flowers, fruits and vegetables long are grown in one part without being known universally. More interstate exchange should prove of great value. A. D. Shamel, local physiologist in

charge of Uncle Sam's work, recently found a pea in Louisiana that appeared superior to anything grown in California, a pea also of superior flavor. Mr. Shamel suggests it may even prove weevil resistant in California. So he brought some home and will have it grown to prove its value. If it proves superior to any we have it will be of immense local value; if it prove poor the trial will still be of interest and value. More of such seed exchange should be carried on.

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Improves alkali soil, transforms latent potash and phosphates into available plant foods.
Prevents wire worms, eel-worms or nematodes, smutty grain, ants, and potato scab.
220 lbs. per acre has increased crops up to 500%.
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Send 15c in silver or stamps for or Up To Date Fall and Winter 1921 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 80 of the various simple stitches) all valuable to the home dressmaker.

PATTERN DEPARTMENT

California Cultivator Los Angeles

Household Department

THE OPTIMIST

I sing a song to the Optimist,
To the man who is brave and strong,
Who keeps his head when things go right
And smiles when things go wrong.

I'm proud of the genial Optimist,
His radiant voice and speech;
He helps to smooth the rugged path
Of all within his reach.

I like the way of the Optimist,
Who looks for the bright and best;
He scatters sunshine as he goes,
And leaves his fellow blest.

So here's a song to the Optimist,
Who works and laughs and sings,
And daily shows this weary world
The way to better things.
—Grenville Kleiser in January Nautilus.

WHEN MARY PAVED THE WAY

By Mabel McKee, in Youths Companion



ALL the morning the first floor of Wright's Bazaar had been in a state of suppressed excitement. If the manager of the store had announced a change in the time schedule, or in the wage schedule, he could not have aroused more emotion than did Miss Peters, the little, middle-aged woman who had had charge of the toilet requisites at Wright's for several years.

"For one week beginning tomorrow," she said, "there will be in this department a demonstrator from New York."

A chorus of protests followed her announcement. "Miss Lane is Baer's best demonstrator," continued Miss Peters, not a whit disconcerted by the protests. "She gets a salary of one hundred dollars a week and expenses. Mr. Sam Wright says that one of the Baer's managers told him that she was worth a great deal more, too. It's a splendid chance for you girls to learn more about selling toilet goods. And more than that, Mr. Wright has decided to let Miss Lane choose one of you girls to demonstrate toilet articles for the month after she leaves."

She paused impressively. For a minute the girls were silent, and then little Lottie Martin giggled, "Who wants to demonstrate after she has been here? No one would even look at you or your goods after they had seen her."

Several of the other girls nodded; all of them showed that their interest in the subject was waning.

"You might say that, if that were all," Miss Peters went on quietly, "but it isn't. It means a raise in salary for the fortunate girl—two dollars a week. Also Mr. Wright said Baer's firm was always watching for new girls to train to be their demonstrators. All any girl needs who wants to get a chance with Baer's is Miss Lane's reference. I only wish I were younger."

This time her speech won instant attention. Lottie Martin's scorn lessened, and she began to ask eager questions. Soon questions were pelted Miss Peters thick and fast. Before she left for luncheon she knew that every girl in her department longed to be the new demonstrator's appointee.

In the rest room while they were eating their luncheons the younger girls continued their discussion. "I'm glad Miss Peters told us today," said Lottie. "It gives us a chance to make a better appearance before the demonstrator comes and sees us. My sister, who is a milliner, says that first appearances count most."

That night Mary Hewlett told her mother of the coming of the demonstrator.

"Of course every girl in our department is going to try for the place," she said. "And all through the noon hour and during every spare minute this afternoon they planned how they would dress. They have to wear the store's regulation white waists and black skirts, but they're all going to wear their best ones, and some of them bought new, white crepe de Chine blouses."

Her mother smiled encouragingly, and Mary continued: "I wish I had a crepe de Chine waist, mother, or at least something more attractive looking than just my plain linen blouses. I don't feel as if I'd have a chance for that place. I know my linen waists are pretty enough for this little home town, but the demonstrators from New York, and what will linen waists look like to her?"

Mrs. Hewlett laid her sewing in her lap. "If you bought and wore a new crepe de Chine tomorrow, you wouldn't be natural, dear," she said quietly. "The demonstrator would know it, just as well as everyone else who bought of you. Besides, your pretty, plain linen blouses are just as expensive and much more tasteful than most of the girls' cheap crepe de Chineses are. Remember, you are a worker at the store, not a customer. And you must dress as a worker, if you want the respect of your customers."

Mary assented, but in her heart she was discouraged. She was even more discouraged when she saw the other girls' elaborate coiffures and manicured hands. She knew that her companions would look just like the shop-girls in New York, and that Miss Lane could not fail to notice it. She herself felt so much out of place when the demonstrator came in that she tried to keep in the background.

"She is beautiful," Mary told her mother that night, "very, very beautiful, mother, but in such a quiet way, just like you, dear. She has masses of bronze hair, but she wears it in a simple coil at the nape of her neck. And she wore a plain serge skirt and a white linen waist. I was so glad that I didn't get a crepe de Chine. It made us seem sort of comrades, and she asked me to do more things than she asked any of the others to do."

When, after a month Miss Lane left, Mr. Wright told Mary that she was to do the demonstrating for the following month.

"It gives you a chance to rise even higher than this, Mary," he said as he stood at her counter. "Miss Lane said that when you are a little older she would recommend you to her company. She said that, although there were other girls here who are as quick and intelligent as you are, they have not yet learned the true dignity of simple dress and actions."

"You noticed that Miss Lane sold both to our wealthier customers and to our poorer ones. They all liked to buy of her; they hated to see her leave; they stopped at first to see her demonstrate, and afterwards because she had won their respect and confidence—all because she had dignity, the quiet, substantial kind. That's what makes for success, Mary."

That night Mary again talked to her mother. "I love it," she said, giving her plain, linen blouse an affectionate pat and her plain, black skirt a caressing look, "but not nearly so much as I do you, for teaching me to dress this way and just making me do it, when I wasn't an apt pupil. And now I'm ready to take your entire course in dignity and simplicity. After that I believe I'll be ready for Baer's."

OLD TIME SOUTHERN RECIPES

By Mrs. G. W. Squire

Virginia Fried Chicken

Cut up two fryers, salt, pepper, and roll heavily in flour. Brown in bacon grease or butter and lard, add one pint hot water, one-half an onion sliced, two green peppers seeded, and let simmer till tender. Pour the gravy into the platter around the chicken. (This is fine put to simmer in a fireless cooker).

Mammy's Chicken Stew

Cover with cold water one young chicken, two slices of bacon cut up, four sliced potatoes, four sliced tomatoes, one sliced onion, one tablespoon sugar, with pepper, salt, cayenne or green peppers to taste. Boil gently one hour, or even two, stirring often. Twenty minutes before dinner, add corn from five cobs, four more diced potatoes; add three-fourths cup of cream at the dinner hour and thicken with flour.

The Post's Corn Bread

One cup white flour, sifted with one-half teaspoon salt and two heaping teaspoons baking powder, two cups of corn meal, four tablespoons sugar, two tablespoons melted butter or other oil, two cups milk and three eggs beaten very light. (Not the most economical but the very best recipe I ever used. Much praised).

Southern Lettuce

Cut up with the lettuce a very small

New Lamp Burns 94% Air Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal-oil).

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bit of onion, salt it, and when ready to serve toss it in the salad bowl with equal parts of vinegar and hot bacon grease.

Davison Ginger Bread

One cup black molasses, one-half cup sugar, one cup hot water with one rounded tablespoon of butter or lard put to melt in it, two eggs well beaten, one teaspoon each of ginger and cinnamon and soda (level) sifted with the flour, and enough flour to make batter a little thinner than usual cake dough. Beat. And do not over bake. Have oven as for loaf cake. Serve with this either a glass of milk to drink or the following apple sauce with raisins.

Crystal Apple Sauce

Slice six apples and put in buttered casserole or baking pan with one cup washed raisins. Pour over this one cup hot water and one cup cane syrup and bake. If apples are very sour use more syrup and less water.

SOME "DIFFERENT" RECIPES, BUT THE BEST EVER

By Mrs. Clarence Dougherty

Charm Toast

Toast nut bread on one side only. Butter untoasted side and spread with brown sugar. Sprinkle a little cinnamon on top and set in oven until sugar is melted. Serve at once.

Spiced Walnuts

1 cup sugar, $\frac{1}{4}$ cup water; boil until a little dropped in cold water becomes brittle. Remove from fire and add $\frac{3}{4}$ teaspoon cinnamon and stir in quickly 2 cups walnuts (as large pieces as possible). Each piece of nut becomes coated with sugar. They make very nice confection for after dinner.

Fruit Cookies

$1\frac{1}{2}$ cups sugar, 1 cup butter, 3 eggs. Cream together well. 1 teaspoon soda in 1-3 cup hot water; 1-3 teaspoon salt, 1 teaspoon cinnamon, $3\frac{1}{2}$ cups flour, 1 cup walnuts (broken), 1 cup raisins (chopped), $\frac{1}{2}$ cup currants (or seedless raisins), 2 tablespoons molasses. Drop on greased tins, three inches apart (about a heaping teaspoon). Do not bake in too hot an oven. Coconut or chocolate may be added. If so, add $\frac{1}{2}$ cup more flour and a little water.

Chocolate Nougat Layer Cake

Two cups brown sugar (very light color, or 1 white and 1 brown), $\frac{1}{2}$ cup shortening, 1 cup sweet milk, 1 teaspoon soda (scant), $\frac{3}{4}$ cup chocolate (sweet), 2 cups flour (sifted), $\frac{1}{2}$ teaspoon salt, 1 teaspoon vanilla, 3 eggs. Mix in usual way. Use either white or brown chocolate frosting. Very nice to make a two layer cake with a chocolate cream filling and chocolate icing.

Jam Cake

1 cup sugar, $\frac{1}{2}$ cup butter, $\frac{1}{2}$ cup buttermilk, 1 teaspoon baking powder, 2 eggs (beaten separately), 2 heaping cups flour, 1 small teaspoon soda dissolved in milk, $\frac{1}{4}$ teaspoon cloves, pinch salt, 1 teaspoon cinnamon, 1 teaspoon nutmeg, $1\frac{1}{2}$ cups jam (I prefer Satsuma jam). Cream butter and sugar well. Add eggs, creaming thoroughly. Mix spices, baking powder and flavor, adding alternately with milk and soda; lastly fold in jam. If jam very rich, skimp proportion. Cover with any simple icing if desired.

Honey Cake

4 eggs, 2 cups brown sugar stirred very light. Add 3 tablespoons chocolate, 1 tablespoon cinnamon, 1 teaspoon cloves, $\frac{1}{4}$ teaspoon allspice, $\frac{1}{2}$ teaspoon chopped almonds, 1 cup honey, $2\frac{1}{2}$ cups flour, 2 teaspoons baking powder. Bake in moderate oven 20 minutes.

Frosting—1 cup sugar, $\frac{1}{2}$ cup water. Boil frosting until a little dropped on cake turns whitish (about 20 minutes). This frosting looks like ice.

TO IRON PLAITS

The home laundress will find the ironing problem greatly lessened if, after pressing each plait in exact place it is clinched through the two under thicknesses by one of the little "spring" clothes pins. Each plait will hold its place firmly while the others are being ironed, and when the skirt is ready for the clothes frame, it will not have the loose, mussed appearance so often noticed from handling over the ironing board.

MAKING SAUSAGE

Trimnings and pieces of meat which otherwise might be wasted may be converted into some form of sausage. Sausage making is a trade well worth learning. Often on the farm when animals are butchered for home consumption portions of the carcass are not utilized to the best advantage. A demand for fresh and smoked country sausage always exists, and it is just as important for every farmer to know how to make good sausage as it is to know how to make good hams and bacon.

The only equipment necessary to make sausage is a meat cutter with a stuffer attachment. A knife, cord string, and casings or muslin bags also will be needed. Muslin bags can be made of any size, but the most convenient are 12 inches long by 2 inches in diameter. When sausage is stuffed in muslin bags they should be paraffined after stuffing. Sausage stuffed in muslin bags and paraffined keeps longer and better than in casings. Sausage will keep very well in stone crocks or tin pans if a layer of hot lard or paraffin is poured over the top.

Pure Pork Sausage

Good pork sausage may be made as follows: 65 pounds fresh lean meat, 35 pounds fat, $1\frac{3}{4}$ pounds salt, 2 ounces fine sage, 1 ounce ground nutmeg, 4 ounces black pepper.

Cut the meat into small pieces, mix and add the spices, and then put through the grinder, using the small plate. After it is well ground, mix thoroughly to be sure that it is uniformly seasoned. No water should be added if the sausage is to be stored away in bulk. If it is to be stuffed in casings a little water may be necessary to soften the meat so that it will slip easily into the casings.

Smoked or Country Sausage

The following ingredients are used in making smoked or country sausage:

85 pounds lean pork, 15 pounds beef, $1\frac{1}{2}$ or 2 pounds salt, 4 ounces black pepper, 1 ounce red pepper, 1 ounce sweet marjoram, 1 ounce mace.

Cut the meat into small pieces and sprinkle seasoning over it, then run it through the grinder, using the small plate. Put it away in a cool place for from 24 to 36 hours, then add a little water and stuff into hog casings and smoke in a very cool smoke until a dark mahogany color is obtained.

Frankfurt or Vienna Sausage

Frankfurt or Vienna style sausage is more popular with the manufacturers and the trade than any other kind. It is made as follows:

70 pounds beef, 30 pounds pork (not too lean), 20 pounds water, $1\frac{1}{2}$ or 2 pounds salt, 2 ounces nutmeg, $\frac{1}{4}$ ounce black pepper, 1 or 2 ounces red pepper.

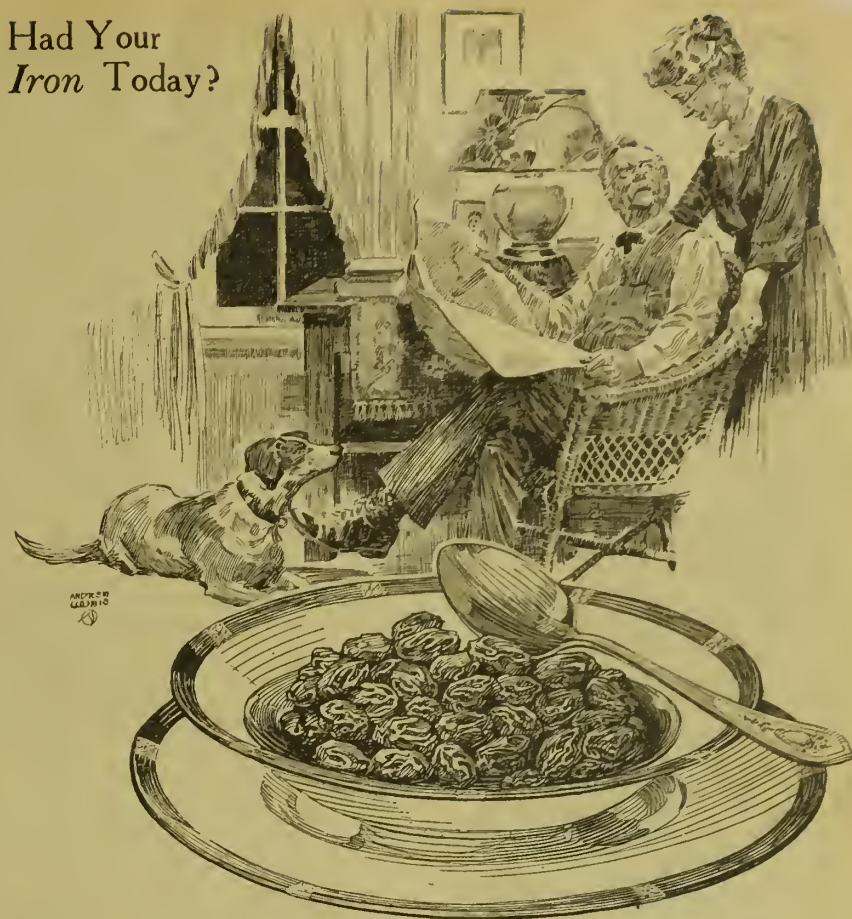
Cut the beef into small pieces, salt it, and allow it to cure for 48 hours in a cool place. Cut the pork into small pieces and put the beef and pork through the grinder together. Put into a container and add the water and spices. After it is all mixed put it through the grinder again, using the fine plate. Stuff into sheep casings. After the sausage is stuffed into the casings by means of the thumb and forefinger, press the casing together at about four inch intervals. Twist the first link two or three times. The next link made should be twisted in the opposite direction to keep the casing from untwisting. After it is twisted into links, hang it in the smokehouse for about two hours at a temperature not to exceed 125 degrees Fahrenheit. After it is smoked, boil it for 5 or 10 minutes; then plunge it into cold water and hang it in a cool place.

Bologna Style Sausage

Bologna style sausage is used extensively for lunches or picnics or outings. Its keeping qualities are excellent. The following ingredients are used in making it: 60 pounds cured beef, 40 pounds pork, 20 pounds water, $1\frac{1}{2}$ or 2 pounds salt, 2 ounces mace, 1 ounce coriander, 4 ounces black pepper.

Grind the beef and let it cure for 24 hours in a cool place, then grind it very fine. (Beef should be ground, salt and seasoning added, and the bulk stored away for from 24 to 48 hours before using it for sausage. Fresh meat stuffed into casings and smoked invariably spoils.) Put the pork through the grinder, using the medium plate. Then put the beef and pork to-

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Next time you bake bread make a loaf like this with Sun-Maid Raisins, and try it on your men folks.

Raisin Bread

3 cups flour, 4 teaspoons baking powder, 1 teaspoon salt, $\frac{3}{4}$ cup sugar, 1 cup Sun-Maid seeded raisins cut in pieces, 1 egg, 1 cup milk.

Soak raisins in boiling water for 15 minutes. Drain and dry. Sift flour, baking powder, salt and sugar together. Add raisins. Mix beaten egg with milk and add to flour, stirring constantly. Pour into greased bread pans. Let stand for 10 minutes and bake in moderate oven for 40 to 45 minutes.

This makes two small loaves or one large loaf.

All measurements for this recipe are level.



Red package (Seedless), best for stewing.

HERE'S a luscious dish to help you to keep well when there's less work and more leisure on the farm, and the old foe "inactivity" causes trouble.

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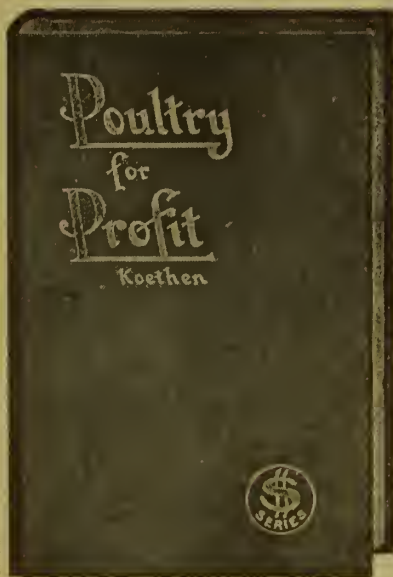
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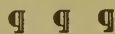
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gether into a container and add the spices and water. Mix thoroughly until it takes on a dull color and becomes sticky. Stuff into weasands, large beef casings, or in beef rounds. This sausage can also be stuffed into muslin bags and paraffined. It will keep perfectly prepared in this way. Allow it to hang about 20 minutes in a cool place. Smoke for about two hours, or until a good color is obtained, at a temperature not to exceed 140 degrees Fahrenheit. After the bologna is smoked it should be cooked, the weasands and rounds about 30 minutes, and the larger bolognas about one and a half hours, at a temperature of 160 degrees Fahrenheit. To tell when bologna is cooked enough, squeeze it in the hand, and if done it will squeak when the pressure is released. Place in cold water for about 30 minutes and then hang it up in a cool place to keep.

HINTS FROM HOUSEKEEPERS

Grape Pie—White Cookies

Sometime ago I read in your household department a recipe for grape pie and the contributor asked if any reader had one she liked better to send it to your paper. In answer to this I am sending a recipe in which rhubarb, currants, gooseberries or grapes may be used.

Grape Pie

Cook together 1½ cups grapes, 1 cup sugar, ¼ cup water, 1 tablespoon flour and the yolk of 2 eggs and pour into a baked crust. Make meringue of whites and put on top.

White Cookies

1½ cups white sugar and 1 cup shortening creamed together. Add ½ cup sour cream, 2 eggs, ½ teaspoon soda, 2 teaspoons baking powder, 1 teaspoon vanilla and flour to roll. Roll in sugar and bake in quick oven. This makes a rich, flaky cooky.

I have read your household pages for years and have found many useful articles.—Mrs. Walter A. Carr, Hemet.

Apple Dumplings

I notice in December 31st Cultivator that Subscriber, San Fernando, would like some recipes, so I send one which is an heirloom in my family and always "tastes like more."

Apple Dumplings.—Make a rich baking powder dough (same as for biscuits) stiff enough to roll out like pie crust. Roll out about as large as a small plate or large saucer, as many as you wish dumplings. Slice tart apples and place enough on each piece of dough to make a nice "fat" dumpling when edges are wrapped up and pinched together so they will keep their shape while cooking. Place them in a deep baking dish, put a small piece of butter on each one, sprinkle with cinnamon. Add one cup of sugar for six dumplings. Be sure some sugar stays on top of each. Let the rest fall in the dish between them. Pour boiling water inside dish till it is nearly full, leaving enough space at top so it will not run over while baking. Bake in hot oven about 20 minutes or until they test done with straw and are nicely brown on top.

Serve hot, using the sweet syrup in dish as sauce.—Another Subscriber.

HOUSEHOLD QUERIES

Italian Salami

I would like to make what they call "Swiss sausage" or "Italian salami," and I don't know how much I should use of pork meat with beef, and also in measuring out the spices and liquor. I thought of the Cultivator and so I am writing to ask you if you or some kind reader could help me. I stopped at a friend's home and they had made some, which they said would last them for months and months. I would be glad to help you or someone in return for the correct recipe.—Subscriber, Lompoc.

We do not have at hand recipe for salami but may be able to obtain it later. If so, it will appear in this department. Meanwhile here is one for summer sausage which is similar to the salami:

25 pounds cured beef free from sinews, 15 pounds pork with trimmings, 6 ounces white pepper, 1 ounce whole black pepper, 1 ounce whole mustard seed.

This sausage can be made only in cold weather. All the meat is put through the grinder and spices added. No salt is needed, the cured beef being

salty enough. Mix it all thoroughly until it is evenly seasoned. Spread it out in a cool place and leave it for 36 to 40 hours. Then stuff it into hog bung casings and let hang over night. Smoke over very cool smoke for several days. This sausage can be kept in a dry place the year round. If it gets moldy, simply wipe off the mold before using it.

We hope that some of our readers may be able to supply the salami recipe and we will all appreciate hearing from the Lompoc subscriber with some of her favorite recipes.

Hand Knitting Machine

Have been a reader of your valuable paper for a number of years and always read the items in the query department with pleasure. I would like to ask you or some of the Cultivator readers what you know of the hand knitting machine for wool socks and ladies hose? Are they a complicated machine? Do they do first class work, and about how long does it take to complete a pair of socks or ladies hose? Any information regarding the above will be gladly received.—Subscriber, Visalia.

Can any of our readers give help to this inquirer?

RIPE OLIVES IN COMBINATION

Olive and Egg Cutlets

Four tablespoons fat, 4 tablespoons flour, 1½ cups milk, 2 egg yolks, 4 tablespoons chopped green pepper, 4 hard cooked eggs, chopped, ½ cup minced ripe olives, salt and pepper.

Make a white sauce of the fat, flour, milk and seasonings. When partially cooled add the slightly beaten yolks and remaining ingredients. Cook in double boiler until very thick. Spread on platter to cool and when cold shape into cutlets. Dip in beaten egg and then in fine bread crumbs. Saute in hot fat. Serve with tomato sauce. (Sufficient for four servings).

Olive and Oyster Roast

One pint oysters, ½ cup oyster liquor, ½ cup milk, 2 cups cracker crumbs, 1 cup cooked celery, ½ cup minced ripe olives, 4 tablespoons fat, salt and pepper.

Put layer of cracker crumbs into a buttered baking dish, then a layer of oysters, celery and olives. Season. Dot over with butter. Repeat until all ingredients have been used. Pour over liquids. Bake in a moderate oven 20 minutes.

Macaroni and Olives

Two cups macaroni, broken into 1-inch pieces, 1 tablespoon flour, 1½ cups milk, 1 tablespoon fat, 1 teaspoon mustard, 1 teaspoon salt, ½ cup minced ripe olives, ½ cup chopped cheese, ½ cup cooked green peppers, chopped, 2 tablespoons chopped pimentos, ¼ cup buttered crumbs, pepper.

Cook macaroni in boiling salted water until tender. Drain. Make a white sauce of the fat, flour, milk and seasonings. Add chopped pepper and cheese and cook slowly until cheese is melted. Put a layer of macaroni into a buttered baking dish, then a layer of cheese mixture and olives. Repeat until ingredients have all been used. Cover with buttered crumbs and bake in a moderate oven 20 minutes.

1¼ cup raw rice may be substituted for the 2 cups of uncooked macaroni. Cook in double boiler the 1¼ cup of raw rice in 4 cups boiling salt water.

Cheese and Olive Roast

Four cups stale bread crumbs, 3 cups tomatoes, ½ cup minced ripe olives, 1 cup cheese, chopped, ¼ cup finely chopped onions, 2 tablespoons olive oil, 1 teaspoon salt, pepper.

Brown onion in oil. Add tomatoes and seasonings and cook ten minutes. Add cheese and cook slowly until cheese is melted. Put crumbs, tomato mixture and olives in layers into a buttered baking dish and bake in a moderate oven 20 minutes.

Creamed Lobster and Olives

Three tablespoons fat, 3 tablespoons flour, 1½ cups rich milk or cream, ¼ cup minced ripe olives, 1 cup shredded lobster meat, few drops onion juice.

Make white sauce of the first three ingredients. Add lobster and olives. Season with salt, pepper and cayenne to taste. Serve in patty cases or pepper cups or on rounds of buttered toast.

Crab meat or parboiled sweetbreads

may be used instead of the lobster.

Chicken Marengo

Cut up a five-pound chicken, salt and fry until brown in one-half cup olive oil. Remove chicken and in the fat fry two cloves of garlic, thinly sliced, and one thinly sliced onion; add 2 tablespoons flour and brown.

To this add two cups tomatoes, two cups boiling water, 1 teaspoon salt, 1 tablespoon paprika and ½ teaspoon pepper.

When slightly thickened pour over chicken. Cover and cook slowly until chicken is tender. When half done add ½ cup ripe olives cut in small pieces.

This may be cooked in a casserole. Last half hour of cooking is done with cover removed. (Sufficient for eight servings).

Olive and Tomato Sauce

Three tablespoons flour, 3 tablespoons fat, 2 cups tomatoes, 1 tablespoon minced onion, ½ cup minced ripe olives, 1 cup Brown stock (beef cube), 1 tablespoon chopped parsley, 2 cloves, salt and pepper.

Cook tomatoes, onion and seasoning 15 minutes, then rub through a sieve. Melt the fat, add the flour and the brown stock gradually. Cook five minutes then add olives and strained tomatoes.

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A few drops rubbed into chapped or cut hands whitens, softens and heals. 1 oz. bottle 25c. Duval Paste Rouge is blood color and guaranteed harmless. Sample 10c. All postage prepaid.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Japanese Walnuts

Can you tell me where I may procure Japanese walnuts? I should like to grow some trees from seeds.—Subscriber, Elsinore.

Dealers inform us that on account of inadaptability to California conditions the Japanese walnut is not grown here and that an importation of nuts from Japan at present would have to be under a special permit of the federal quarantine board. Years ago some Japanese walnuts were planted in California and unless one of these trees could be found we fear the chances of getting nuts is remote.

Getting the Hawks

In a copy of the Cultivator I read an item regarding hawks getting chickens and your recommendation of wire, which I consider good, as it keeps the hawks out and the chickens in. As not everyone can afford wiring a chicken pen all around and overhead, will offer method sure to get the hawks.

Feed the chickens nux vomica in their mash occasionally, about a tablespoon to two or three quarts of mash (wet). Any hawk that eats from a nux vomica fed chicken will be sure to die. It kills hawks but is not injurious to humans. About twice a week, two or three times a year, is about all it will take to do the work.—A. F. Schenken, Chico.

Maybe this would prove effective, but it appears to us that between buying nux vomica and feeding the chickens to the hawks it would prove more expensive than wire.

Darnel or Ray Grass

A few years ago I received this grass seed in my seed oats. I should like to know the name of it. I believe it is a weed. If it is a weed, I would like to know how to get rid of it, for the plant multiplies very fast.—Subscriber, Miranda.

Your weed is darnel or ray grass. It is of some value for feed but is not a good pasture grass. The species seems to be *Lolium multiflorum*, though the material sent is not sufficient for determination of many grasses. Leaves and part of stalk is often necessary. We know of no way of getting rid of it other than that usually employed for other weeds.

Sudan Grass

When should Sudan grass be cut to make the best feed?—Subscriber, Fullerton.

The best time at which to cut Sudan grass is still a debatable question among growers, but the majority are agreed that when the flowers are showing well it is in good condition, and chemical analyses show that it is then of greatest nutritive value. Of course the time cannot be fixed on the calendar as it is so elastic under various care and climatic conditions.

Pruning Himalaya

How and when should Himalaya blackberries be pruned?—Subscriber, Upland.

The Himalaya blackberry is such a strong grower that it seems to make little difference how it is pruned; a good time is at present. Himalayas unpruned, having vines 40 feet long, have borne good crops when grown on fences, trellises, arbors, etc. Success with crop does not seem to depend on pruning. For commercial

purposes it is perhaps best to cut back to four or five canes of last year's growth to four or five feet long and the laterals on these to one foot long. Cut the rest, including all old or last year's canes, entirely away and as close to the roots as possible.

Nematodes

Will you please tell me if asparagus roots and grape fruit trees are immune to nematodes.—An Old Subscriber.

Unfortunately, no. Both are attacked by this pest.

Tanning Cowhide

Would you please explain in your next issue how to tan cowhide for leather.—Subscriber, Orange.

On another page may be seen hints in this matter of tanning skins. However, wishing more complete information we have applied to the department of agriculture at Washington to aid us and are hoping to have some further suggestions in a later issue.

SEED LOANS IN NORTHWEST

In the face of another unfavorable crop year farmers of the Northwest are gradually repaying the government the loans for seed advanced them early this year as an emergency measure made necessary by three years of total or partial crop failure in drouth stricken areas. Total collections up to November 15 amounted to \$286,000, according to returns reported by representatives of the United States department of agriculture, who are handling the work at the temporary field office established for the purpose at Grand Forks, North Dakota.

Within 20 days after the passage of the act the department had perfected an organization and began to make loans to farmers. In return the farmers gave promissory notes on the crops to be grown from the seed, payable November 1. Early in October repayments began coming in, and the work of collecting the loans has gone steadily forward since, in spite of the fact that the farmers are in but little better position now than they were last year. The crops have been only fair this year, with partial failures in many places, and as a result the borrowers are in financial straits again.

POTATO EXPERIMENTS

The value of systematic selection is instanced by the results of an experiment recently carried out by the agricultural department of New South Wales. Thirteen selections were planted, all except two of these being made simply on the appearance of the tubers, and the two exceptions comprising second growth tubers broken from large potatoes. The advantages claimed for this type of seed were that the tubers were immature and were the progeny of potatoes of strong vitality, both of which are essential points in the reproductive quality of seed potatoes.

This argument the results amply justified. The two highest yields were obtained from the second growth immature seed, the winning yield being at the rate of four tons per acre. The best yield obtained from seed selected by growers from their ordinary stock only totaled two tons nine hundredweight.

CITRUS EXPERT FOR THE UNION

R. E. Nebelung, formerly county agent in California, who has been engaged by the government of the Union of South Africa to supervise citrus growing, spent some time in examining the market conditions in London and says that what he has already seen convinces him that "right here you have probably the greatest market for citrus fruit in the world. Any fruit growing country making a special study of the London market's requirements is bound to reap big returns."

What It Means to be a Pelton Dealer

THE MAN who handles Pelton pumps must do more than simply carry a few pumps and parts in stock and be ready to order others from the manufacturer. It isn't nearly so easy as that. He must be both able and willing to give real service to the water user, to see not only that he gets the type and size of pump best suited to his needs but also that he gets the best results when the pump is installed, and in the rare event of anything going wrong, to see that replacements or repairs are made in the shortest possible time.

PELTON DEALERS are a selected group of men, acquainted with irrigation requirements in their respective localities, and able to help water users in the solution of their problems. Working in co-operation with our dealers are the Pelton field representatives, who devote their time to traveling and advising with dealers and pump users, and finally there are the sales engineers and designers at the San Francisco office, the three together forming the co-ordinated body of Pelton Service.

WE WOULD like to have you get acquainted with all three branches of Pelton Service and suggest that, for a start, you call upon the Pelton dealer in your territory. For the benefit of those who do not yet realize how completely Pelton Service covers the irrigated districts of California we will publish in the Cultivator for January 28th a list of Pelton dealers. In the meantime, if you do not know the name of your nearest dealer, let us know, and we will be glad to tell you. Whether you are in the market for a pump or not, you will find your Pelton dealer a man worth knowing.

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Make Contract for Immediate Delivery

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Can supply A-1 budded citrus stock one and two years old, wholesale or retail, in any quantity.

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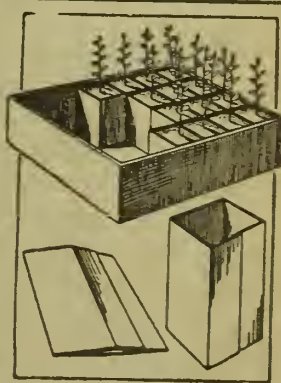
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Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing the roots of the plant or stopping its growth a single hour in transplanting. For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cucumbers, Cauliflower, Cantaloupes and Squash; also for Avocado, Carrot Tree, Eucalyptus and Olive Cuttings. It's the most practical pot in use today for propagating work of any kind. Write us for samples and prices of both pots and protectors. Tell us which you are interested in.

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Market Quotation

A bulletin sent out by McMullen-Harmon, L. S. Commission Co., Kansas City, Sept. 24, reads: "Good, light Shorthorn steers, cows and heifers selling higher in proportion than any other kind. Other kinds plentiful and selling low."

Use Shorthorn bulls and insure quality and weight. It pays to grow Shorthorn beef.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
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Rosebud Shorthorns

A Choice Herd of Fifty Females
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We can now offer a few extra good young bulls that we do not hesitate to recommend. They are well grown and correct in type and quality. We invite you to visit our herd or to write us your needs.

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One of the most select herds in America. Only Scotch females of the best families headed by **COLLYNIE PRINCE LAVENDER** our imported bull that was grand champion at San Francisco.

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A number of good sound young stallions and mares, well bred and priced right. For prices and particulars address

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IMPORTED Corston Masher

Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and heifers, some with calves at foot, and rebred to the above bull. Most of the heifers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

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California's latest triumph, the winning of Grand Championship over all breeds in the fat classes at the Chicago International by Lulu Mayflower, sired by Sultan Mayflower, the sire of our senior herd bull, California Model, maintains the reputation won in 1916 by California Favorite, the Grand Champion steer at the same show, whose dam, Glenbrook's Marvel, is the dam of our California Model. Such honors prove the worth of the breeding of California Model.

Visit the farm at any time.

J. I. Thompson **C. Harold Hopkins**
Manager Owner

Ten Top Shorthorn Bulls For the Range

I now offer 10 young bulls that are just right for the range man seeking to produce a better class of cattle. They are well bred, with plenty of scale, constitution and bone and are of good colors. Come and see them or write. The price will suit.

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Pure Bred Registered Percheron, Arabian and Thoroughbred Horses, Holstein-Friesian Cattle, Southdown Sheep, Big Type Poland China Swine, Mammoth Jacks and Jennets.

Young Breeding Stock of All Kinds
Every Animal Guaranteed

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FEED FOR SWINE,
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ASK YOUR DEALER

Evolving Better Range Cattle



RADUALLY the margin of profit from range cattle operations in this state is narrowing. Range values and leases, labor, cost of money, and all the other charges that enter into the cost of producing cattle have constantly increased to a point out of all proportion to selling prices, and the majority of cattle outfits are being hard put to make both ends meet. At the same time there is not much evidence to indicate any speedy improvement in the general situation. Range values are not expected to decline materially, although rentals and leases have shown an inclination to reach lower levels. Labor has receded quite a bit from the peak point but is not expected to get much nearer pre-war levels. Interest rates will show considerable improvement during the coming year, and will sooner or later get back to normal. As to what the future holds in the way of markets no one cares to venture an opinion. All of which emphasizes the absolute necessity for California range interests to evolve a better class of cattle if they expect to continue in business. The possibilities along the line of better cattle are tremendous in this state, and as yet mighty little has been done save in comparatively few isolated herds. California is behind the Northwest and Southwest in the quality of our cattle, and it cannot be expected that we can meet that competition without producing a class of cattle comparable to that smashing the markets from those sections.

The problem of improving the general average of our cattle stock resolves itself to the simple and fundamental matter of using a better class of bulls than are now found on our ranges. No good fairy is going to wave a wand, and neither is a beneficent Providence going to turn the trick while cattle owners sit on the top rail of the home corral and spend the time cussing the packers—even though the latter may need the cussing. We have simply to face the problem, "cold turkey." It can be done. A few California range operators have demonstrated that a year or more can

be cut off the selling age of these steers and that the weight can be increased very materially through the use of well bred bulls. What these progressive men have accomplished others can duplicate—but it's a matter of individual concern.

First of all, a lot of our range men need to discard the idea that a hundred or half again as much is enough to pay for a bull. Sometimes a good bull can be bought cheap, but one shouldn't buy bulls on the basis of cheapness—buy on the basis of correct beef making type and quality. This last point—buying on the basis of correct beef making type and quality—cuts too small a figure in the average man's buying. Apparently all some cattlemen want is a bull—usually a red one—and about all they expect of a bull is that he get their cows in calf. Such men do not look to a bull as a means of improving the type and quality of their calves, and as a consequence their cattle show little or no improvement from year to year. It is such men who are usually found decrying the cattle business in general and blaming their lack of profits on the packers.

There may have been some justification for the sort of bulls used on California ranges in years past, when there were but few breeding herds in this state to furnish well bred bulls, but there is little excuse now that the leading breeds are well represented by many herds that are the equal of any. California range men can now fill their needs within this state, and they will find our breeders producing a class of cattle that cannot fail to work improvement in our range stocks.

An opportunity to secure good bulls will be offered next month when both the Hereford and Shorthorn associations will hold their annual spring sales at the university farm, Davis. Each association plans to offer bulls of useful ages in lots of five or more—up to a carload.

Advantage should be taken of these sales, and every bull offered should find its way to the ranges of this state.—R. P. R.

Putting the Loss on the Producer

By A. L. Spellmeyer.



THE cattlemen have had entirely in mind the price the consumer pays, but the time for that is past when it has come to the question of a survival of the cattleman himself. The bogey behind this has been the idea that the consumer was quitting the use of meat. Let us analyze the facts we have of numbers and supply, slaughter and inspection. In the figures compiled by governmental sources we have estimates and we have actual counts and records. The census is a count and federal inspection is a record. Slaughter is a record. When estimates conflict with counts and records we cannot consider them but must take the count.

Other Than Dairy Cattle

Census 1900, 50,585,777; 1910, 41,178,434; 1920, 35,424,458. Government guess 1900, 27,610,000; 1910, 47,279,000; 1920, 44,750,000; 1921, 42,870,000. According to census cattle decline in 20 years in the United States, 15,000,000.

Total slaughter (John Roberts report bureau animal industry), typical years only are chosen to cut bulk figures: 1907, 13,469,900 cattle, 6,026,800 calves; 1914, 11,004,500 cattle, 4,661,400 calves; 1918, 15,750,400 cattle, 7,767,200 calves; 1920, 12,176,400 cattle, 9,662,800 calves.

The first eight months of 1921, on which I have complete figures, are verified by last two months, but I will give you the proportion of how 1921

is holding up in meat slaughter as compared to 1920. Necessarily the figures are from federal inspection to which, however, all slaughter conforms: 10 per cent decline in cattle in 1921 as to 1920; 5 per cent decline in calves; nogs even; 20 per cent increase in lambs and sheep.

While the per capita pounds of meat consumed are less bulk volume of cattle numbers slaughtered have shown no alarming decrease in meat. Considering the hard times it shows a bulk increase.

As compared to the slaughter of 1915 in cattle the bulk kill shows increased numbers roughly as follows: 10 per cent minimum increase in 1921 in cattle killed as to 1915; 85 minimum increase in calves.

1915 was a light year, but this year of 1921 we are killing more cattle than in 1915 and about double the calves. You can check up the total slaughter of cattle and calves for any year from 1907 to 1916 inclusive and we are killing more cattle in 1921 than they killed then.

This country lost some 15,000,000 of its beef cattle on a slaughter average under 19,000,000 cattle and calves. This year's slaughter will total over 20,000,000 and according to census returns we have 30 per cent less cattle to stand it. This dairy increase since 1900 amounts to 5,000,900 head in the government guess. It did not prevent us falling behind. If it is 10,000,000 dairy increase it won't prevent the decrease of 2,000,000 cattle for the next year when the government finishes estimates. If you know the ranges of the West you know without any doubt as to tremendous depletion and liquidation, and that slaughter has only been upheld through the sacrifice of breeding cows for the last two years or more.

When any man goes into this ques-



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soreness or abnormal condition makes the cow restless and reduces the flow of milk.

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Bag Balm, in the liberal 60c package, is inexpensive insurance against serious troubles. Keep a package on hand. Sold by general stores, feed dealers and druggists. Booklet, "Dairy Wrinkles," Free.

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Comes in 5 lb. package divided into 150 cubes—enough to make 150 gallons of strong solution. Ask your druggist for Tarx or write for Free Book and money-saving prices. Agts. wanted.

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will reduce them and leave no blemishes. Stops lameness promptly. Does not blister or remove the hair, and horse can be worked. \$2.50 a bottle delivered. Book 6 R free.

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The Cultivator costs only one dollar yearly

tion that I am going to open up of packers' margins and retailers' profits he is asking for an argument, unless he deals with it from positive facts, and that must necessarily be in a local spirit. Recently the cattle loan and packing house conversation in Los Angeles aroused no enthusiasm in me because I knew what they were up against. I knew no two per cent could save some of them, and that the overhead was what was hurting. I knew the banks were afraid, not so much of first loans as of later advances, and that the cow men who were hard up were the ones whose outfits could pay out as the banks had to carry the ones that could not. I also knew that competition against the present killers, packers or independents, was no easy job and that all margins were rather close on cattle at present.

The packers' list in Los Angeles today, December 28, is: No. 1 steers, 12½; No. 1 cows, 11½. The actual prices I have seen in repeated instances on bills are: Steer carcass, 10.50 to 11½; cow carcass, 9.50 to 10. I could have topped coolers for 11½ steers and 10 cent button heifers in several plants. Here at least there is a severe and deadly effort for volume kill.

On test I killed steers that averaged me \$6 for hide and offal and it cost ¼ to ½ a cent for delivery and ½ a cent to sell. Therefore, without interest on investment a 1200 pound steer, shrunk, at 6 cents live weight could sell at 10½ carcass, but considering interest, etc., 11 to 11½ is close. It cost me \$1.50 for killing, the killer taking the waste offal and the hide and edible offal, netting \$6 on a large steer.

Packer's profit margins vary all the time and everywhere, on the steer, the lamb or the hog.

For instance, hogs have made several trips up and several down this year. When they go down the vats load up. When they rise people hold back for the permanent raise they expect, and not so many come in. The bacon and ham gets ready about the time of the rise after a drop, and so it goes. One killer here cleaned up nicely on lambs he bought 60 days ago at 5 cents and is selling today at 20 cents carcass price.

At the same time cattle were selling somewhat on this basis: My shrink on weighed off cars is about right: Producer—6 cents for a 1200 pound steer shrunk to the tissue, or \$72; actual loss about \$30 per head.

Packer—700 pound meat at 11½ and \$6 hide and offal, or \$89.50 or \$17.50 gross profit.

Retailer—700 pound meat, \$140.

However at same period other cattle made returns that cut it close.

Steers costing (1200 pounds) \$84 selling at 11 cents or \$77 plus \$6 hide and offal, \$83, and losing the packer money. It's not all cream. A \$12 gross on a steer is usually a nice packer margin these days, and it's doubtful if a large packer can clear for less, so these hog and lamb plays are necessary for the profit, limousines and diamonds.

Also, these big lawyers and politicians don't work for glory, and support by the financial strongholds is costing about 9 per cent interest rate.

Some men were misled into shipping here through a high quoted 7 cent price for fat steers. It was only paid so far in a few isolated instances, and while 8 cents would surprise no one here by February 1, beef sells from 6 to 6.50 now and some at less. Los Angeles is getting to be quite a market and things appear corking up for killers as grass is late, but all depends upon other markets and ability to ship in.

Packers went to Idaho, Wyoming, Montana, Kansas and Texas this year to supply Los Angeles, leaving fat cattle sweat it out for a 6 to 6.50 price here when the imports often cost 7 cents. Ordinary Northern Arizona grass beef was brought in at 6.50 when California fed steers in small lots sold at 5 to 5.50. The intention was no doubt to safeguard a supply here later.

In conclusion there are some things about the cattle trade that cannot help but cause some serious consideration. What is the end as it's going? Is that change coming to the West that took place in Illinois and Iowa a generation ago? All this talk of cheaper range rentals, etc., is all right applied to forest or government lands, if it can be put over, but on private land is the

veriest bunk. Whether you own or rent land its cost depends upon its value and Western lands are not decreasing. Western land is increasing with millions coming here every year in increased population. It can't help it.

Also there must be evident reason back of the packer low price beef policies, as these are men who know fully what shortage must inevitably mean. One idea may come from knowledge of the great increase of large meat markets and chain markets with fine refrigerator systems and stock and bond control and the fact that some districts of South America can produce a steer for \$4 that would cost us \$64. Those Platte and other plants are in fine shape and a shortage would not hurt packers who own them nor a 2 cent or double that meat duty stop imports. We can't fight a battleship with a leaky rowboat. The success of the Citrus Association shows a proven method of marketing.

LIVESTOCK ASSOCIATION CHOOSES OFFICERS

The first board of directors of the National Livestock Producers' Association met in the Chicago offices of the American farm bureau federation on December 28-30. Officers were elected as follows: President, John G. Brown, Monon, Indiana; vice president, C. E. Collins, Kit Carson, Colorado; secretary-treasurer, E. H. Cunningham, Des Moines, Iowa. The officers constitute the executive committee.

Urgent requests were received to establish terminal commission associations and the allied stocker and feeder companies at Chicago, Indianapolis, Pittsburgh, Cleveland, Buffalo, Detroit.

The national board of directors decided to undertake a thorough investigation of the conditions surrounding each market during the next 30 days before authorizing establishment of any terminal commission company. No cooperative company will be established at any terminal before the trade prospects warrant it as a sound business venture. If the board's investigation shows that the business of the market and the attitude of the producers warrant, the association will proceed at once to organize terminal cooperatives.

The Producers' Livestock Commission Association, National Stockyards, Illinois, opened for business January 2. This is the first of the terminal commission associations to be organized.

SOUTHERN CALIFORNIA LIVESTOCK BREEDERS' ASSOCIATION

A number of breeders of pure bred livestock in Southern California, and others who are interested in the success of the industry, recognizing the great need for organized effort, have formed an association known as the Southern California Pure Bred Livestock Association.

The object of this association is to combine in a compact and effective organization those men and institutions engaged in promoting various lines of livestock breeding. Their problems are the same and the benefit of thorough organization will come through a consistent spirit of cooperation. The various phases of the marketing problem can be best handled through organized effort; freight charges and transportation regulations; onerous health and inspection regulations which need adjustment from the standpoint of the breeder; the promotion of the pure bred in all lines of livestock; new legislation and general encouragement of the livestock industry in the South, may be successfully handled through organized and cooperative effort.

In this organization each breed is represented by a prominent breeder on the board of directors and it is the policy to foster in every way breed organizations and breed spirit.

To make this organization a success and the benefit it should be there must be a large and active membership. Everyone in Southern California who is interested in the promotion of the livestock industry should see that his name is written in this organization. The membership fee is \$5.—W. W. Van Pelt, Secretary, Riverside.



"Happy Days! I'll say!"

"MY brothers were fine upstanding youngsters. As for me—I was badly sweetened and nobody gave a hook-joint whether I became a plough-horse or a saw-horse. I WAS swapped around 'till finally I got a regular boss who said, 'Sound as a nut, except that blamed sweeny. We'll soon get rid of that.' And he did with Gombault's Caustic Balsam".

GOMBAULT'S CAUSTIC BALSAM does the work better than firing. Hair will positively grow back natural color.

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Runs so easily, bowl spins 25 minutes after you stop cranking unless you apply brake. No other separator needs brake. Bowl chamber is porcelain lined.

Ten Per Cent More Milk

Alanson Swain, manager, Morrison Ranch, Lancaster, Calif., says: "Prior to April, 1920, we had been hand milking and had kept accurate records of the milk production. Since acquiring the Sharples Moto (electric) Milker, the milk production from the same cows, under the same conditions of feed and care, increased slightly more than ten per cent with increase in butter fat." The Morrison Ranch is the home of some of the finest Pure Bred Holstein cattle in the state, where the best of hand milking was obtained. If they can increase production ten per cent, what would the use of the Sharples mean to you?

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The Mings Sale

The present strength of the market for registered Holsteins in California was clearly in evidence at the T. B. Mings dispersal at El Monte on January 5. This sale marked the beginning of the 1922 sale season following the heaviest selling year in California's Holstein history, as during the past year new buyers had absorbed over 1,500 head of registered Holsteins in the public sales alone. Outside of one cow the Mings herd contains no high record females, and half of the herd was composed of heifers from yearlings down to young calves. The top of the sale was made by the 30 pound cow, Fay Tritomia Hengerveld that fell to the bid of James Edmondson, Los Angeles, at \$1,075. The bred heifers were topped at \$475 by Isabella Korndyke Pontiac Walker, a daughter of King Korndyke Pontiac 20th, going to J. B. Smitson, El Monte.

Marion Hengerveld Pontiac, another daughter of King Korndyke Pontiac 20th, topped the open heifers at \$525, going to L. B. Van Blaricom, El Monte, one of the great bargains of the sale at that figure. Mrs. Perle R. Penrose, Pomona, made a most promising selection in Pauline Pontiac Abbecker Segis, sired by Walter Mitchell's \$5,000 son of the famous Bridgford cow, Adirondac Wietske Dairy Maid. Two choice daughters of Prince Riverside Walker were bought by Charles MacDonald for Anita M. Baldwin at \$600 and \$575, respectively. The offering of 58 females was absorbed by 26 buyers, only about a half dozen established breeders appearing among them. The sale was managed by California Breeders' Sales and Pedigree Company, with Ben A. Rhoades on the auctioneer's block.

Following is the sale summary with individual purchases:

Twenty-seven tuberculin tested females of milking age sold for \$9,815, average \$363; 14 bred heifers sold for \$3,285, average \$234; 13 open heifers and heifer calves sold for \$2,620, average \$201. Four reactors sold for \$695, average \$174. Total sale, 58 head sold for \$16,415, average \$283.

1. Fay Tritomia Hengerveld, May 29, 1913. James Edmondson, Los Angeles, \$1,075.
2. Marion Hengerveld Pontiac, January 20, 1921. L. B. Van Blaricom, El Monte, \$525.
3. Ellen Korndyke Pontiac Hartog, October 2, 1919. J. B. Smitson, El Monte.
4. Queen Korndyke Pontiac Colantha, April 18, 1919. D. L. Wright, Pasadena.
5. Isabelle Korndyke Pontiac Walker, July 5, 1919. J. B. Smitson.
6. Ellen Hartog Walker, July 25, 1917. Anita M. Baldwin, \$600.
7. Riverside Ollie Segis Beets, February 6, 1918. Anita M. Baldwin, \$575.
8. Anokaia Segis Mead, January 4, 1916. Carl Ettensperger, Arcadia, \$175.
9. K. S. P. J. Canary Parthena, November 4, 1918. W. E. Aberle, El Monte.
10. Heifer calf, August 5, 1921. James Edmondson, \$210.
11. K. S. P. J. Alcarra Spofford, December 31, 1918. W. E. Aberle, \$350.
12. Heifer calf, June 6, 1921. Sargent Bros., Tulare, \$150.
13. K. S. P. J. Juliana Maid, November

- 15, 1918. M. C. Tolle, Los Angeles, \$360.
15. Heifer calf, August 21, 1921. R. L. Alsworth, Puente, \$125.
16. Meadowsides Lillith Segis Korndyke, August 24, 1916. Carl Ray, Lankershim, \$300.
17. Lady Lillith Segis Pontiac, June 20, 1920. A. E. Frampton, Artesia, \$190.
18. Heifer calf, August 12, 1921. Sargent Bros., \$170.
19. Meadowsides Aaggie Rag Apple, August 16, 1917. C. C. Stafford, El Monte, \$325.
20. Aaggie Segis Lady Rag Apple, July 26, 1920. W. E. Aberle, \$460.
21. Lady Tobe Pontiac, June 23, 1920. G. Helm, Arcadia, \$195.
22. Belle Segis of Kerman, June 20, 1919. J. B. Smitson, \$290.
23. Lillith Aaggie of Kerman, October 4, 1919. J. E. Van Wig, Puente, \$150.
24. George Pontiac Lyda, April 5, 1917. D. L. Wright, Pasadena, \$600.
25. Johanna Mercedes Segis Pontiac, December 20, 1917. D. L. Wright, \$350.
26. Alban Segis Duchess Pontiac, November 1, 1917. Mark Percy, El Monte, \$250.
27. Heifer calf, October 25, 1921. Sargent Bros., \$125.
28. Gertrude Pontiac Hengerveld, July 21, 1917. Carl Ray, Lankershim, \$200.
29. Ellen Pontiac Hengerveld, July 10, 1920. G. Helm, \$125.
30. Heifer calf, June 2, 1921, Sargent Bros., \$170.
31. Lyda Burke Juliana Hengerveld, October 20, 1917, Carl Ray, \$325.
32. El Monte Juliana Hengerveld, September 25, 1920. W. W. Coke, Ontario, \$205.
33. Katrina Rafael Hengerveld, September 30, 1919. W. E. Aberle, \$120.
34. Unnamed heifer, August 20, 1919. W. W. Coke, \$200.
35. Dostata Pontiac Lass, November 20, 1919. B. Clocca, El Monte, \$200.
36. Aaggie Romeanna Pontiac Lass, September 3, 1919. A. E. Frampton, \$170.
37. Miss Romeanna Pontiac Juliana, December 2, 1919. W. E. Aberle, \$280.
38. Katrina Newtonia, July 29, 1916. W. W. Coke, \$235.
39. Lucy Pontiac Paul Newtonia, Sept. 13, 1916. J. B. Smitson, \$350.
40. Gerben Canary Nudine De Kol, February 26, 1917. E. J. Sturgis, Lankershim, \$195.
41. Urmagel Teuble Segis, Jan. 18, 1917. Maxwell Farms, \$105.
42. Heifer calf, September 16, 1921. Sargent Bros., \$160.
43. Snowflake Canary Hengerveld De Kol, February 17, 1915. W. E. Aberle, \$350.
44. Juliana Elgin of Rock, May 10, 1914. Perle R. Penrose, Pomona, \$205.
45. Parthena Sadie Vale Korndyke, January 23, 1919. A. E. Frampton, \$225.
46. Pauline Pontiac Abbecker Segis, September 11, 1919. Perle R. Penrose, \$380.
47. Dora Hiske Walker, May 23, 1919. D. L. Wright, \$575.
48. Heifer calf, October 26, 1921. F. F. Pellissier, \$75.
49. Hartog Queen Johanna, March 1, 1920. A. E. Frampton, \$205.
50. Lockhaven Alcarra Shadybrook, May 26, 1914. A. E. Messer, Los Angeles, \$110.
51. Johanna Pontiac Lyda, November 28, 1920. Geo. R. Wilson, Hollywood, \$200.
52. Rock Daisy, November 10, 1916. Mark Percy, \$140.
53. Heifer calf, August 4, 1921. Sargent Bros., \$145.
54. Segis Korndyke De Kol Beauty, February 20, 1916. Geo. R. Wilson, \$300.
55. Juliana Walker Segis Pard, June 1, 1920. A. E. Frampton, \$190.
56. Lady Belle Colantha Prilly Pard, February 18, 1920. D. L. Wright, \$365.
57. Segis Prilly Holland Pard, July 15, 1920. F. F. Pellissier, \$220.
58. Virginia Burke Prilly Pard, February 9, 1920. Anita M. Baldwin, \$225.
59. Heifer calf, September 30, 1921. Sargent Bros., \$190.

Livestock as a Sideline



GREAT many California ranchers seem to feel that the matter of producing livestock is best handled as a specialized business.

True it is that when undertaken on an extensive scale the business usually develops into a specialty, but the major production in most states originates on small farms where livestock is merely a sideline—a few cows kept to utilize farm roughage and furnish milk and butter for the home, a few brood sows to consume the waste and furnish delicious home cured hams and bacon and incidentally a load or two of market porkers, and perhaps a little flock of sheep to keep the place free from weeds.

It is under such conditions that livestock farming becomes one of the safest and surest sources of income to the man who is endeavoring to eliminate risk from his yearly operations.

Throughout this state, in every county and every township, there are at least a few ranchers who can very materially increase their income in 1922 by following such a plan as suggested above.

Every condition for reasonable success is present and favorable in California. Our natural conditions for growing all kinds of livestock cannot be excelled. Except in the mountain sections very little expense is required for shelter, the possibility of provid-

ing cheap forage the year around is far greater than in other sections, and finally, our markets usually rule satisfactory.

The management and settlers of the two great land colonies, Durham and Delhi, recognize the importance and possibility of livestock in small farming operations and in each colony the settlers have been encouraged to maintain small herds and flocks. Not long ago the superintendent of one of the colonies told the writer that more than one settler had been able to pull through the disastrous season of 1921 because of his cows and pigs. This same superintendent holds an allotment and practices what he preaches—and he is about as level headed a chap as one will meet.

In making a start with livestock, the sort determined upon should be governed largely by the character of one's farm, the sort of feeds grown, the experiences of one's neighbors and one's personal choice. The prices paid for foundation stock can vary widely and will depend on whether one elects pure breds or grades. If the former, the beginner need not be misled by reputed high prices. Generally speaking, pure bred values have receded from war time levels, and at present are as low as can be reasonably expected. If grades are selected, the beginner should bear in mind that there is a vast difference in quality

and producing ability in grades. Some grades (as well as some some pure breds) are dear at any price. Other grades that have had the benefit of several generations of pure bred sires approach near the pure bred standard. If grade females are selected, by all means install a pure bred sire at the head of the herd or flock or patronize the owner of a pure bred sire.

Once a start is made, determine to make the matter of livestock maintenance a permanent part of your operations. Give your charges good care and be willing to take your profits from the increase over a period of eight years.—R. P. R.

LOS ANGELES COUNTY TESTS

Supervisor L. J. Birge of the Southern Los Angeles County Cow Testing Association reports tests for November and December in following herds:

November

Peter Wilber, 3.78 average per cent fat, 39.1 average pounds fat; Fred De Vries, 4.4, 30.9; J. H. Leahy, 4.75, 39.9; W. Zylstra, 3.8, 37.9; S. W. Bockema, 4.58, 43.2; Joe Telford, 4.31, 39.0; M. Harvie, 4.71, 38.3; Paul Taylor, 3.58, 29.8; Geo. Webb, 4.0, 37.7; J. G. Gains, Jerseys, 6.3, 40.4; Geo. Hight, 4.0, 35.2; Chas. Harrington, 3.68, 37.7; D. H. Dillon, 4.07, 43.6; R. Palmer, 4.29, 30.9; M. A. McClain & Co., 4.15, 34.0; C. V. Harris, 3.51, 43.0; Earl Graham, 4.14, 49.7; Geo. Trail, 3.87, 40.5; Chas. Harrington, highest pounds fat for one cow for December (Holstein pure bred), 91.8; Earl Graham, highest herd average of fat, pure bred Holstein, 49.7; J. G. Gains, highest average herd test, 6.3.

December

Fred De Vries, 4.35 average per cent fat, 42.6 average pounds fat; J. H. Leahy, 4.54, 38.6; J. Tilford, 4.32, 41.1; W. Zylstra, 4.0, 43.0; S. W. Bockema, 4.45, 42.8; G. J. Gains, 5.62, 44.5; Geo. Webb, 4.07, 37.3; Earl Graham, 3.67, 61.0; Peter Wilber, 3.58, 33.9; Paul Taylor, 3.7, 42.0; John Van Ruiten, 4.29, 45.4; R. M. Howie, 4.97, 41.5; D. H. Dillon, 4.03, 42.6; R. L. Palmer, 4.24, 33.5; Geo. Hight, 3.39, 35.9; Chas. Harrington, 4.1, 47.5; C. V. Harris, 4.0, 41.8; M. A. McClain, 4.19, 33.0.

Highest pounds fat of association. M. A. McClain & Co., one cow, 97.6. Earl Graham, highest herd average pounds fat, 61.0 pounds; J. G. Gains, highest herd test for month, 5.62.

CALIFORNIA CATTLEMEN HAVE SOUTHERN OFFICE

The Southern California branch of the California Cattlemen's Association is now occupying offices with the state department of agriculture in the Pacific Finance Building, Los Angeles. This branch takes in the counties of Inyo, Santa Barbara, Ventura, Los Angeles, Orange, San Bernardino, Riverside, Imperial and San Diego. Officers and directors are: Hubbard Russell, president; N. R. Vail, vice president; O. B. Fuller, Lloyd Summers and James Sloan, directors; John E. Robert, zone manager.

The annual convention of the American National Livestock Association will be held at Colorado Springs, Colorado, commencing the week of January 9, at which time very many important subjects will come up for discussion, affecting the industry all over the United States. A large delegation will go to the convention from Southern California.

Mr. Robert and the directors are working out a plan whereby the various interests in the cattle business will be brought together under a comprehensive cooperative working agreement. This plan will be known as a meat council, and will be composed of cattlemen, packers, retailers, and the public will be represented by the chamber of commerce.

PURE BRED BREEDERS MEET TODAY

A meeting and luncheon of the Southern California Pure Bred Livestock Association is being held today, January 14, at the Clark Hotel, Los Angeles. It is a general meeting of breeders, and Secretary Van Pelt writes that matters of great importance to the breeders of pure bred livestock in Southern California are to be considered.

Livestock News Notes

Miss Ormsby Alcartra Prilly, a first calf senior two year old daughter of the Bridgford four times grand champion bull, King Segis Alcartra Prilly, calving at two years seven months, has just made 28.35 pounds butter from 520 pounds milk in seven days, giving her the California state record in class by a comfortable margin. Her full sister, Ormsby Mechthilde Prilly, also milking as a first calf two year old, has now been on long time test for five months and for that period has to her credit 496 pounds butter and 11,736 pounds milk, and is still milking 70 pounds per day. It is a foregone conclusion that before another year has passed, during which a number of daughters of King Segis Alcartra Prilly will have completed 305 day and 365 day records, that this famous show sire will have established himself as one of the greatest sires of yearly record heifers yet developed in California.

Miss Aaggie Ormsby Segis, the great senior two year old heifer that has just broken the world's milk record in class in the 305 day division in Fred Hartsook's herd at Lankershim, making a production of 22,072.6 pounds milk and 811.3 pounds butter in the 305 days, carries blood lines that have long held a prominent place in the breed's production lists. She is sired by King Pontiac Ormsby Segis, who is by King Pontiac Netherland Segis, a son of King of the Pontiacs and out of a daughter of King Segis Pontiac. His dam is Cristeria Overton Mechthilde 4th, the noted 31.70 pound four year old daughter of Sir Skylark Ormsby Hengerveld. The dam of the new record holder is Moorland Josephine Colantha, a 22 pound daughter of Colantha Sir Pontiac Aaggie, son of Colantha Johanna Lad.

Earl Graham, Compton, has completed a number of noteworthy long time records in his choice herd of registered Holsteins, bringing into greater prominence at least two sires that have figured largely in the recent breed development in California. Notable among these records are those of the first two daughters of King Pontiac Netherland Segis 3d to complete long time test. The first of these, Cora Jarie Pontiac, as a senior three year old made 976.55 pounds butter from 18,993.8 pounds milk in 365 days. The other, Miss Segis Pontiac Walker, calving at two years two months, finished her 365 day record with 795.78 pounds butter from 16,776.7 pounds milk. The latter heifer is out of Miss Walker Gelsche Korndyke, daughter of Prince Gelsche Walker Korndyke and the noted foundation cow, Locust Terrace Gold Drop. Miss Walker Gelsche Korndyke herself just recently completed a 305 day record in Mr. Graham's herd of 750 pounds butter from 17,663.3 pounds milk. The six year old cow, Gamma Sarcastic of Millbrae, finished a 365 day record of 967.5 pounds butter from 21,702.8 pounds milk. It will be remembered that Mr. Graham purchased Miss Segis Pontiac Walker in the Rosamaines Rancho dispersal sale in October, 1920, and purchased her dam from Bridgford Holstein Company in the Sacramento sale in December, 1920. Both are splendid individuals and both are due to calve in January to King Korndyke Pontiac 20th, the \$12,000 son of Miss Valley Mead De Kol Walker.

The J. S. Gibson Company herd of Holsteins at Williams has contributed the twenty-second highest yearly butter record to the breed's production lists in the recently completed record of Aaggie Korndyke of Nevada, that made 1,297.3 pounds butter from 30,669.5 pounds milk in one year, also adding another to the select list of 30,000 pound cows. She began her test at eight years 29 days, again demonstrating the oft overlooked fact that many eight and nine year old cows are just in their prime as far as production goes.

Burr Farm, Los Angeles, has added a number of excellent records in official testing of its high class registered Holsteins. Buena Alta Aaggie Ormsby, after completing a 365 day record of 873.2 pounds butter from 25,200 pounds milk as a three year old, calved as a senior four year old and has made

33.76 pounds butter from 652.5 pounds milk in seven days. Lady Veeman Happy Thought, a three year old daughter of Sir Veeman Korndyke Pontiac, has made 592.96 pounds butter from 13,252 pounds milk in 305 days. Carnation Segis Mechthilde, a five year old, made 20.89 pounds butter in seven days, while Bess Aaggie Creole, another five year old, made 23 pounds butter from 531.3 pounds milk in seven days.

Gracia Pontiac Burke, that made the splendid record of 33.17 pounds butter in seven days as a senior four year old in the Burr Farm herd at Los Angeles recently, is going along strong on the beginning of her yearly work. Her dam is now on yearly test in the herd owned by H. J. Long, Fallon, Nevada, and in 227 days has to her credit 735.03 pounds butter and 17,377 pounds milk.

At the annual meeting of the American Shetland Pony Club held last month at Chicago W. S. Guilford of the Butte City Ranch was named a director. Mr. Guilford is now director of two national breed associations, having been elected to the board of the American Shropshire Association a year ago.

The annual meeting of the American Berkshire Congress which was to be held at Riverside the third week in February has been called off owing to the inability of the Eastern directors to attend at that time. It is now proposed to hold the annual meeting of the Western Berkshire Congress, which was planned in conjunction with the Riverside meeting, at the university farm, Davis, during Stockmen's Week. A sale will feature the meeting.

Sir Ormsby Skylark Rauwerd, the bull at the head of the Sierra Vista Holstein herd, was recently killed following an accident he sustained in which a leg bone was fractured. Messrs. Kyne and Cash purchased this bull in the Rosamaines Rancho dispersal sale in October, 1920, for \$3,500. He was sired by Sir Ormsby Skylark and was out of the 34 pound cow, Beauty Rauwerd Hengerveld 2d.

Professor Gordon H. True of the animal husbandry division of the University of California has announced that several men of national prominence will participate in the program now being arranged for Stockmen's Week, February 20-25. Among the speakers will be Frank S. Hastings, manager of the famous S. M. S. Ranch of Texas and one of the best known livestock authorities and writers in America; Herbert W. Mumford, head of the Illinois State Agricultural Association and a leading member of the farm bureau committee of fifteen, and W. A. Cochel of the American Shorthorn Breeders' Association. Other speakers will include B. H. Rawl, formerly head of the dairy division of the United States department of agriculture.

Howard W. Vaughn of Dixon has been appointed by the California Shorthorn Breeders' Association to manage the forthcoming sale to be held at Davis, February 22. Vaughn states that he expects to be able to offer around 75 bulls and 25 females. Entries should be made with Mr. Vaughn.

Helma of Ashwood, a Jersey cow owned by McArthur & Stauff, Rick-erall, Oregon, has just completed a yearly record of 903 pounds of butter fat from 18,532 pounds of milk.

The California Poland China Breeders' Association is planning to hold a sale of bred sows and gilts at the university farm during Stockmen's Week. It is probable that the sale will occur on Thursday.

The next meeting of the members of the Poland China breed promotion committee is set for Tuesday, January 24, at Peoria, Illinois. Plans in full detail of the work for 1922 will be made.

SHORT COURSES IN DAIRY MANUFACTURING

The college of agriculture of the University of California is offering a new form of instruction this year to experienced butter makers, cheese makers and milk plant operators, for ten days,

beginning February 6. The instruction will include three lectures each day by members of the dairy industry division, three hours practice work in the commercial plant under the direction of an instructor, and two hours devoted to the discussion of commercial manufacturers' problems. Outside speakers, men connected with commercial manufacturing work, will be secured to lead the discussions.

These courses are planned to meet the needs of men now employed in dairy manufacturing and milk plant operation and to meet with men engaged in the same line of work for their mutual benefit.

Detailed information may be secured by writing to the dairy industry division, University Farm, Davis, California. Applications should be mailed in advance to the dean's office at the University Farm.

PROTEIN IS NEEDED

"If our best dairy records are made by cows on 'narrow' rations, why isn't it practical for the average dairyman to imitate such feeding?" Ivan McKellip, dairy specialist of the Ohio state university, who raises this ques-

tion in his new dairy feeding bulletin, believes that most farmers feed to "wide" a ration. He suggests more careful computations as to nutritive ratio.

Nutritive ratio, he explains, is the ratio of the protein to the carbohydrates and fat in any ration. Fat produces in the animal body about two and one-fourth times as much heat as carbohydrates; therefore, in computing the ratio, the fat is multiplied by two and one-quarter before it is added to the carbohydrates, and the sum divided by the protein.

"For example," writes Professor McKellip, "100 pounds of cornmeal contains 6.9 pounds of protein, 69 pounds of carbohydrates and 3.5 pounds of fat.

"Multiplying the fat by 2 1/4, we get 7.87; adding the 69 pounds of carbohydrates, we get 76.9 pounds of what we call 'carbohydrate equivalents.' Divided by the protein, 6.9, we get 11.1, which means that the nutritive ratio of cornmeal is one to eleven.

"Such rations are far too wide. They should be as narrow as 1.5. Most of our record cows are fed still narrower rations. We need more protein in dairy feeding."

Sir Prince Aaggie Mead



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His sire, King Aaggie Mead, is a son of the 1,000 lb. foundation cow Aaggie Acme of Riverside, who produced the 1,331 lb. world's strictly official record cow, Aaggie Acme of Riverside, who in turn produced California's only 1,000 lb. junior 2 year old, Miss Aaggie Acme Burke.

His dam, Miss Valley Mead De Kol Walker, with two records above 1,000 lbs. butter in one year, and now making a yearly record that promises to exceed her previous best record of 1,113 lbs., is a daughter of the 1,011 lb. 4 year old De Kol of Valley Mead 2d, who in turn is out of the foundation cow, De Kol of Valley Mead.

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Bee Diseases

By Henry Perkins



ALL amateur beekeepers should supply themselves with the United States department of agriculture bulletins on bee diseases whether they have any reason to suspect the presence of diseases in their colonies or not. Disease is a snag you will run up against sooner or later if you follow beekeeping. When you do you will stand or fall on the knowledge with which you are equipped to meet it; luck will not get you by.

In addition to the department literature I must add that all bee books deal exhaustively with bee diseases, accompanying text with lifelike illustrations. Better than all is the county bee inspector. Twenty-one counties of California have regular bee inspectors, many of whom have numerous local deputies to aid them in covering their territory. Bee inspectors in California are paid out of the public treasury and serve without charge to the owner. A phone call or letter to the clerk of your county board of supervisors will give you your county inspector's name and address.

European foul brood, also known as black brood, and American foul brood are the two prevailing ailments which are of enough importance to be rated as diseases. Both attack the brood during the incubation period; neither affects the adult bees. The larva dies and decomposes in the cell both before and after it reaches the sealed state, when affected with American foul brood. The larva seldom reaches the sealed state in the case of European foul brood. Both diseases give the brood combs a mottled, greasy, diseased appearance. The diseased matter from American foul brood gives off

a foul, fishy odor. It settles to the bottom wall of the cell in a brown, glue like mass which will string out in a rubbery fashion from the end of a toothpick. In its last stages it becomes a dark brown scale closely adhering to the lower side of the cell.

The treatment for American foul brood is to remove all the combs from the hive and melt or destroy them. A few empty frames are given for the bees to work on if honey is coming in. These in turn are destroyed after the lapse of three or four days. The bees are then put in a clean hive, given full sheets of foundation, and if necessary fed with sugar syrup. The idea in a general way is to free the colony from the infection by first removing the infected matter, giving them time to work their bodies free from the remaining germs, then giving them a new, clean start. It is necessary to remove all combs, for the disease spreads by means of infected honey and combs and is transmitted largely by healthy colonies robbing the stores of diseased ones or by carelessness on the part of the beekeeper.

The symptoms of European foul brood are many and complicated, often closely resembling those of American foul brood, yet the two diseases are distinct. I will not attempt to describe them here, but will refer the reader to the sources of information already given. In either case great care should be taken to prevent the further spread of the disease by careless handling, especially when nectar is scarce and bees inclined to rob. Both diseases can be successfully treated, so don't throw up your hands when you discover infected colonies in your yard.

Little Known Clovers



INQUIRIES received by the United States department of agriculture show that an effort is being made to interest American seedsmen in Strawberry clover and Subterranean clover and to induce them to offer seed to their trade. The following information on these crops is presented so that buyers may have some guide as to the value of these plants and the way they should be treated:

Strawberry clover (*Trifolium fragiferum*), so called because the ripe fruiting head is about the same size and shape as a strawberry, is a perennial plant of the same habit of growth as White Dutch clover. The stems are rather heavier and the leaflets smaller and more pointed.

So far as is known this plant is used as a regular farm crop only in New Zealand and in Australia and more especially in the Province of Victoria, into which country it is said to have been accidentally introduced from Ireland. In Victoria it grows with great luxuriance, being quite resistant to drouth and still more so to excessive wet. It is said to thrive on the salty lands near the ocean, and in New Zealand it is said to do well along tidal rivers where the salt is abundant enough to prevent the growth of White Dutch clover.

When well established it makes a splendid pasture plant with all the food value of other clovers. The seed is rather difficult to hull since each seed is inclosed in a tough, bladder like envelope.

The department has had this plant growing for several years at the Arlington experimental farm near Washington. It does well, apparently a little better than White Dutch, but not as well as Ladino White clover. It is quite readily run out by the summer weeds, and young plants set out in a wet, marshy place among marsh grass were crowded out by the grass. At Arlington the Strawberry clover is growing on poor red clay and seems not seriously hurt by summer drouth nor has it ever winter killed. Its chief drawback there has been the fact that it is gradually crowded out by summer weeds. A correspondent in Beaumont, Texas, reports that several years ago some one in that place had a fine patch grown from seed received from Australia, but it was gradually

crowded out by native grasses.

Subterranean clover is an annual, but where it does well it so easily perpetuates itself by seed that it need be sown but once to have a permanent stand. It is a native of Europe, but never attracted any attention till it was found to be doing very well in Southeast Australia. Conditions there seem to suit this plant exactly. The seedlings start growing in the fall, and the plants rapidly make a dense mat of interwoven stems that creep over the ground and may be a foot high. On the approach of the Australian summer in December the plants mature and die. The dead stems and leaves are said to make good grazing during the summer.

The crop is highly praised by both farmers and experimenters, but the latter especially call attention to the fact that its period of usefulness is confined to the spring. The plant does not withstand hot, dry weather, and in at least one series of experiments it was noted that when the rains ceased the Subterranean clover, even when irrigated, showed the effect of the dry weather more than did other clovers.

From its behavior in Australia it is clear that Subterranean clover is a plant for a cool, moist climate, such as the winter climate in parts of California and the Gulf states. The weather bureau has furnished data regarding the temperatures at Melbourne, Australia. This city is in the district where both the Subterranean and the Strawberry clovers do well. The average mean temperatures for May to October are 54, 50, 49, 51, 54 and 58 degrees Fahrenheit and the lowest temperatures on record for those months were 30, 28, 27, 28, 31 and 32 degrees Fahrenheit. It should be noted that this crop thrives best at a cool temperature with but little frost.

Whether it would withstand the sharp freezes that often occur in the Southern states is problematical; but it is quite certain that Subterranean clover will not thrive in the South during the summer. Whether it will succeed as a summer crop anywhere in the North is uncertain, especially since the northern summers are so subject to severe drouths.

A crop that may be most excellent for one section may be a failure in another. The conditions under which

Subterranean clover is known to do well as are such as are found in only certain parts of this country. It may have a greater range of adaptability than is known to be the case at present; it may survive the freezes that occur in the South. If it does it will fill a place similar to Burr clover or other winter annuals that self seed. Or it may succeed in some extreme northern state where the summers are cool, provided the rainfall is sufficient.

The department has distributed trial packets, and it is hoped that more information will be available in another year.

HEADWORK PAYS ON FARM

An investigation of the incomes of 554 farmers in one county of Missouri by the college of agriculture showed that the educated farmer's income was 71.4 per cent larger than that of the untrained farmer.

The Kansas state agricultural college has made a survey of the incomes of 635 farmers in seven counties and found that the trained farmer has a greater income by nearly \$1,000 a year than those farmers with a common school education.

The United States department of agriculture reports a survey of three representative areas in Indiana, Illinois and Iowa. It is shown that tenant farmers with a college education received an average labor income of \$453 more a year than the man with a high school education and \$979 more a

more sand accumulated at the front no drifting took place behind this line and permanent trees were planted and maintained. In after years they were fed by street sweepings. The first line, or battle front, was of a large shrub closely related to the eucalypts, *Leptospermum lavaegatum*. Back of this was planted the Monterey pine, *Pinus radiata*; the cluster pine of South Europe, *Pinus Pineaster*, also known as *P. maritima*; *Albizia lophanta*, sometimes known as acacia; *Acacia latifolia*, and several species of coastal eucalypts.

WHAT IS RUBBER?

The first references to "India rubber" are found in the writings of Spanish travelers in Mexico about 1521. These travelers observed that the natives of Mexico had a national game of ball which they had developed to a high degree of skill. The travelers were greatly impressed with the remarkable resilient qualities of this ball, and they had never seen anything of the sort before.

"It was found that these wonderful bouncing balls were made from the dried juice of a certain tree, but the Spaniards failed to realize the commercial possibilities for this new product, and did not seem to make any attempt to put their discovery to any useful purpose.

About a century later, Portuguese missionaries in the Amazon regions discovered that the natives were using



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These man power implements save time and help grow home vegetables.

year than the man with only a common school education.

Cornell University reports that men having more than a high school education received \$225 more a year than farmers with a high school education and \$529 a year more than farmers with a common school education. They also report that five per cent of the farmers with a district school education had labor incomes of more than \$1,000; that 20 per cent of the farmers with a high school education had labor incomes of more than \$1,000; that 30 per cent of the farmers with more than high school education had labor incomes of more than \$1,000. A high school education is worth as much to a farmer as \$6,000 worth of five per cent bonds. A college education is worth nearly twice as much.

The agricultural experiment station of Nebraska reports on a survey of 409 farmers in Nebraska in 1914. Those farmers who attended high school increased their labor incomes 32.1 per cent over the farmer with a common school education, and those farmers who attended college increased their labor income 51.8 per cent over the farmer with a common school education.

STAYING OF SHIFTING SANDS

Field crops and gardens, either with or without trees, may be maintained close to shifting sand dunes of the beach. Protection will of course be more easily afforded if windbreak trees are also used. But sea bent grass, *Ammophila arenaria*, also known as *calamagrostis*, will effectively check drifting sands and is the best agency for the purpose known.

After the most favored parts of Golden Gate Park in San Francisco were planted, from 1874 to 1883, in the latter year 400 acres of the worst sand was planted to this grass. The effect was almost miraculous. Even though

rubber in making such articles as shoes, clothing and water bottles. In 1731 the French Academy of Science sent explorers there to investigate the sources of this, to them, new substance. These scientists reported that it was a gum obtained from a tree and they named it Hevea.

It was Priestley, the discoverer of oxygen gas, who, observing the wonderful erasing qualities of the substance, named it "India rubber," but it was McIntosh, also an Englishman, who, in 1820, put the material to general commercial use by manufacturing rubberized raincoats.

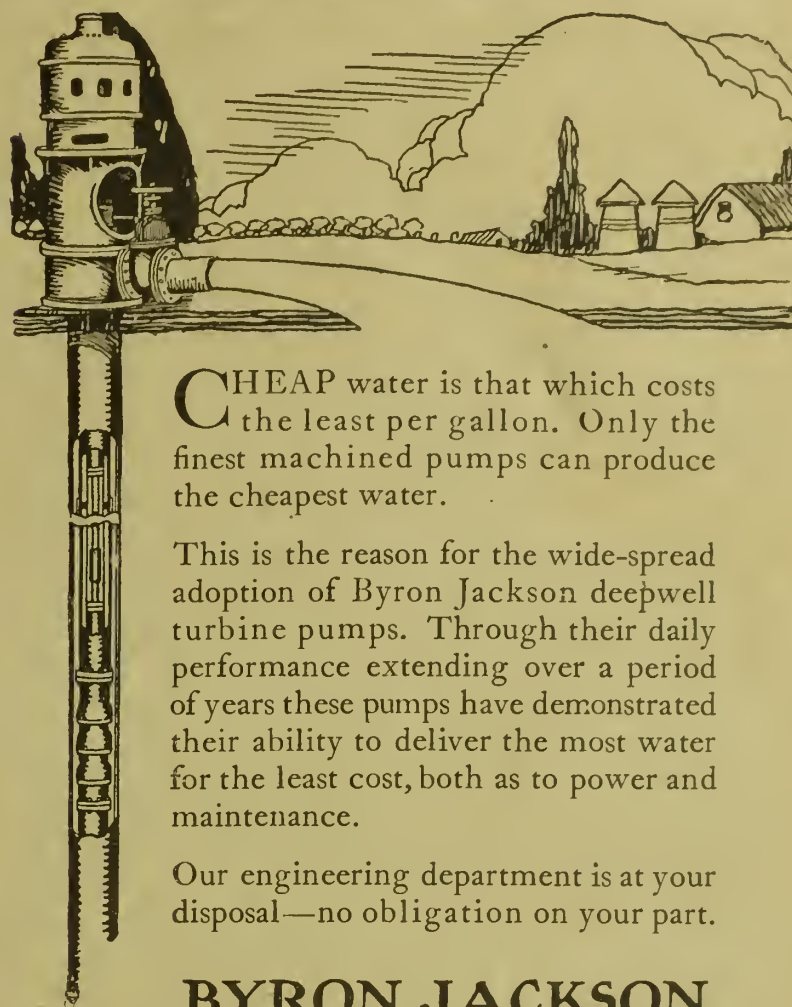
The best kind of rubber, commercially known as "Para," is produced from Hevea trees. This tree grows to a giant height and girth, flourishing only in tropical regions. The largest plantations are in Malay States, the Straits Settlements, Sumatra, Java and Ceylon, and the greatest volume comes from Straits Settlements with Singapore as the port of shipment.

The process of collecting the latex or rubber is similar in some respects to collecting maple sugar. When the trees have matured a native picks out those to be tapped, cuts a notch and a channel, places a cup below to collect the flow and later in the day gathers his cups, carrying them to a central point where the day's "crop" is accumulated.

In general, in beautifying the farm, the first thing to do is to clean up, to place the wood pile in an inconspicuous place, to get rid of broken down, worn out farm machinery and vehicles, and to gather up loose boards and stones.

Next time you are in town see your paint dealer and get enough good paint to cover all the tools. Get your brushes also so you won't have an alibi when the times comes to do the job.

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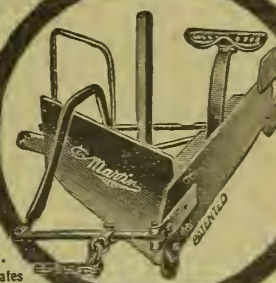
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White Leghorn Baby Chicks from a flock of California's best layers. This flock has been bred and selected for 8 years. Our chicks are the best 5 chicks \$5; 50, \$30; 100, \$16; 500, \$80; 1000, \$160. All chicks delivered postpaid. Established 1915. Route 2, Box C, Compton, California.

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Santa Cruz Chicks—Our Specialists are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching, choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald**, Soquel, Santa Cruz County, California.

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Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. FISCHER POULTRY RANCH**, Route 2, Compton, California.

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEINRICH POULTRY YARDS**, Arroyo Grande, Calif.

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. **Meyer Poultry Farm**, Route A, Box 17-C, Modesto, California.

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live vigorous chicks guaranteed. Prices on request. Reliable since 1898. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

S. C. White Leghorn Baby Chicks from our own bred-to-day stock. Now booking for January to July delivery. **Model Poultry Farm**, W. C. Smith, Prop., Corning, California.

Santa Clara Valley Hatchery, Lincoln Ave., San Jose, California, for White Leghorn, Brown Leghorn, B. P. Rocks, White Rocks, R. I. Reds, Black Minorcas, and Ancona baby chicks.

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery**, 409 Sixth St., Petaluma, California.

White Leghorn Hatching Eggs and Chicks—Stock trapped 18 years for vitality, production and persistency, circular sent free. **Bonnie Brae Farm**, Burbank, California.

Barred Plymouth Rocks—"Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voden**, Los Gatos, California.

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Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery**, Modesto.

Book Orders for Baby Chicks from R. I. Reds (Owens Farm), White Leghorns and Anconas; also official strain of White Rocks. Los Angeles, R.F.D. 1-958. Phone Garvanza 1941.

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Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. **E. B. Pryor**, Colusa, California.

For Sale or Exchange—320 acres, near Lincoln Highway. Fine soil, good water conditions, low cash figure; terms to suit. Owner, 1011 South Normandie Ave., Los Angeles.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. **F. M. Dyke**, Real Estate.

For Sale—One acre up, any quantity; plenty of water, terms. Yours for a square deal. **W. E. Speer**, Manteca, California.

Oklahoma Farms—Write for free agricultural booklet. Board of Commerce, Shawnee, Oklahoma.

For Sale—Ranches, Homes, Acres, free list. **Wilson Bros.**, Santa Cruz, California.

MISCELLANEOUS

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. **P. Barnes**, Dept. E, Santa Rosa, California.

Anyone Desiring Good Location for Dairy near sugar factory where ample silo pulp can be had, apply to **Los Alamitos Sugar Company**, Los Alamitos, Calif.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. **Light's Mail Order House**, Box 127, Birmingham, Ala.

DUROC-JERSEYS

Weanling Boars and Glts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glts. **Derryfield Farm**, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs—Moderate prices on bred glts and weanling boars. Select individuals. Most popular breeding. **H. C. Witherow**, Mgr., Live Oak, Sutter County, California.

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. **J. Boyd Harrold**, Dixon, California.

Big Type Durocs—Better Durocs at right prices. **Harvey M. Berglund**, Dixon, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA, CALIFORNIA**.

BERKSHIRES

Berkshire Glts—Bred for late spring litters. Boar pigs of breeding age. **Calac Orchards**, Martinez, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred glts and young boars priced to sell at once. Young stock, either sex, for sale at all times. **Bassett Bros.**, Hanford, California.

WANTED

Young Man, 30; married, desires position as superintendent or manager. Willing to and capable of taking complete charge. Agricultural college training, orchard and farming experience, especially hogs, prunes and pears. Best references. Address P.O. Box 60, Courtland, Calif.

Wanted—Commercial orchard pruning. Work guaranteed. For rates address **W. I. SCIBIRD**, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656W.

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address **J. H. Yetter**, 317 Central Ave., Los Angeles.

Want to Hear from owner having farm for sale, give particulars and lowest price. **John J. Black**, 116th Street, Chipewau Falls, Wisconsin.

SEEDS AND PLANTS

Carolina Strawberry Plants bear a full crop the first year, beginning 7 weeks after planting; large, firm berry, ripens evenly. Strong plants \$2.00 per 100, \$14.00 per 1,000. Write for prices in large quantities. Now is the time to plant. **Olive Ranch**, Lakeside, San Diego County, Cal.

Strawberry Plants—Klondike Everbearing \$1.00 per hundred. Grape rootings, Muscat and Mission, one 25c; 10, \$1.00; 100, \$7.00. Postpaid. **Percy Zug**, San Dimas, California.

SEEDS AND PLANTS

ROOTED VINES

For Sale—Alcanto Bouchet, Malaga, Thompson Seedless, Zinfandel and Emperor rooted vines. These vines are guaranteed A No. 1, true to name, certified and from clean producing vines. We are also booking orders for cuttings. **CHAPMAN & SON**, Modesto, California. P. O. Box 906, Phone 663.

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ**, Berry Specialist, Sebastopol, California.

For Sale—Seedless Thompson Malaga Muscat and Almeria (Ohanes) grape rootings. Cuttings came from the finest vineyards of Tulare County and guaranteed to be A No. 1. Write for prices per thousand lots. **J. Murray**, 7050 Kester Ave., Van Nuys, Los Angeles County, California.

Seed Barley—Pure Marlow Seed Barley, 2c per pound, cleaned. Carload lots, \$1.85 per cwt. Produced 40 bags per acre 1921 crop. Also good common barley seed, 1½c per pound. Carload lots, \$1.40 cwt. **Smith & Hardin**, Box 87, Stratford, California.

For Sale—Mountain grown Strawberry Plants, Americus Everbearing; fruits from May to November. Strong plants, \$3 per hundred. Carolina, \$2; Banner and Klondike No. 80, \$1.50; Brandywine and Klondike, \$1 per hundred. Postpaid. **B. Bryan**, Camp Baldy, California.

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest**, Standish, California.

To Get Acquainted—I will mail three rhubarb, three assorted blackberry plants, or one seedless fig, one pomegranate, or four assorted rose bushes for \$1.00. Send for price list. **Bishop's Nursery**, Highland, California.

Halpy Peruvian Alfalfa Seed: Each sack certified as coming from officially inspected fields. Planting season now at hand. Samples, prices, government statistics, etc. cheerfully furnished upon application. **E. F. SANGUINETTI**, YUMA, ARIZONA.

Raspberry Snell Has It—The wonderful Giant everbearing Red Raspberry La France. Many of the berries are one inch in diameter, delicious flavor. Order your plants now from **Ralph L. Snell**, Mountain View, California.

Seeds and Plants—Grape vines (rooted) strictly first class, one year No. 1 Thompson Seedless, Muscat, Sultana, Flame Tokay, Cornichon and other varieties. **Los Nietos Valley Nursery**, Downey, Cal. Phone 692.

First Class Klondike Watermelon Seed for sale by grower. This seed is not mixed as I raise only one variety. Also 100 lbs. of famous Indiana cantaloupe seed. **A. E. Wilks**, R. F. D. 1, Box 137, Downey, California. Phone 713.

Strawberries six months in the year: Plant Everbearers, Superb, Progressive, \$2.00 hundred. **EVERBEARING RASPBERRIES**, six \$1.00, inspected. **Apple Blossom Nursery**, Route 6, Seattle, Washington.

For Sale—Millions of tomato, pepper, rhubarb, pansy and other plants at reduced rates if ordered in time. **L. C. Johnson**, Gardena, Cal. Spanish American Institute.

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas E. Mortensen**, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co.**, Santa Cruz, California.

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. **Wm. Mortenson**, Route 1, Lodi, California.

Banner Strawberry Plants—Mountain grown, heavy bearers, \$2.50 per hundred, \$12.00 per thousand. Special prices for large plantings. **A. L. Emery**, 550 Kingsley Ave., Palo Alto, Cal.

400,000 Rootings, Thompson, Malaga, Emperor, Muscats, Sultana and Cornichon and cuttings, also wine grape cuttings; 4 kinds of alfalfa seed. Box 501, Fowler, Cal.

For Sale—Brandywine Strawberry Plants, fifty cents per hundred, postage extra. **E. A. King**, West Fourth Street, Riverside, California.

Cory's Thornless Blackberry—10,000 selected, well rooted tips. Write us or call. **Sylvan Nurseries**, Lincoln Highway, Roseville, California.

Cory's Thornless Blackberry Plants, extra fancy, 15c each or rates by the thousand. Corner Inglewood Ave. and Arborvitae, Inglewood, California. **C. C. Bryson**.

Alfalfa Seed—Certified Halpy Peruvian. Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co.**, Yuma, Arizona.

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson**, San Jose.

For Sale—Black Monukka Rooted Vines, a few thousand, \$25.00 per hundred, \$225.00 per thousand. **Q. C. Webster**, Brawley, California.

Garlic—For sale, good large, fresh garlic sets, per pound, 10c. Orders of 100 lbs. or more postpaid. **C. J. Baden**, R. D. 2, Orange, California.

Strawberry Plants, Harris and Gold Dollar, 60c hundred, \$4.00 thousand. **D. R. Bannister**, Oakdale, California.

Strawberry Sugarloaf, Nothing like it! Plant now; 25, \$1.00; 100, \$3.00. **Jno. F. Horsley**, Upland, California.

Seed from Fine Papayas, 25c per ounce, postpaid. Box 144, Brownsville, Texas.

TREES

Fruit Trees—Walnut Trees grafted on Northern California black. Eureka, Placencia, Perfection, Chase, Payne, well rooted, strictly first class. Royal apricots on apricot roots, Tuscan and Sims Cling peaches, Hachiya Persimmon, locally grown on Lotus roots, extra fine stock. Phone 692. Los Nietos Valley Nursery, Downey, Cal.

Thousands of choice homegrown selected budded walnut trees, 50 cents and up according to height, also everything else that grows in Southern California in trees and shrubbery for sale, reasonable. We have what you want. Snyder Nurseries, Box 74, Burbank, California, 1221 W. San Fernando Road. Telephone 722J

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVELE, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

For Sale—Walnut Trees—Erhardt and Placencia grafted on Northern Black Root—4 to 6 feet high, \$1.00; 6 to 8, \$1.25; 8 to 10, \$1.50; 12-14, \$2.00; Erhardt, 8-10, \$2.25; 10-12, \$2.50. Borely and Wilkins, Puente, California. Phone 162.

Nursery Stock at bargain prices. Prune 10c each; grafted walnuts \$1.00 each; pears 20c each; Black caps \$20.00 per 1,000; other stocks at bargain prices. Submit your want list, and send for planters list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—One and two year old citrus stock budded with "Supply Co. Buds." We have also all commercial varieties of deciduous. Now is the time to order. F. A. Tetley and Son, 415 W. 8th St., Riverside, Calif.

For Sale—Hachiya Persimmon Scions from best of 300 proven trees. Nursery is sold out, but will reserve for 22-23 season. Sherwood Persimmon Nursery, Box 236, Fullerton, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Cal.

For Sale: Valencia Late, Washington Naveles, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

For Sale—ATHEL OR EVERGREEN TAMARIX. Best tree for immediate windbreak and shade in hot dry localities. Leonhardt Swingle, Indio, Cal.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions. The Walnut Nursery, Whittier, California. Phone 6294.

Sampson Tangelo and Dwarf Chinese Lemon; the two best citrus products ever introduced. Coolidge Rare Plant Gardens, Pasadena, California.

For Sale—Walnut Trees. Placencia Perfection and Eureka, grafted on black root. La Puente Walnut Nursery, Puente, California. Phone 103.

I want 100,000 Sour Orange Seedlings, Dorton's Southwest Nurseries, Harlingen, Texas.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. W. Irwin, Lindsay, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena.

Trees—All kinds cheap. Send list for prices. Sebastopol Nursery.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords: Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeder of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein helpers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

DUCKS

Caldwell's White Muscovy (quackless) Ducks. Win, weigh, lay and pay. Free circular. Caldwell Duck Ranch, Box 274-B, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching, \$1.00 per dozen. A. Surtman, Petaluma, California.

TURKEYS

Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Mountain Farm, Calistoga, Cal.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of **POULTRY FOR PROFIT**, \$1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Mammoth Bronze Turkeys—None better. Won all first and sweepstakes at San Francisco National Show in October. Also firsts and special at Oakland in November. Priced reasonably. N. E. Mulick, Willows, California.

Mammoth Bronze Turkeys—Stafford strain Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2, Box 129, Bakersfield, California.

Mammoth White Holland Turkeys—Choice hens and toms from our famous breed of large vigorous turkeys, improved by Eastern stock. Earl V. Smith, Loma Vista Ranch, Willows, California.

For Sale—Wild Turkeys—Best, cheapest, most certain and indispensable producers. Cash deposit secures stock or eggs. Blanche Dresser, Tulare, California. Route C, Box 194.

Pure Bred Bronze Young Toms, 25 to 30 lbs. each, \$15.00. Buff Orpington Roosters, \$5.00 each. Mrs. M. L. Trewitt, Route B, Box 47, Hanford, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

Bourbon Red Turkeys—Prices reasonable. Mrs. L. S. Grosse, Scottsdale, Arizona.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

MACHINERY

For Sale—Some rare bargains in gas engines and electric motors. 15 H. P. Foss, \$150; 18 H. P. Olds, \$185; 16 H. P. Model, \$175; 12 H. P. Western, \$150; 10 H. P. Weber, \$75; 10 H. P. Otto, \$125; 12 H. P. F-M, \$150; 60 H. P. 4 cylinder, \$150; 35 H. P. Western, \$375; 25 H. P. G-E vertical motor, \$225; 7½ H. P. F-M, \$115; 10 H. P. Westinghouse, \$150; 15 H. P. G-E, \$175; 5 H. P. Westinghouse, \$90. All above in first class running order and many more of different sizes and makes too numerous to mention. Also boilers, deep-well and centrifugal pumps, drilling rigs, air compressors, pipe, etc. W. D. Anderson, San Bernardino, Calif. Phone 75.

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Union Tool Tractor, used 365 days. Killefer 28 Disk, Killefer 18 Cultivator and 3 Disk Plow, all in first class condition. Will sell at a bargain as I will discontinue using them in orchard, being too heavy. Ira P. Bradley, Covina, California. Phone 798.

For Sale—Beeman Tractor Model F, fully equipped, completely overhauled—good as new. Equipment includes plow, cultivator, extension rims, pulley and new Implement Trailer Attachment. Price \$275.00. Address Box 17, Cultivator, Los Angeles.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

For Sale—Machinery. New Fitch Four Drive Tractor for less than half of old price. For information address Box G, Cultivator, 112 Market Street, San Francisco.

For Sale: 10 H. P. gas engine with 6-in. plunger pump. \$250. R. MATSON, Redondo Beach, R. D. 1, California.

For Sale—One Woodmanse windmill and steel tower. A. J. Morrison, San Dimas, Phone 403.

ROOFING MATERIAL

Save Your Roof for 15c a gallon with Asphaltoid. Direct from producer to consumer permits this low price of 15c a gallon. The finest roofing and preservative paint under sun. This is a natural product—why pay more for acid treated asphalt that eats your roof? Mail orders, barrel lots promptly shipped. Equally good for shingle, paper or metal roofs. Woolner Oil Co., 4th and Commonwealth, Los Angeles.

Roofing Paper—Firsts, complete with nalls and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Bdway. 5401. Los Angeles, Calif.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT. Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatery, El Monte, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press 231 Court St., Los Angeles

BEES

For Sale: 80 Colonies of Bees in two story hives with full equipment. Best location in Imperial Valley. For full particulars write J. E. Beck, 1244 A Street, San Diego, California.

SEED MARKETING HINTS

The general rule of selling when the buyer is anxious to buy holds as true in seed transactions as in others, declares the bureau of markets and crop estimates, United States department of agriculture, in Farmers' Bulletin 1232, "Seed Marketing Hints for the Farmer," recently issued. Ordinarily seedsmen are eager to buy seed as soon after thrashing as possible, especially if the carryover of that particular seed from previous years is less than normal. There frequently, too, is a good early demand for certain kinds that are sown in the fall as well as in the spring.

Most large seedsmen buy the bulk of their grass and clover seed before February 1 and make purchases after that to fill open orders or to replenish low stocks. Frequently higher prices may be received after February 1, but the grower runs risk in not being able to dispose of his seed to seedsmen as late as that.

Careful attention given to thrashing, cleaning, sacking, sampling, testing, tagging, and storing of seeds, as detailed in the bulletin, generally will enable the farmer to sell his seed more readily and at a higher price than if little or no attention is paid to the proper preparation of seeds for market.

By keeping in touch with the published seed market information for the entire country and not focusing all his attention on local conditions, which may be just the opposite from those prevailing elsewhere, the farmer can determine pretty well for himself when it is advisable to sell his seed.

The farmer who has produced a surplus of seed may sell it to his neighbors, other farmers through such means as advertising and correspondence, local shippers, traveling seed buyers, distant seedsmen by mail, and by advance growing contract. In reply to questionnaires sent out by the bureau of markets and crop estimates, 2,400 growers scattered throughout the United States submitted data indicating that the farmer sells more of his seed to neighbors, although a considerable quantity goes also to the local shipper. Distant seedsmen, by means of their traveling buyers and correspondence, buy large quantities of seed direct from farmers.

Some farmers obtain good results from advertising in nearby county newspapers and in agricultural periodicals which circulate in sections of the country that consume relatively large quantities of the kind of seed offered for sale.

Various federal and state publications and, within recent months, county newspapers and agricultural periodicals, publish current information relative to the supply, demand, movement and prices of the important kinds of field seeds, when the principal movement of each kind from the farm is taking place. The farmer who makes use of this information has a better understanding of the worth of his seed and can cope with the dealer on more even terms than in the past when the dealer was almost alone in his knowledge of what was going on in the seed market.

Further suggestions concerning the marketing of seed are contained in the new bulletin, copies of which may be had free upon application to the department at Washington, D. C.

Farm bureau meetings in Tehama County will be held at El Camino, January 16; Bend, 20; Richfield, 23; Stanford, 25; Liberal, 26; Flournoy, 27; Bowman, 28. Directors' meeting at Red Bluff, 21.

INCOME FROM NATIONAL FORESTS

Livestock consisting of more than 9,500,000 cattle, sheep, horses, swine and goats grazed on the ranges of the national forests during the past fiscal year, and of the great store of timber in those reservations more than 1,170,000,000 board feet were sold. Receipts paid in or still due from these two items swell the income producing business of the national forests during the year to \$4,468,940, says the forest service, United States department of agriculture.

Animals grazing on forest ranges are classified as follows: Cattle, 2,050,715, an increase over the previous year of 16,916; sheep, 7,412,412, an increase of 141,276; horses, 78,871, a decrease of 4,144; goats, 45,190, a decrease of 10,495; swine, 3,177, a decrease of 889.

Because of the financial stringency in the livestock business during the past year the payment of grazing fees, usually made 30 days before the opening of the grazing season, was deferred by congress until December 1, 1921, affecting to some extent the revenues of the forest service from that source, but the total grazing receipts, assuming that all obligations are paid, will show a falling off of less than one-half of one per cent.

The general business depression naturally affected the lumber industry, yet the cut of national forest timber increased three and one-half per cent and was larger than in any previous year. Both the cut and sales of timber for future operations show strikingly the stability of the national forest timber business. Actual sales during the year totaled 1,170,186,000 board feet valued at \$3,211,218 as compared with sales of 1,326,922,000 feet valued at \$3,047,745 during the preceding year. The actual cut of timber during the last fiscal year totaled 833,264,000 board feet, valued at \$1,943,390. This compares with a cut of 806,131,000 board feet, valued at \$1,770,399 during the preceding year. The total number of sales of timber, large and small, was placed at 12,570 as compared with 13,272 during the preceding year. Of these totals 12,236 and 12,762, respectively, in 1920 and 1921, represent sales of \$100 or less.

Sales of timber during the last fiscal year included about 40,000,000 board feet for railroad ties and about 20,000,000 board feet for saw logs in the Washakie forest, Wyoming; about 600,000,000 board feet in the Sierra forest in California for boxes and lumber; and about 84,000,000 board feet, chiefly western yellow pine, in the Crater national forest in Oregon. In all sales the future productiveness of the ground is assured by the retention of young, thrifty trees or of seed trees, and by precautions against fire, including the disposal of the inflammable slash.

THE BITER BIT

The following amusing incident is told by a person who actually saw the occurrence:

A tom cat was walking quietly across an open piece of ground near a house when, without warning, down swooped a species of large South African eagle, commonly known as a "Lammervanger." Picking Mr. Tom up in his talons, the eagle began ascending skyward, little knowing he had caught a Tartar. The cat evidently objected to this new method of traveling, and forthwith showed its displeasure by furiously attacking its captor. Managing to wriggle around, it caught the eagle by the neck and started chewing, and was not long in paralyzing its opponent, who began circling downward and soon crashed to earth a lifeless heap. The cat quickly extricated itself and made for home, where it soon recovered from the deep wounds in its side.

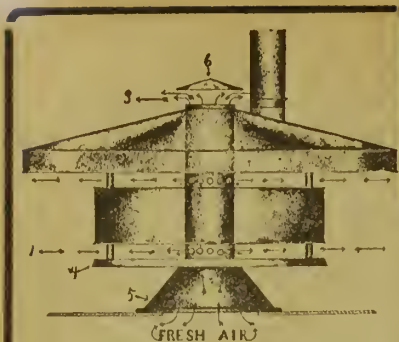
HANDICAPPED

"Augustus, all you have to do is just to talk to father as man to man."

"I'm afraid I can't do that, Geraldine."

"Why not?"

"When your father looks at me there's something in his eye that seems to say he regards me as a fish, and a poor specimen of fish at that."—Birmingham Age-Herald.



If You Are Going to Brood

anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be, write us for our

Literature on KRESKY STOVES

Ask for Literature No. 70, which describes all sizes.

Kresky Brooder Stove Co.
Petaluma, Cal.

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 30, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, nothing like it anywhere. Perfect ventilation. We are exclusive hatchery for spring of 1922, for F. R. Richardson, George J. Richardson, Charles G. Weaver, L. G. Heck, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Treys are now available for other hatcheries in quantity. Send for circulars.

B. R. HOLLOWAY
Box K. Van Nuys, Calif.

"Pioneer"

Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys, and ducklings, and can meet all competing prices for January and future delivery. We have served the public for sixteen years and are better fitted than ever to give you good strong Copyrighted profitable chicks. Safe delivery and full count of live chicks at destination guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

PIONEER HATCHERY
320 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"

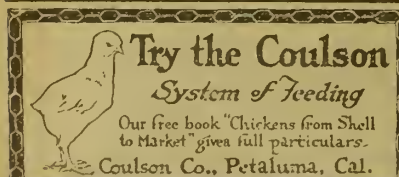


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Causes of Infertility

By Jean A. Koethen



EVERY year, with the beginning of the hatching season, there rises a more or less prolonged and vociferous chorus of complaints of infertility of hatching eggs. Some of these complaints are voiced by commercial poultrymen who are hatching their own eggs; some by purchasers of fancy eggs from reputable fanciers; some by backlot poultrymen who have purchased eggs "as is" from anybody who happened to have them. The man who purchases eggs from a fancier has some redress if fertility is low, for any responsible fancier will replace infertile eggs if they are tested out and returned promptly; the backlotter who buys "as is" must be satisfied with what he gets; the commercial poultryman has the remedy in his own hands.

The problem of fertility is a serious one, and it would be difficult to estimate how many thousands of dollars are lost or wasted every year from this one cause. Not only must the cost of the eggs be considered, but the time lost in incubation of eggs that will never hatch, and consequent delay in starting the pullets that are to produce fall eggs. In spite of all this loss and a pretty well disseminated understanding of the principles of fertility, the average poultry keeper who does his own hatching is disposed to take chances and trust to luck that a hatch will come out all right even though he knows little or nothing of the conditions under which the eggs were produced. There is nothing new to be said on the subject, but a resume of what is already well known may be timely.

Vigor First

Fertility unquestionably depends to a large extent on the vigor of the breeding stock, and a vigorous male is more than half the pen. Now, vigor is something more than health. Vigor might perhaps be defined as that inherent quality in the bird which is indicated by a general squareness or blockiness of build, erect carriage (in the male), a strong voice, an alert eye, a red comb, a good appetite, and (in the male) a pugnacious disposition. I have put these marks of vigor in the wrong order, for, as far as the male is concerned, the one indisputable mark of a good breeder is the fighting disposition. Show me a rooster that flies at the hand that has always fed him if that hand touches one of his harem, and I will put him at the head of the class regardless of build or voice. The male that lounges by indifferently when one of his hens is caught is not fit to head a breeding pen.

Vigor in the hens is shown by practically the same marks as in the male. They should be at least two years old because they are not thoroughly mature before this age, should be rather heavy for their breed and, above all, should be birds that have never been sick, not even for a day. No hen that has had roup should ever be used as a breeder no matter how completely she has recovered. She may lay fertile eggs but her progeny is quite likely to be marked with a roup tendency.

Environment

A study of the causes of infertility in eggs is doubly difficult because no one cause can be taken by itself. While lack of vigor is a fundamental cause, this cause is so interwoven with errors in feeding and housing that it can hardly be considered alone. A naturally vigorous male bird, kept in a filthy pen, forced to roost in a house overrun by mites, exposed to damp, chilly winds or fed an unbalanced ration is not in a position to maintain the vigor with which heredity endowed him. A hen kept in crowded and unventilated quarters, forced to wade in mud or sit on the roost when she should be scratching in dry litter cannot be at her best. It is most essential that breeding stock be kept in roomy, comfortable houses, sheltered from wind and rain and given more range than the ordinary laying stock requires. If the breeding hens after their pullet year is over can be allowed to range in a shady orchard till they are through molting they will be in much better shape for producing fertile eggs.

Forcing Impairs Vigor

The fact that fertility always suffers when hens are forced for egg production is too well known to require comment. Especially notable is the loss of fertility when lights are used during the winter months in the laying house. The hens simply cannot stand the strain of rising according to summer schedule all winter. They produce more eggs for the time being but are quite likely to go into a spring molt just when they should be laying fertile eggs. For this reason no commercial poultryman uses lights on his breeding stock. They must have their long hours of rest no matter how hard the common layers work.

The bred-to-lay hen is a creature of complex nervous organization. If she is forced to lay too many eggs she cannot make them all fertile.

Study the Hen

Experiments by several investigators have shown that vigor alone does not qualify a hen for laying fertile eggs. Some hens apparently as vigorous as others rarely or never lay a fertile egg. For this reason it is urged that the breeder try out his hens, hatching the eggs of each separately in order to determine which generally lay fertile eggs and which infertile. Such a testing out would involve considerable labor at the start, but the satisfaction of finding which hens can be counted on for producing fertile eggs would be worth the trouble. Many a breeder has no doubt had the experience I had one year when, being anxious to keep tab on the offspring of a favorite hen, I set a clutch of her eggs only to find every one infertile. Favoritism on the part of the male may be responsible for the infertility of certain hens, but it can hardly be responsible in all these cases.

Seasons and Shows

Fertility seems to depend to some extent on the season at which the eggs are produced. Eggs laid in November and December when the stock is hardly through molting are never as strongly fertile as those laid in March and April. Summer eggs are also usually less fertile presumably because the hens have not fully recovered from the strain of the winter's laying.

The fancier labors under peculiar difficulties because he must send his birds to the fall and winter shows if he is to maintain his standing as a fancier, and yet when they go they are more or less exhausted by the excitement and change, and fertility suffers. For this reason nobody expects the same fertility in blue ribbon stock that he would expect in a common barnyard flock, yet the problem is a problem just the same. Possibly the holding of shows in October instead of January may be its solution.

What About Feeding?

The relation of feeding to fertility is not clearly understood but there is undoubtedly a very close connection. Oats are considered particularly good for breeders because they build muscle, and fresh meat, cooked or raw, is valuable occasionally. Green feed is important. Wheat seems to be a better grain for breeders than milo or barley. During the war when we were forced to feed largely on barley I heard this limited ration blamed for the prevalent infertility in large flocks, with how much reason I do not know. In fact there is so much more to be known on this point that we are all working in the dark together. We know that fertility is low in stock that does not receive a balanced ration and also in stock that receives a forcing ration very rich in protein. We also know that it is sometimes very high in flocks that range for their food and receive little care otherwise, but this knowledge is not definite enough to be valuable.

The state department of agriculture is notifying truck companies that the law prohibiting intercounty shipments of nursery stock without notifying horticultural inspectors will be rigidly enforced.



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—into a cocked hat—
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Get New Reduced Prices on Hercules, the fastest, easiest-operating "One-Man" Hand Power Stump Puller made. Simple, double, triple, quadruple power—4 machines in one. Moves like a wheelbarrow. \$10 down. Easy payments.
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being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks: Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

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For the small Poultry Plant. Will cut Dry or Green Alfalfa. Made of the best material. Weight 15 lbs., crated. Why pay more when you can get a good cutter for \$8.50? Postage extra. Send for circular.

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THE G. E. CONKEY CO. 6586 Broadway, Cleveland, Ohio

Poultry Queries

Conducted by Jean A. Koethen

Ration for Breeding Turkeys

What is your opinion of the following ration for confined turkey hens during the breeding season in the Coachella Valley? Morning and night we feed grain mixture consisting of 50 per cent oats or wheat, 25 per cent barley, 25 per cent milo maize, allowing two ounces to each bird per day; at noon a wheat bran mash moistened with clabbered milk; every day all the alfalfa they can eat.—Subscriber, Indio.

Your ration seems a little too fattening for breeding turkeys, especially in that climate. It would be better to make the bulk of the grain mixture wheat and oats, with just a little barley for variety. Oats in any form are excellent for breeders. You would do well to add some bulk rolled oats to the mash. Most turkey breeders feed their hens a regular laying mash, the same that is given to chickens. Keep it before them in hoppers and let them have the clabbered milk in pans. Two ounces a day is not a very large allowance of grain for a laying turkey, but you can tell by the results whether or not it is sufficient. If your birds feel thin when you handle them give more grain and close the mash hoppers for part of the day.

Market Ducks

What are the best ducks to raise for market?—Subscriber, Stauffer.

The Pekin is the only duck that is raised commercially for market. It reaches the green duck size (about six pounds) in ten weeks of age and is quite profitable.

Slatted Incubator Tray

Has it ever been definitely proven that an open bottom incubator tray is better than a closed one? If I use a closed bottom tray in my incubator it will completely shut off ventilation from below but air would circulate above the tray. Would this be sufficient?—Subscriber, Mountain View.

In visiting one of the biggest hatcheries in this part of the state a few weeks ago I noticed the eggs were all on slatted open bottom trays. The incubator was the same make as yours, an I feel sure the owner of the hatchery would not have used that type of tray if he had not believed it to be the best. When an egg lies for 12 hours on a closed bottom tray the side of the egg that is down receives no ventilation during that time. On the slatted tray every portion of the shell is exposed to an air current at all times.

Poultry Book

Where can I obtain a good poultry book?—Subscriber, Stauffer.

"Poultry for Profit," published by the Cultivator, is the most recent and complete poultry book for Californians. Send us a dollar and we will mail you the book, postpaid.

Late Molters

We have some 21 months old White Leghorn hens that have not started their fall molt yet and are still laying. Please advise if this is natural or is caused by improper feeding.—Subscriber, Watts.

Band those hens and hatch all your chicks from them the coming season if you can. They are the crack layers of the flock and there is not a thing the matter. The long distance layer that can't take time to molt is the bird every poultryman is trying to breed. If you have many of them you are lucky.

Blackhead

What disease causes a mature turkey tom to droop and sit around with no desire to eat? There is some diarrhea and the bird dies in about four weeks. Liver is enlarged with yellow spots.—Subscriber, Redding.

This is a good description of the disease known as blackhead, which carries off so many little turkeys every season, but sometimes attacks adult birds as well. It is generally ascribed to errors in feeding (overfeeding, feeding too much corn or too little green feed) which cause indigestion and encourage the development of the amoeba or blackhead germ which is believed to be present in the intestines of every turkey that is hatched.

ba or blackhead germ which is believed to be present in the intestines of every turkey that is hatched.

Laying Ration

Will you kindly tell me how to work out the nutritive ratio of my laying ration?—Subscriber, Ontario.

The nutritive ratio of a ration is not easy for the layman to work out at any time and doubly difficult since we are no longer certain of the quality and composition of wheat bran, which is the base of all mash feeds. Better buy your mash already prepared by experts or if you prefer to mix your own follow a formula which has been worked out by experts. The following which is in use at some of the California laying contests is very good: 240 pounds bran, 180 pounds ground oats, 180 pounds middlings, 80 pounds soybean meal, 60 pounds high grade beef scraps, 60 pounds fish meal, 30 pounds charcoal, 4 pounds salt. With this is used a scratch mixture consisting of equal parts by weight of wheat, cracked corn, milo maize and whole barley. Another mash recommended by the poultry division of the state college of California consists of 50 pounds each of wheat bran, shorts and ground barley or ground oats; 10 pounds each of any two of the following vegetable meals; soy bean, linseed, coconut, cottonseed; 30 pounds meat scrap or fish scrap, five pounds charcoal, one pound salt. The scratch mixture used with this mash contains 100 pounds whole or rolled barley, 50 pounds Egyptian corn or milo maize, 50 pounds cracked Indian corn.

Crooked Breast

What causes crooked breast on turkeys? Is a tom with a slightly crooked breast fit for breeding?—Subscriber, Montague.

Crooked breast is believed to result from roosting in a cramped position, perhaps in an overcrowded coop, while the bones are soft, but it is also congenital to some extent. A tom with a crooked breast might not always pass on this deformity, but he would be pretty sure to do it sometimes. It is safer not to use him for breeding. If young birds are fed a ration containing plenty of oats in their various forms and have a little bone meal in the mash they are less likely to develop crooked breasts.

Sick Turkey

A turkey hen was taken sick yesterday with indigestion and bowel trouble—droppings greenish yellow and very thin, hot water running from the mouth. I gave an enema and injected a small quantity of oculus without effect; she died this morning. This turkey has been on "tailings," the stuff left after threshing milo maize, and it has been wet for two weeks. Could this have caused the condition of the hen? What shall I do if other turkeys get sick the same way?—Subscriber, Orland.

If the turkey ate those damp, moldy "tailings" they undoubtedly upset her digestion. I doubt whether a bird that was fed an abundance of good, sweet grain would eat such stuff, but it might. Milo is not the best feed for turkeys under any circumstances. It is too fattening for breeders and apt to ferment in the crop if used excessively. If others should develop the same trouble, give a tablespoon of castor oil at once, but if you take milo maize out of their ration entirely, substituting wheat, oats or barley, and a laying mash, with all the greens they can consume, and shell before them constantly I hardly think you will have more cases. You do not say what their ration has been and I am therefore not able to advise very intelligently.

Buff Leghorns

Why are there no Buff Leghorns advertised for sale in your columns? Is there anything wrong with them? I have always understood they were the equal of White Leghorns for laying and am in the market for this breed if I can find some to suit.—Subscriber, Corning.

Fashions in chickens, like fashions in clothes, are not easy to explain. There are some breeders of Buff Leghorns in the state, and if any of them see this inquiry you will very likely hear from them. One reason why these birds are not largely bred is

(Continued on Page 55.)



Are your Hens Layers or Loafers?

Cheap Feed and High Priced Eggs

—make the industrious laying hen Queen of the Barnyard these days.

Don't let your hens become fat and lazy. Don't let the egg organs lie dormant all winter long.

You can speed up egg production.

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Dr. Hess Poultry PAN-A-CE-A Universally Endorsed—Universally Used

—by the big ten-thousand-hen plants—by the average farmer with his 200 hens—by the back-yarder with his only a dozen hens to consume the table scraps. Pan-a-ce-a tones up the dormant egg organs, so that the proper amount of a hen's food goes to egg-making—and not all to fat, flesh and laziness when it's action and eggs you want.

A Pan-a-ce-a hen is always a hungry hen, an industrious hen—she gets off the roost winter mornings ready to scratch for her breakfast. You can depend upon it that the healthy, hungry, scratching, singing hen is the laying hen—the paying hen.

Always buy Pan-a-ce-a according to the size of your flock. Tell your dealer how many hens you have. He has a package to suit. Good results guaranteed.

30c, 60c and \$1.25 packages. 25 lb. pail, \$3.50; 100 lb. drum, \$12.00. Except in Canada.

DR. HESS & CLARK

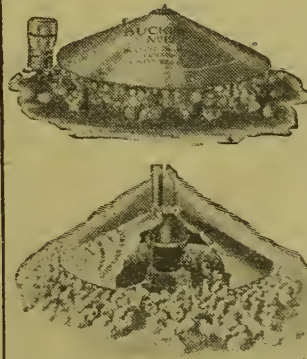
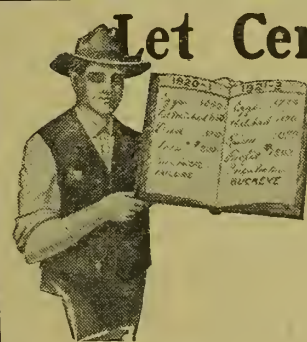
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Dr. Hess Instant Louse Killer Kills Lice

Let Certainty Replace Gamble



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Hundreds of thousands use Buckeye "Colony" Brooders because they have learned their reliability, their economy and their convenience. Experience has proven beyond question that Buckeye "Colony" Brooders raise every raisable chick. With such equipment the gamble goes out of chick raising and you have the assurance of success.

Made in three sizes; burn coal, gas or oil. Sold on a money back guarantee by 15,000 dealers.

Proof For the Asking

Ample proof of these statements is contained in our new booklet, "The Revolution in Chicken Raising." You need the help of this booklet in your efforts. Sent free. Write for it today.

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World's Largest Manufacturer of Brooders and Incubators.

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Gulson Co. Buckeye Colony Brooder Stoves

Distributors of

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Los Angeles Markets

Los Angeles, January 11, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 39 cents.

January 1922 4 5 6 7 9 10 22 40 40 40 39 39

CHEESE

Brokers' prices:

California flats, 20@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 42; case count, 41; pullets, 38.

January 1922 4 5 6 7 9 10 22 45 45 45 45 42

POULTRY

Price to producers: Hens, 27; colored, 31; broilers, 33@36; roasters, 30; old roosters, 16; fryers, 35; ducks, old, 20; ducklings, Pekin, 3 1/2 up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 70. Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, Jan. 10.—Welghed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 8.00; 175 to 225 lbs., 8.50.

Cattle (on foot, gross weight): Steers, good, 6.50; medium, 6.00; cows, good, 5.00; medium, 4.50; bulls and stags, 3.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 7.00.

Sheep: Ewes, 3.50@4.00; lambs, 7.00@7.50.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe avenue.

Green salted hides—No. 1 steers, 7 1/2 per lb.; No. 1 cows, 6 1/2 per lb.; No. 1 bulls, 5 1/2 per lb.; No. 2 hides, 1 1/2 less per lb.; grubby hides, 1 1/2 less per lb.; kosher hides, 1 less per lb.; glue hides, 1 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each.

Green hides—No. 1 steers, 6 1/2 per lb.; No. 1 cows, 5 1/2 per lb.; No. 1 bulls, 4 1/2 per lb.; No. 2 hides, 1 1/2 less per lb.; kosher hides, 1 less per lb.

Calfskins and kipskins: No. 1 calfskins, under 15 lbs., 10 per lb.; No. 2 calfskins, under 15 lbs., 7 1/2 per lb.; No. 1 kips, 15 to 30 lbs., 8 per lb.; No. 2 kips, 15 to 30 lbs., 6 1/2 per lb.; kosher skins, 1 less per lb.; glue, 1 per lb.; stunks, 20@40 each.

Dry flint hides—No. 1 hides, 16 lbs. and up, 10 1/2 per lb.; No. 1 kips, 6 to 16 lbs., 11 per lb.; No. 1 calfskins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 2 less per lb.; glue hides and skins, 2 per lb.

Pelts—Large, long wool, 50@80 each; medium, 25@50 each; short wool and shearlings, 10@25 each.

Goat skins—No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow—No. 1 white and hard, 5 per lb.; No. 2, 4 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to quality and condition, 6 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 10, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement good, market steady. Lugs mostly 1.00@1.10. Stocktons: Burbanks, per cwt., best, special brands, 2.85@3.00; others, 2.50@2.60. Idahos: Russets, best, 2.75@2.85; bakers, 3.50. Sweet potatoes: Movement slow, market weaker. Locals: No. 1, best, per lug, 1.00@1.10; poorer, 80@90; per cwt., 2.75@3.00; No. 2, 1.50@1.75. Arkansas: Nancy Halls, bushel baskets, 5@5 1/2 lb.

Onions: Demand improving, market firm. Stocktons. Per cwt., White Globes, best, cold storage stock, mostly 7.50; browns, best, 5.50; poorer, 5.00@5.25; lugs whites, best, 2.50@2.75; browns, 1.75@2.00. Lompoc browns, 6.50 per cwt, 2.25 per lug. Garlic: 8@9; poorer, 5.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, January 10, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.00@1.65.

Beans: Limas, local, 12@15 lb.

Brussels sprouts: 10@14 lb.

Bunched vegetables: Market steady.

Per doz. bunches: Turnips, 30@40; carrots, 50@60; beets, 55@60; radishes, 20; parsley, 15; spinach, 35.

Cabbage: Market weak. Per field crate, mostly 1.00@1.50.

Cauliflower: Market steady. Wide range in quality. Per field crate, best, 2.50@2.75; poorer, low as 1.00.

Celery: Local, per crate, mostly 3.25@3.50; poorer, 2.50@2.75.

Chickory: 75@90 crate.

Cucumbers: Market steady. San Diegos: Best, 3.00@3.25; poorer, 2.50@2.75; hothouse, mostly 1.50@2.50.

Eggplant: San Diego, 9@10 lb.

Lettuce: Demand moderate. Locals: Field crates, best, 1.00; poorer, 50@75.

Parsnips: Lug, 80@90.

Onions, green: 15 bunch.

Oyster plant: 50 doz. bunches.

Peas: Market steady. Local, best, 16@20; poorer, low as 13@15.

Peppers: Locals: Bells, per lb., 20@22; chili, mostly 15@20.

Rhubarb: Best, 1.00@1.25; poorer, 85.

Squash: Banana, lb., 1@1 1/2; Hubbard, 2.

Sweet anise: 50 doz.

Tomatoes: Market steady. Locals: No. 1, per lug, best, mostly 3.00@3.25; poorer, 2.00@2.50; culs, low as 1.00.

FRESH FRUITS

Apples: Demand and movement moderate, market steady. Locals: Winesaps, Romes and King Davids mostly 4@5; Delicious, 6@7; few 8@9 lb.; B grade Delicious, 2.50@2.75; fancy, 3.25@3.50; Winesaps, fancy, 2.75@3.00. Watsonville: Fancy, 3 1/2 and 4 tier Bellefleurs, 1.60@

1.75; poorer, 1.40@1.50; 4 1/2 tier, 1.35@1.45; loose, per lb., 3 1/2@4 1/2; fancy, 4 tier, White Winter Pearmain, 2.00; 4 1/2 tier, fancy Smith Cider and Missouri Pippins, 1.25@1.35; Yellow Newtowns, fancy, 2.10@2.25; B grade, 1.65@1.85. Northwestern: Splzenburgs, - medium to large, extra fancy, mostly 3.00@3.25; fancy, 2.75@3.00; Romes, large size, extra fancy, 3.25; fancy medium to large, 2.75@3.00.

Pears: Winter Bartlett, 8@9; Winter Nelis, 5@7; Comice, 8@9.

CITRUS FRUITS

Grapefruit: Market steady. Californians, northern: Packed, box, 3.00; small, 2.50; market pack, 2.00@2.50; Imperial Valley, 4.25@5.00; Arizonas: Seedless, 3.75@4.75, according to size and quality.

Lemons: Demand and movement slow, market steady. Locals: Loose boxes mostly 1.25@1.50; poorer, 1.00; lugs, 50.

Oranges: Demand moderate, market weak. Navels, special brands, 150s-176s, mostly 5.00@5.50; 200s-216s, 4.50@4.75; market pack, 2.50@3.50, according to size and quality; culs, field boxes, best, 1.50@2.00; poorer, 75@1.00.

Tangerines: Demand and movement light, mostly 5@6 lb.

HONEY

Bees are reported to have gone into winter quarters in better shape than in 1920. Heavy rains the last of the month are expected to greatly increase the nectar flow of sage and other mountain plants. Supplies light, but uncertain, as some beekeepers are still holding their crop. The demand has been only fair but the small quantity available is holding the market steady. More honey disposed of locally this year than ever before. Large shippers quote to outside buyers, in carlots and less, f. o. b. shipping points, per lb.: White orange blossom, nominally 11 1/2@12 1/2, mostly 12@12 1/2; white sage, 10 1/2@12; light amber sage, mostly 8 1/2; light amber alfalfa, 6 1/2@7; amber alfalfa, few sales, 6. Very little demand is reported for Hawaiian honey, which is nominally quoted in carload lots, f. o. b. San Francisco, per lb.: White, 6 1/2@7; light amber, 4 1/2@5; dark amber, 4 1/2@5; dark amber, 4@4 1/2; honeydew honey, 3 1/2@4.

Beeswax is in light demand, with dealers offering crude wax at 22@24 per lb.

HAY

Alfalfa Growers of California report: Receipts past week smaller than preceding week. This brought urgent demand for spot lots from users and dealers whose supplies had become exhausted. The market for shipments to arrive also firm.

There were 450 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending January 7, with 80 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers

f. o. b. Los Angeles in carload lots, handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, January 11, 1922.

BUTTER

Extras.....35

January 1922 4 5 6 7 9 10 22 39 39 39 38 35

CHEESE

Dairy Exchange quotations:

California Flats.....20@21

California Y. A.....26

EGGS

Dairy Exchange quotations:

Extra.....39

Extra Firsts.....56 1/2

Extra Pullets.....40 1/2

Undersized No. 1.....42

January 1922 4 5 6 7 9 10 22 41 42 42 43 39

POULTRY

Prices furnished by the state department of agriculture, division of markets:

Sales to retailers: Below are listed the averages of actual prices obtained between 7:30 and 9 o'clock this morning by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Broilers: 1 to 1 1/2 lbs., 35@37 per lb.; 1 1/2 to 1 3/4 lbs., 35@37 per lb.; 1 3/4 to 2 lbs., 35@38 per lb. Colored fryers: 2 to 3 lbs., 28@32 per lb. Colored young roosters: 3 to 4 lbs., 28@30 per lb.; over 4 lbs., 29@31 per lb.; staggy, showing spurs, 24@25 per lb. Colored old roosters: 18@20 per lb. Leghorn old roosters: 17@18 per lb. Leghorn hens: 2 1/2 to 3 lbs., 25@26 per lb.; 3 lbs. and over, 27@28 per lb. Large colored hens: 29@31 per lb.

Ducks: Young, 23@25 per lb.; old, 22@24 per lb.

Geese: Young, 23@32 per lb. Supply light.

Live turkeys: Young, 40@41 per lb.; old, 36@39 per lb. Dressed turkeys: Quiet.

Young, 50@52 per lb.; old, 47@49 per lb.; poor, 40@45 per lb.

Belgian Hares: Live, 16@20 per lb.; dressed, 25@28 per lb.

Squabs: Live, 55@65 per lb., 3.50 doz.

Old Pigeons: 2.50@2.75 per doz.

Guineas: Young, 6.00@8.00 per doz.

Jack rabbits: 2.75@3.00 per doz.

LIVESTOCK

Western Meat Co. quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 6@6 1/2; do, second quality, 4 1/2@5 1/4; cows and helpers, No. 1, 4 1/2@5 1/4; do, second quality, 4@4 1/4; bulls and stags, 3@3 1/2.

Calves: Light weight, 7 1/2@8 1/2; heavy, 6@6 1/2.

Sheep: Wethers, 4@4 1/2; ewes, 2 1/2@3 1/4.

Lambs: 7 1/2@8.

Hogs: Hard, fat, grain fed, weighing

125 to 200 lbs., 9 1/2; 200 to 250 lbs., 8 1/2; 250 to 300 lbs., 7 1/2; light sows, 7 1/2; heavy, 6 1/2.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Bakersfield, December 28

75 174 8.75

1 350 5.00

1 car, 1 consignor, \$1,098.60.

Modesto, January 4

75 163 9.25

6 230 8.25

2 435 20 6.75

1 car, 21 consignors, \$1,303.85.

Fresno, January 6

42 177 9.00

33 206 8.50

6 98 7.60

1 car, 6 consignors, \$1,292.44.

Wasco, January 7

64 174 9.00

25 218 7.50

7 324 6.50

1 260 7.50

1 360 7.00

5 228 6.50

10 178 7.00

1 100 7.00

1 car, 15 consignors, \$1,810.20.

Total for the week: 4 cars, 43 consignors, \$5,505.09.

VEGETABLES

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Per case, 15.00@18.00; fancy, higher; Nos. 1 and 2, 1.00@1.50 per doz.; Nos. 3 and 4, 50@80 per doz.

Bunched vegetables: Carrots, 50 doz.; turnips, 40@50 doz.; beets, 40@50 doz.; parsley, 30.

Cabbage: 2.00@2.25 per crate, 1 1/2 per lb., 75@1.00 per doz.

Carrots: 90@1.00 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: Fancy, mostly 4.00 crate; poorer, 2.50@3.50, or 15 bunch.

Cucumbers: Per outside sm. box, 1.75@2.25; hothouse, fancy, 1.75@2.00 doz.; English, 1.75@2.00 per doz.

Eggplant: Scarce. Southern, 15@17 1/2 per lb.

Endive: 40@50 per lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Sm. crate, local, 1.00@1.50; L. A., 2.00@2.25; Imperial Valley, 2.50 top.

Mushrooms: Sm. box, 50@75; larger, 75@1.00.

Olives: 5@9 per lb.

Onions: Cold storage, browns, firm, 5.25@5.50; White Globes, 7.25@7.50; green onions, 2.25 box, top.

Peas: 15@20 lb.

Beans: 10@15 lb.

Peppers: Bells, best, 20@25 lb.; chilis, 15@17 1/2 lb.

Potatoes: Firmer feeling. Rivers, fancy, 2.15@2.25; Oregon Burbanks, 2.25@2.40; Idaho Netteed Gems, 2.50@2.75.

Pumpkins: Per sack, 75@1.00 per 90 lb. sack.

Rhubarb: 2.75@3.00 per apple box; poorer, 2.50.

Squash: Summer Brawley, 3.00@3.50, small crate; cream, 60@1.00 per lug; Hubbard, 90@1.00 per 90 lb. sack.

Spinach: 7@10 per lb.

Sprouts: 6-8 per lb.

Sweet potatoes: Per cwt., 3.90@4.00.

Tomatoes: Repacked, Southern, best, 2.50@3.00 per crate; hothouse, 25@35 lb.

FRESH FRUITS

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Apples: California Newtown Pippins, 4 tier, 1.85@2.00; 3 1/2 tier, 2.00@2.20; 4 1/2 tier, 1.65; B grade, 1.00@1.50. Langford Seedlings, 4 1/2 tier, 1.10@1.25; 4 tier, 1.40@1.60.

Northwestern: Newtown Pippins, extra fancy, 3 1/2 and 4 tier, 2.40@2.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitzenburg, extra fancy, 2.50@2.75; fancy, 2.25@2.50; Rome Beauty, fancy, 3.00@3.25; choice, 2.50@2.75; Bananas, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fancy, 3.50; Jonathan, extra fancy, 1.75@2.50; fancy, 1.75@2.00; Lady, per box, 2.50@3.00.

Avocados: California, large, 8.00@9.00 per doz.; medium, 4.00@6.00; small, 2.50@4.00.

Bananas: Eastern, 7@7 1/2 per lb.; red, 8 per lb.

Cranberries: Slow, 4.50@5.50 box; 1/2 bbl. Cape Cod, 17.50@20.00 per bbl.

Pears: Winter Nellis, 2.50@3.00 per box; Beurre, Clairgeau, 2.00@3.50; De Anjou, 2.00@2.50; poor storage, 1.00@1.75.

Persimmons: 1.50@2.25 per 20 lb. box.

Pineapples: 5.25@6.25 per doz.

Pomegranates: 1.75@2.25 per sm. box.

CITRUS FRUITS

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Lemons: Special pack, fancy, 3.75@4.00; others and poorer, 1.50@2.75; lemons, 1.25@1.75. Oranges: Special pack, 126s-200s, fancy, 5.25@5.75; 150s, 4.50@5.00; 200s-216s, 4.25@4.50; choice, 4.25@4.75. Tangerines: 2.00@2.50 per sm. box; 3.25@3.75 half orange box.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

Choice.....In 50s @13 1/4

Extra choice.....@13 1/2

Fancy.....@15 1/4

Apricots

Slabs.....In 25s @18 1/4

Standard.....18 1/2 @19 1/2

Choice.....22 @23

Extra choice.....23 @25

Fancy.....26 @28

Extra fancy.....28 @30

Moorparks, fancy.....29 @30

Moorparks, extra fancy

Citrus Markets

Los Angeles, January 11, 1922.
A rather weak tone exists in the orange market. California, Florida and Porto Rico have all been shipping freely and in some sections a slight glut has appeared. California Navel's are selling the highest of any offerings. Daily shipments are now averaging a little less than 50 cars a day from California.
All lemon offerings are more quickly picked up and some auction sales are reported above \$6.00. Fruit picking delayed by the storm is now being resumed.

Shipments
Shipments of citrus fruits to date since November 1, 1921. Southern California: Oranges, 2,109 cars; lemons, 1,003; total, 3,112. To same date last season: Oranges, 1,904; lemons, 854; total, 2,758. From Central California to date this season: Oranges, 4,013; lemons, 45; total, 4,058. To same date last season: Oranges, 3,808; lemons, 40; total, 3,848. From Northern California to date this season: Oranges, 361; lemons, 4; total, 365. To same date last season: Oranges, 293; lemons, 3; total, 296.

AT THE AUCTIONS

January 4
New York: 14 or., 1 lem. Nav. 2.15@6.15, lem. 5.60.
Boston: 5 or., 2 lem. Nav. 3.50@4.90, lem. 2.90@3.90.
St. Louis: 2 or., 1 lem. Nav. 2.80@4.70, lem. 3.35.
January 5
New York: 8 or., 2 lem. Nav. 2.65@6.30, lem. 3.75@5.05.
Boston: 7 or., 2 lem. Nav. 2.90@4.85, lem. 2.75@4.10.
Philadelphia: 1 or., 1 lem. Nav. 3.90@4.75, lem. 3.50@4.25.
Pittsburg: 2 Nav. 2.95@3.90.
January 6
New York: 6 or., 4 lem. Nav. 2.80@6.45, lem. 3.00@4.45.
Boston: 3 Nav. 3.80@4.40.
St. Louis: 3 or., 1 lem. Nav. 2.45@4.65, lem. 3.70.
Cleveland: 2 or., 1 lem. Nav. 3.70@4.45, lem. 4.35@4.60.
January 9
New York: 10 or., 3 lem. Nav. 3.15@5.45, lem. 3.05@4.50.
Boston: 11 or., 3 lem. Nav. 2.85@5.30, lem. 3.40@4.30.
Pittsburg: 8 or., 1 lem. Nav. 2.30@4.45, lem. 4.70@5.15.
Cleveland: 5 or., 1 lem. Nav. 3.10@5.25, lem. 3.60@5.10.
St. Louis: 3 or., 1 lem. Nav. 2.55@4.10, lem. 3.80.
Philadelphia: 1 or., 1 lem. Nav. 3.20@4.80, lem. 3.75.
January 10
New York: 10 or., 3 lem. Nav. 2.60@6.66, lem. 2.75@4.55.
Boston: 2 or., 2 lem. Nav. 3.40@5.05, lem. 3.30@4.80.
Pittsburg: 3 or., 1 lem. Nav. 2.45@3.45, lem. 4.95@5.15.
Philadelphia: 1 lem. 4.05@4.55.

POULTRY QUERIES

(Continued from Page 53.)

that as yet they have been tried out only by fanciers. Possibly they are as good layers as S. C. White Leghorns but they have not been tested out on the commercial egg farms, and until they have been commercial producers will be slow to take them up. No other breed has so far been found that will lay as many eggs under intensive conditions or produce as much in proportion to feed consumed as the Single Comb White Leghorn.

STORRS EGG LAYING CONTEST

Storrs, Connecticut.—Report for week ending December 26:
In the eighth week of the laying contest at Storrs the American breeds occupy first place. A pen owned by Harry G. Culver, Westhampton Beach, Long Island, and a pen owned by Frank P. Matteson, from Davisville, Rhode Island, tied for first place with a production of 43 eggs each.
The four leading pens in each of the principal breeds are as follows:
Plymouth Rocks
S. Bradford Allyn (White), 231 eggs; always based on facts, it is said. How-

Seven Hills Farm (Barred), 213; James F. Macdonald (White), 187; Merritt M. Clark (Barred), 180.
White Wyandottes
Frank P. Matteson, 324; Clemens J. Diemand, 254; Woodbridge Orchards, 254; Benjamin F. Decker, 236.

Rhode Island Reds
The Orchards, 291; F. S. Chapin, 266; Applecrest Farm, 262; Pinecrest Orchards, 250.

White Leghorns
Goshen Poultry Club, 219; Holly-wood Farm, 204; Meadowedge Farm, 205; L. E. Ingoldsby, 197.

GREAT POULTRY SHOW AT ST. LOUIS

Ten poultry fanciers' and breeders' conventions were held at the Coliseum in connection with a great poultry show. Meetings of associations interested in the breeding of pigeons, canaries, rabbits and dogs were held at the same time. The show closed January 2.

Organizations exhibiting and taking part in conventions: American Polish Fowl Club, Mid-Western Bantam Association, American Barred Plymouth Rock Club, Boston Terrier Specialty Club, Pigeon Fancier Association, American Poultry Association, Rhode Island White Club of America, National Fanciers' and Breeders' Association, Missouri State Poultry Association and the American Canary Breeders' Association.

DETERMINING MARKET VALUE OF HAY

What to do with low grade hay has long been a vexing problem to the hay trade. Losses running into the thousands of dollars annually have been suffered by producers because of the difficulty encountered in disposing of hay that is improperly prepared for market or is of a mixture that causes it to be regarded as of a low grade.

In Bulletin 977, "Marketing Hay at Country Points," recently issued by the United States department of agriculture, the failure to remedy this situation is ascribed to two chief reasons: The producer and the dealers do not yet agree as to what constitutes quality in hay, and many producers lack vital market information regarding the preparation of hay for terminal and consuming markets.

Quality of hay is at present indicated largely by its color, which is used to gauge the stage of maturity at which it is cut. The hay that grades highest, and consequently brings the most money, is usually that having the best natural green color. Hay dealers can often tell from the color whether hay was cut early, medium, or late, and in their opinion the best hay is the early cut and the poorest that which was cut late.

The average hay grower, in some sections at least, does not agree with the terminal market theory of quality as indicated by color. Many producers prefer medium or late cut hay, especially for horses, because it is easier to cure and is not so "washy" as early cut hay.

In some markets size and weight of bales is an important factor, since there is sometimes a difference of several dollars a ton in the same grade of hay in small or large bales. The reasons for the demand for certain sizes and weights are numerous and are not

ever, as in many other kinds of trading, it pays the seller to aim to meet the desires of the buyer.

The production of undesirable mixtures for the market will cause a loss to the producer as long as the market does not want such mixtures. Certain of these are discriminated against regardless of their true nutritive or feeding value. The producer may know positively that certain mixtures are palatable and contain more total digestive nutrients than the kinds now in greatest demand, yet he is powerless to make feeders realize their value. The introduction and general use of a new kind or mixture of hay is a very slow undertaking, as in the case of clover and alfalfa.

About the only way to avoid trouble with undesirable mixtures, says the bulletin, is for the producer to cease growing them and to produce only the kind in demand in the markets to which his hay is usually shipped.

BEAD SEEDS

The brilliant red flintlike seeds of several plants of the pea and bean family are much used for beads. The one most common is Abrus precatorius, the "Crab's-eye Vine." The seeds come from Hawaii in great numbers though plants are grown in California. Seeds closely similar (and perhaps the ones sent from Hawaii) are those of Rhyncosia phaseoloides, a climbing bean native to the American tropics, having three large bean-like leaves, while abrus has pinnate leaves with a dozen or more pairs of leaflets. The seeds are scarlet, with a black spot on each. Used by Buddhists for rosaries.

Adenantha pavonia, the red scandalwood tree of tropical Asia, has red lens shaped seeds known to curiosity seeking travelers as "Circassian seeds." Tree occasionally is grown in California. Ormosia monosperma, the necklace tree of the tropics, sometimes known as a sophora bears a bright scarlet seed with a large angular black patch. But we do not have to go outside our own country to find a "bean tree" with fine scarlet seeds. Sophora secundiflora, native to Texas and New Mexico, is a small tree with handsome violet-blue flowers of delightful fragrance. This tree is hardy throughout California and is recommended in Bailey's cyclopedia of horticulture for "planting south." Seeds planted by the writer failed to grow. Being very hard they should, perhaps, have been soaked in water for a day or two previous to planting. —E. B.

FEDERAL ROAD BUILDING

"The signing by the president of the federal highway act appropriating \$15,000,000 for forest roads and trails marks an important step toward the development of the great resources of our national forests," states Col. W. B. Greeley, chief of the forest service. "The bill provides \$5,000,000 for immediate expenditure and makes an additional \$10,000,000 available on July 1, 1922. This money will be used in extending the present inadequate road and trail system of the national for-

ests, the development of which is so vital to the effective protection and utilization of their valuable natural resources."

The act appropriates \$9,500,000 for forest roads of primary importance to the states, counties or communities within, adjoining, or adjacent to the national forests. Of this amount \$2,500,000 is made immediately available for apportionment based on the area and value of the land owned by the government within the national forests. This distribution by states has been made by the secretary of agriculture as follows: Apportionment for the fiscal year ending June 30, 1922, of the appropriation of \$2,500,000 available immediately for national forest roads of primary importance to the states, counties and communities within and adjacent to the national forests. Of this Alabama receives \$1290, Alaska \$258,273, Arizona \$154,140, Arkansas \$18,636, California \$395,763, Colorado \$180,539, Florida \$6648, Georgia \$3541, Idaho \$278,944, Maine \$731 Michigan \$943, Minnesota \$15,777, Montana \$234,094, Nebraska \$2924, Nevada \$55,352, New Hampshire \$9343, New Mexico \$119,639, North Carolina \$7370, Oklahoma \$1495, Oregon \$310,749, Porto Rico \$385, South Carolina \$416, South Dakota \$20,511, Tennessee \$5760, Utah \$98,529, Virginia \$6941, Washington \$189,870, West Virginia \$1593, Wyoming \$119,799. Total, \$2,500,000.

A provisional apportionment of the \$7,000,000 additional for roads of primary importance to public travel will be made by the secretary about January 1. The appropriation for the construction or maintenance of roads and trails of primary importance for the development and protection of the national forests is \$5,500,000, of which \$2,500,000 is immediately available. The act prescribes no mathematical apportionment of this amount, but states that it shall be according to the relative needs of the various national forests, taking into consideration the existing transportation facilities, value of timber, or other resources served, relative fire danger, and comparative difficulty of road and trail construction. The apportionment of funds allotted under this section of the bill will be made by the secretary in the near future.

One new feature of the bill is that the cooperation of territories, states and civil subdivisions thereof is not made a requisite, as in previous acts, in the expenditure of appropriations for national forest roads. The law, however, permits the secretary of agriculture to receive cooperation, and forest service officials believe that undoubtedly considerable amounts will be offered, thereby augmenting forest road construction.

WEATHER REPORT

	San Francisco, Jan. 7, 1922.		Rainfall		Temp.	
	Week	Season	Norm.	Max.	Min.	
Eureka	1.00	12.56	18.26	52	34	
Red Bluff	.88	10.15	10.89	56	36	
Sacramento	1.62	7.32	7.73	54	38	
San Francisco	1.25	9.94	9.11	56	42	
San Jose	1.08	7.81	8.75	56	32	
Fresno	.94	5.88	3.96	56	39	
San Luis Obispo	1.19	9.75	6.95	62	36	
Los Angeles	1.62	10.78	5.76	66	42	
San Diego	1.27	12.74	3.52	66	44	

WEATHER REPORT

	San Francisco, Dec. 31, 1921.		Rainfall		Temp.	
	Week	Season	Norm.	Max.	Min.	
Eureka	1.15	12.56	16.89	62	40	
Red Bluff	2.32	9.27	10.08	68	42	
Sacramento	1.53	5.70	7.12	62	46	
San Francisco	3.16	8.69	8.30	64	44	
San Jose	1.25	6.73	6.22	68	44	
Fresno	.35	3.94	3.55	66	44	
San Luis Obispo	1.75	7.94	5.88	74	50	
Los Angeles	2.18	9.16	5.21	74	52	
San Diego	3.43	11.47	3.17	76	53	



On the Sacramento River Near Butte City



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BECAUSE, through our tremendous milling capacity, we can control the source of most of the ingredients used in our feeds. For example: the bran, shorts, middlings and flour that go into SURELAY are by-products of our own mills. Then there's corn. We use 10% or more in this feed—and here are our mills in the *center* of the largest corn-growing district in the State.

Animal protein offers another example: the amount of *meat* we use daily puts us in position to secure meats of uniform, high quality throughout the year. In one case, we use the *entire* output of a single manufacturer. Again, there are vegetable proteins. Direct purchases in tremendous quantities of soya bean meal, coconut meal and linseed meal offer another price-advantage.

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JAN 24 1922

CALIFORNIA CULTIVATOR

and **LIVESTOCK** *and* **DAIRY JOURNAL**

Los Angeles

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San Francisco

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunter, Associate.
R. P. Royce, Livestock Editor.
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C. L. Hughes, Associate.
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Saturday, Jan. 21, 1922

OUR ADVERTISERS RELIABLE
We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETES

We who live in the valleys of this west coast are given the great privilege of watching a mighty empire in the making. This may be true of the pioneers who have cleared the forests and plowed the plains and developed irrigation systems all the way across the continent, but it does not seem as if these other pioneers have witnessed accomplishments of such magnitude as have we of the Pacific Coast. A few years ago we looked at the Isthmus of Panama and wondered if wealth and energy existed sufficient to complete the work which had lain dormant so many years. Under the leadership of Roosevelt the Panama was at length dug at a cost of hundreds of millions. Later came Elephant Butte, Roosevelt and other dams. As great as these efforts were the people of the Southwest are today contemplating one involving vastly greater expenditure. A faint idea of the magnitude of this work is given in the photograph on the cover of this issue. When it is realized that the almost perpendicular walls of the canyon are nearly a third of a mile high, one begins to grasp the immensity of the work to be undertaken. The people of the United State thrive on difficulties which present opportunities such as Boulder Canyon.

The photographs presented to our readers on the cover and on the opposite page are both used by courtesy of the bureau of power and light, department of public service of the city of Los Angeles. The city of Los Angeles is, by the way, taking the position that the wonderful power possibilities of the Colorado should be secured to the people at cost of service, and to that end is urging other communities and cooperative institutions to unite and work with Secretary Fall of the department of the interior.

The development of this canyon has been hoped for by the people of seven states, and at the same time it has been feared that its resources might fall into the possession of selfish interests. At the Riverside meeting when Secretary Fall made his first definite statement in effect that the dam to hold back the floods of the Colorado and supply waters for irrigation and for the creation of hydroelectric power would be constructed by the federal government a thrill ran through the assembly and there was a great shout of approval. From that moment there has been assurance that the resources of the Colorado shall remain in the hands of the people.

But California's power and water development possibilities are not all included in the basin of the Colorado. Note some of the accomplishments in San Diego County. Note also the saving of flood damage by the Devil's Gate dam of the Arroyo Seco and the flood protection measures of the San Dimas Canyon, both in the Sierra Madre Mountains. There are almost daily meetings of those who would save the waters and stop the damage of their wastes from San Gabriel, San Antonio, Santa Ana and other canyons.

Farther north the waters of the Kern, the Kings, the San Joaquin, now wasting, are also causing discussion. The great Pine Flat district organization is perfecting itself and big type announcements in the dailies say: "District will be formed under Harris act; work starts at once." Civic and other organizations are now appealed to to supply funds for preliminary work costs. We are not certain whether it is ten million or a score of million that this great improvement will

cost, but sure it is that California energy is behind it and the work will be done.

San Francisco is reaching across the bay and planning to parallel the great rivers with an aqueduct which will carry the water of the Hetch Hetchy to San Francisco and give an abundance of pure water to that city and to the smaller communities down the peninsula.

The Turlock Irrigation district is now carrying advertisements announcing the sale of over a million dollars worth of bonds "for the building of Don Pedro dam and power development in connection therewith." And we note that these six per cent irrigation district bonds are selling as high as \$110.27, certainly one great compliment and proof of the worth in the eyes of the purchasing public of irrigation district bonds.

Still farther north the Sierra Nevada is filled with water conservation and power development possibilities. Then on the floor of the valley there are many districts like that of Sutter basin where through drainage, levees and irrigation thousands, almost millions, of acres are being brought up to fuller production.

From near the base of Shasta and Lassen waters have been captured and

illustrations to make this number well worth the filing.

The United States has installed water wheels with a capacity of 9,243,000 hydroelectric horsepower. The leading states are New York with 1,300,000 horsepower and California with 1,111,000 horsepower. In Europe France leads with 1,400,000 horsepower. America is the most advanced of any country in water power development, 40 per cent of the world's developed horsepower being in this country. The total potential water power of the world is approximately 439,000,000 horsepower, of which 62,000,000 is in North America. Africa has the greatest possibilities.

Application should be made at once for 1922 motor vehicle registration. The application must be in prior to February 1.

EDMUND DAY STURTEVANT

E. D. Sturtevant, at one time the world's largest grower and highest authority on aquatic plants and water gardens, died at his home in Hollywood, January 13. Mr. Sturtevant was formerly in business in Bordentown, New Jersey, and at that time was the largest importer of lotus and other water plants. He has resided in Los Angeles for the past 30 years where he has had water gardens stocked with some of the choicest introduced plants and others which he has bred. Bailey's Cyclopaedia refers to the work accomplished by Mr. Sturtevant and gives to him credit for making popular in this country many water plants of great beauty.

GION W. GIBSON

By the death of Gion W. Gibson of Williams, which occurred at Woodland, January 16, there has been removed from the ranks of California Holstein breeders one of the most popular and a man who has contributed much to the development of better livestock. Mr. Gibson brought to the livestock industry enthusiasm, vision and ideals of such high order as to leave a deep and lasting impress upon the affairs of his chosen breed. Mr. Gibson believed profoundly in the relation of better livestock to general agricultural practices in this state, and it was primarily because of that conviction that he incorporated the breeding of Holsteins with his extensive farming operations.

In all things Gion Gibson was progressive in spirit, and in all contacts with his fellow breeders and neighbors his conduct was such as to first inspire respect and then friendliness. Always did he exhibit a kindly feeling to those who held honest differences of opinion, but he had an open contempt for those whose motives and actions would not stand scrutiny. In short, he combined to a high degree all the qualities expected in a citizen, a gentleman and a breeder.

NO WATER TO BURN

Amongst the striking photographs in this issue, which illustrate some feature of irrigation, is one showing the water on fire. We have heard it stated that the time would come when water might be decomposed and its hydrogen and oxygen released and the world given one of its greatest powers, for no greater heat is created than by the bringing together again of oxygen and hydrogen. This accomplishment is doubtless many years in the future. Meantime we are simply using the illustration of the gas being released by the water to enforce the lesson of saving the water of the hillsides.

The burning of the brush and the forests of California mountains has been an event of more or less regularity since the discovery of fire. During the last few years we have used forest patrols and airplane patrols, and have saved possibly millions of acres from being burned over, but the campaign of education is far from ended. The Cultivator wishes it could make more forceful in some way the necessity for this protection from fire. At this writing it may seem needless, but with the dryness of next camping season the devastating fires will begin.

Make it a slogan, "Save the forests." We haven't enough water to burn.

carried across the valley and are being used to grow golden oranges and yellow lemons in the foothills of Butte and are even carried across the valley and are growing other citrus fruits in Glenn and even as far north as Shasta County. We had hoped to have from the pen of Jas. Mills, Jr., a few words as to northern Sacramento irrigation development, but the mails have mis-carried and Mr. Mills' copy is not in.

It may seem a bit untimely to talk at such length on irrigation so soon after one of the finest rains ever poured out on California's valleys, and even as we go to press predictions are for "Probable rain all over the state." But it's none too early to begin planning for next season's irrigation, and some are already conserving the waters in the soil by winter irrigation. Under proper subsoil conditions this is an excellent practice.

There are literally scores of different makes and types of pumps, and California's own factories have turned out some of the very finest. One hundred per cent efficiency is not yet attained, but the manufacturers are approaching it as rapidly as possible.

This issue does not contain all about irrigation. In fact, it only touches the margins of the great reservoirs filled with the experience of semi-arid America's irrigators. Still we believe there is sufficient of value in tables, text and

California Cultivator

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Los Angeles, January 21, 1922

One Dollar Yearly

Stop the Floods, Save the Water, Use the Power

IF the Sweet Singer of Israel lived in California he could say with even greater truth than he did some 3,000 years ago: "I will lift up mine eyes unto the hills whence cometh my help." In California there was never such a searching of the hills for water. Active men have tramped over hillsides, and even toward the top of Mt. Whitney, and have come back and dreamed dreams until we are talking of millions, and almost billions, needed to develop and conserve the waters which the hills have been sending, sometimes in a devastating way, towards the ocean.

In many cases the dreamers have se-

For some three or four years the people of the seven Southwestern states have been studying southwestern problems, especially those pertaining to the Colorado River basin. The recent meeting held in Riverside has been characterized as one in which there was more of contention than of positive definite action, but we believe it has resulted in attracting attention to the possibilities of the Colorado in a way which will mean much earlier development.

A commission has been formed, directed by Herbert Hoover, assisted by a commissioner, usually the state engineer, from each of the seven Southwestern states. This commission is

prosperous. Nor is the increased irrigation the only advantage, for from this one dam waters would be supplied which would give a greater amount of hydroelectric power than is now secured through the use of Niagara Falls. To be exact, engineers state that these waters would be capable of generating 700,000 horsepower of electrical energy.

The photograph on this page gives a view up the valley of the Colorado from the upper end of Boulder Canyon. On the cover is a view of the canyon, giving an idea of its narrowness and the nature of the walls which are at the highest point shown in the picture more than 1500 feet above the water

Roosevelt Dam, or railroad cuts, or lofty buildings, the human toil is almost nothing; the power is mechanical, by steam or electricity. In our states of the Southwest the great new formative things are cheap water and cheap power. Any government, any state, any town or farm community, or water company, or power company must know this. Not to know it is suicide. This is the law, the irresistible economic mechanical law of our age, and the law and demand of these states of the Southwest, cheap water and cheap power.

"Whatever will help supply our human need for food and clothing and shelter within the reach of all men, women and children; whatever will reduce poverty; whatever will reduce the unbearably high cost of living; whatever will for these states of the Southwest produce cheap water and cheap power must be done for our economic salvation.

"The Colorado River project is, by water and by power, to help bring down the high cost of living and to open up a new empire that shall be the happy habitat of at least fifty million prosperous, happy human beings, in these Southwest states.

"It is a project to give to our soldier boys today an opportunity for farm lands comparable to that which awaited the soldier boys of '61 when they made a new empire of the great western prairie states. It is a project to give employment to the army of the unemployed.

"The keynote of the modern world in all great matters must be publicity. Three thousand years of secret diplomacy has wrecked this poor world. The masses of mankind have not been consulted in their own affairs. Secret intrigue has been their undoing. In at least trying to secure publicity as against secret diplomacy at Versailles, President Wilson was right. When he took the world into his confidence for public consideration of international affairs in the Disarmament Conference President Harding was right. When at the first opening of that conference he instantly laid before all mankind the inmost purposes of the Disarmament Conference of Nations Secretary Hughes was right. And so also there is a new day for publicity in our national, industrial and corporation and business affairs. The people have a right to know the people's business and to transact it.

"The vast business of developing the Colorado River for irrigation, flood control and power for the people of seven states cannot be permitted to be fixed up for the irrigator or farmer or user of electric light and power by secret agreements of men hidden in inner offices in Washington, or Phoenix, or Denver, or Salt Lake City, or even in Los Angeles or Riverside.

"Whether this vast project shall be developed by federal and public administration or by private enterprise, it must be done generously and in a spirit of service to all. Irrigation and flood control are the first pressing necessity for those down in the valley of the Colorado. But they also must have cheap power for their many necessities.

In the matter of Colorado River water rights they include those secured by international treaty, by special acts of congress, by various state appropriation laws; rights of public domain lands, rights of many large Indian reservations, rights of privately owned lands. Overlapping all these problems of water rights and irrigation will be the use of these same waters for generating vast quantities of hydroelectric power, and nature's tremendous problem also of flood control. Shall this vast work be done by government or by private enterprise? Or by both?

"Remembering the vast service to be rendered, the countless difficulties,

(Continued on Page 67.)



Site of the Greatest Inland Artificially Created Lake in the World

Looking up the Colorado River from the upper end of Boulder Canyon. When the 600 foot dam is erected the waters will be backed up the Colorado a distance of over 80 miles, and up another tributary stream almost an equal distance. See photograph of Boulder Canyon, the site of the dam, on cover of this issue.

cured action, and the valleys are blossoming and fruiting and harvesting in quantities which have sent great trainloads from the state from year's end to year's end. There is still so much waste that scarcely a week now passes but people gather and say: "How long?" Fortunately, the time is shortening as never before. Communities, counties, state governments and the federal government are becoming more and more active. The recent visit of Secretary Fall and his pledge of as early action by the department of the interior as is possible has created new enthusiasm. Besides, the recent floods doing much damage and giving visible proof of the great wealth wasting into the ocean have also given added impetus to the conservation campaign.

Only a few months ago we began discussing the Marshall plan which would call for the expenditure of some hundreds of millions of dollars. Now we are all discussing the California water and power act which will be voted upon next fall and, if passed, will mean material increase in water development possibilities, use of waters developed by the people at actual cost.

just beginning its work, but already a most definite start has been made toward one branch of development known as the Boulder Canyon water and power project.

Boulder Canyon is a very narrow granite sided gorge on the Colorado River between Arizona and Nevada, only a short distance above the California line. Above it, as if by special provision of nature, lies a valley through whose center runs the Colorado. This valley is more than 80 miles long and in addition has several branches, notably the valley of the Virgin River running to the northward through part of Nevada and into Utah.

The placing of a 600 foot dam across Boulder Canyon will make possible the irrigation of more than two million acres of land. Nearly three-quarters of a million acres of this land is now irrigated from the waters of the Colorado, but because of its ugly mood at flood time much of this three-quarters of a million of acres is jeopardized and the welfare of tens of thousands of producers of food menaced. Boulder Canyon dam would effectually protect these acres and make other millions

flowing in the stream below. The dam when constructed will be something over 600 feet in height, or less than half way up these walls. The length of the dam at the base will be nearly 200 feet, and at 600 feet above water level it will have a length of about 1,000 feet. The foundation will extend some 130 feet below water level and will be on bedrock. This dam will hold the entire flow of the Colorado River for one year and a half. The waters conserved by this dam can be used only in Arizona, California and Mexico, but, under modern methods of long distance transmission, the power will be available in several of the Southwestern states.

Touching upon the increased wealth made possible by this development, Mayor Horace Porter of Riverside, in addressing the League of the Southwest, said in part:

"The Colorado River project is three problems in one—irrigation, flood control, hydro-electric power—a trinity of problems. Three in one, one in three. "Today when we build a Panama Canal it is not done by toiling multitudes of men as drudges, it is done by mechanical power. If we build a vast

Agricultural News Notes of the Pacific Coast

Northern California

It is reported that extensive plantings of hemp will be made in San Joaquin County.

The Trinity County Fair Association plans to purchase permanent fair grounds of 35 acres at Hayfork.

The dried peach crop of the state is estimated at about 20,500 tons, over 80 per cent of which have been marketed.

There is proposal to erect a hemp mill at Chico if sufficient Butte County farmers can be interested in hemp growing.

At their December 28th meeting the directors of the Poultry Producers of Central California declared dividend of eight per cent.

The Asparagus Growers' Association met January 9 at Walnut Grove to complete organization and plans for marketing the 1922 crop.

Sale of registered Herefords at University Farm, Davis, February 21, by members of Pacific Coast Hereford Cattle Breeders' Association.

An auction of 800 fat steers was held at Hat Creek, Shasta County, January 5, under management of the farm bureau marketing committee.

The Happy Valley irrigation district in Shasta County will deepen its main canal from Hoover Creek in time to serve the coming irrigation season.

Farm bureau meetings in Shasta County will be held at Redding, January 21; Millville, 24; Palo Cedro, 25; Hat Creek, 27; Fall River, 28; Mountain, 29.

Canning peach growers met at Walnut Grove, Sacramento County, last week to discuss the newly organized California Canning Peach Growers Association.

The California Development Board is raising a fund of \$10,000 to survey lands of the Sacramento and San Joaquin Valleys suitable for colonization under state land settlement aid.

Drying of cling peaches will be taken up by the California Canning Peach Growers. The association hopes in this way to save great quantities of undersized and overripe fruit.

An accredited January hatchery list of 13 in Sonoma County has been published by the Sonoma County farm bureau. This list will be corrected each month as hatcheries comply with standardization requirements.

The California Supervisors' Association in its last meeting at San Francisco made serious study of motor truck loads and their effect on paved highways at different rates of speed. Uniform state and county law was discussed.

The California Development Board estimates total value of California grape crop to grower, \$92,608,820; wine grapes, \$28,628,350; table grapes, \$18,774,770; raisin grapes, \$45,205,200. Railroads report 28,800 carloads grapes shipped this season from state, distributed in 6,200 cities.

General Manager Barber of the Poultry Producers of Central California says: "The surplus of Pacific Coast eggs is now carried by the producers' marketing associations which are able collectively to store in the flush season and to ship to other markets at all times, thus keeping the surplus cleaned up and maintaining a reasonable market."

Central California

The Holstein Breeders' Association held its annual convention at Modesto January 11.

Ceres growers are asking the California Peach and Fig Growers to build a fig cannery in that city.

A Yosemite snow carnival is being planned by the Fresno chamber of commerce February 17-20.

The California Grape Growers' Exchange has 520 members controlling some 25,000 tons of grapes.

San Joaquin County planted 4,365 acres to vineyards the past season, 2,880 of which were Tokays.

Fresno County supervisors are considering requiring stages and buses to stop before crossing railroad tracks.

Plans for raising funds to plant trees on the highway west of Visalia are being made by the Visalia Welfare Club.

An ice cream plant is to be built at Newman, Stanislaus County, capable of handling 3,000 gallons of milk per hour.

April 29, Saturday, is probable date of this year's raisin festival. 1922's festival queen will be chosen from Kings County.

The newly elected directors of the California Grape Growers' Exchange will meet at San Francisco February 22 to select officers.

Two days of fig pruning demonstrations will be given in Stanislaus County January 24 and 25 under supervision of the farm adviser.

The Stanislaus County Fig Growers' Association met at Ceres high school to make plans for the coming season and to select a director to represent the association in the California Peach and Fig Growers.

The newly organized Canning Peach Growers in session at Fresno January 10, selected A. D. Pogetto general manager. Mr. Pogetto has been manager of the Earl Fruit Company plant at Loomis, Placer County.

The Hughson, Stanislaus County, board of trade has finished a products survey of the county. Number of ranches surveyed was 365; average ranch acreage, 40; per centage of alfalfa to total acreage, 33 1-3 per cent.

At a meeting in Fresno, January 11, of representatives of the irrigation districts interested it was determined to organize the Pine Flat project under the California water storage district, or Harris, act. Petitions are being prepared for circulation in eight districts.

The Bakersfield Commercial Association has appointed a committee "to investigate the power rate situation in agricultural districts and to appear before the state railroad commission in the hearing now in progress, with data and recommendations for findings that will be just to the farmers."

The local chamber of commerce has a plan for advertising Porterville. A metal name plate containing the word "Porterville" in blue letters on a white background is the device to be used for publicity, and hundreds of the plates will arrive shortly for the use of motorists. The plates are to be attached either below or above the state license plate, and are the same color as the 1922 license plates.

Southern California

All the orange packing houses at Rialto are working full handed.

Twenty per cent of the lemon crop moved by water the past season.

Brawley, Imperial Valley, is sending out 100 carloads of lettuce a day.

The Imperial Valley Press and the El Centro Progress are to be consolidated.

The 12th National Orange Show will be held at San Bernardino, February 17-27.

The Oxnard Citrus Association held its annual meeting at Hueneme, January 7.

San Fernando Valley is urging establishment of a junior college of agriculture.

A large acreage has been sown to grain in Apple Valley, San Bernardino County.

The Fontana Citrus Association is installing new equipment in its packing house.

R. H. Ehlers of Blythe sent over 1,000 turkeys to the holiday market in Los Angeles.

The last farm home demonstration meeting at Jurupa studied refinishing of old furniture.

The Rincon Road has been put in good condition and now shows no trace of storm damage.

Large plantings of cucumbers for pickling are planned for the Zelzah section of the San Fernando Valley.

Supervisors of Ventura County are discussing the paving of the Dennison Road between Santa Paula and Ojai.

Poultry diseases will be discussed by Dr. J. R. Beach of the state university at Van Nuys, January 25, and at San Gabriel, January 26.

Three trainloads of Navels, 150 cars, left San Bernardino for the Eastern markets, January 10. This is the record for the season so far.

The Anaheim Lemon and Orange Association shipped 1,100 carloads of citrus fruits last year. This is a gain of approximately 35 per cent over previous year's shipments.

The Los Angeles County farm bureau through its committee on water conservation is urging "investigation of every possibility of impounding runoff waters in the San Gabriel watershed."

A. P. Davis, chief of the United States reclamation service, says that the proposed flood control and conservation dam in the San Gabriel Canyon is entirely feasible and should be built.

The Tri-Counties Reforestation Committee at its 14th annual meeting at Riverside, January 12, passed resolution asking the secretary of the interior to order a study of the drainage area of the Santa Ana.

Paul Baxter of Fertilta, Riverside County, is planting a large acreage to lettuce and asparagus. These crops have not heretofore been grown in a large way in that section and Mr. Baxter hopes to compete with the early Imperial Valley crops.

Los Angeles County Mutual Fire Insurance Association at its 23rd annual meeting last week reelected P. F. Cogswell, president; Geo. F. Cromer, secretary-treasurer. Mr. Cogswell succeeded the late A. T. Currier as president some months ago.

The Coast and General

The Yakima Poultry Association (Washington) will be held the third week in January.

Thousands of gallons of canned apples are being sent to Europe via the Panama canal from Portland.

Ten poultry conventions were held at the Coliseum in St. Louis last week in connection with an enormous poultry show.

The Washington Cooperative Egg and Poultry Association will soon open a branch office in the Yakima Valley.

The annual convention of the Washington State Poultry Breeders' Association will be held in Spokane on January 26. The Spokane County breeders will hold their annual poultry show during the same week.

The Lewis-Pacific (Washington) Dairymen's Association has been granted a temporary restraining order against one of its local members who had broken his contract with the association. The order restrains him from shipping milk to any other purchaser.

At a recent meeting in Forest Grove the Oregon State Horticultural Society elected the following officers: D. W. Johnson, Corvallis, president; E. A. Reuter, Forest Grove, vice president; C. D. Minton, Forest Grove, secretary-treasurer, and Senator McNary, trustee.

The potato grade and pack conference held the last day of the potato show and conference at Spokane, Washington, recently, voted to retain United States grade No. 1 and adopt an additional grade to be made up of not less than 75 per cent No. 1 grade potatoes and 25 per cent or less of No. 2 grade.

A poll of the first 12 men attending the recent annual meeting of the Washington State Horticultural Association revealed that their plantings of cover crops have increased 67 per cent this season over last. Everyone sowed some kind of cover crop this fall, several for the first time. The favorite is vetch, though oats and rye are often sown with it.

"If nothing else was accomplished except the decision to grow three standardized varieties of potatoes in Clackamas County (Oregon) these five days have been worth all the time and effort they have cost," said County Agriculturist Holt at the closing meeting of the farm bureau at Oregon City. The three varieties adopted are American Wonder, Burbank and Garnet Chili.

A consignment of a million pounds of Pima cotton, valued at \$500,000, has left Phoenix, Arizona, for a government bonded warehouse at New Bedford, Massachusetts, where it will be more quickly available for mill use. Several hundred growers are represented in the shipment, the farmers having pooled the cotton through the Arizona Pima Cotton Growers' Association.

The dairymen of Crook County, Oregon are holding regular monthly meetings at which they may get together on the various problems which confront them and also to discuss the different methods used by each. W. B. Tucker, county agent, usually presides. The meetings are held at the different farms, and when weather conditions are unfavorable, at the agent's office at Prineville.



The Dam and the Lake (Lake Hodges), San Diego County's Greatest Conservation Work

The first view, at the left, shows the dam from the lower side. This structure is 130 feet high. The center shows the spillway where two billions of gallons of water are wasting every 24 hours. The lake being filled there is no place for it to run but to the ocean. The view at the reader's right is a portion of Lake Hodges six miles from the dam. This was near Bernardo where the water is still 30 feet deep.

Status of Irrigation in San Diego County

By Robert R. McLean

PERHAPS no county in the state presents more variations of topography or of soil and climatic conditions than San Diego County, all having an exceedingly important bearing upon drainage and irrigation.

The rainfall ranges from a normal 10 or 12 inches in a belt a few miles wide along the coast, up to 40 or 45 inches on the higher mountains, and the soil from many types of sandy loams to gravelly loams and heavy adobes. There is much variation in these soils and in the subsoils as well, and any system of irrigation must necessarily take these factors largely into account.

Irrigation of fruit trees as a general rule is not practiced in San Diego County in the higher altitudes where the rainfall exceeds 16 to 18 inches, nor in some of the lower valleys and stream beds where sufficient water may be stored in the soil in normal years to meet the needs of the plant. Irrigation is provided in every locality for commercial vegetable growing.

Because of the fact that much of the county is mountainous, the streams comparatively short and the drop to the ocean level more or less rapid, it follows that much of the rainfall in periods of heavy rains, such as have been experienced this winter, must be lost unless there is some means provided for holding back the flood waters.

In the stream beds, in the hanging valleys and in many of the interior lower valleys such as El Cajon and Escondido, much water can usually be obtained by pumping, about one-half of the present irrigated acreage of the county, as near as can be estimated, being supplied in this manner. The possibilities of irrigation from underground supplies of water, however,

are fairly limited and no great increase in irrigated acreage can be looked for from this source. This source of water is also more or less precarious as in dry years the underground reservoirs, except perhaps in the larger stream beds, may become dangerously low. The chief dependence of the county for any great advance in the matter of acreage under irrigation must therefore be placed in artificially stored supplies of water.

The need for reservoirs has only been partially met, but plans are under way looking towards the conservation of a large part of the flood waters of the county. The great Lake Hodges dam, situated between Del Mar and Escondido, is the latest large dam to be constructed for irrigation purposes. This reservoir, containing 40,000 acre feet of water, was filled to overflowing during the December storms and over the lip of the magnificent multiple arch structure, 130 feet high on the down stream side, poured a flood 385 feet wide and 2 feet deep, sending over 2,000,000,000 gallons of water to waste every 24 hours.

The completion of this dam will make possible the opening to irrigation of many thousand acres of mesa land in a belt running along the coast from Del Mar north. This mesa land is practically frostless and has been farmed mostly to hay and grain. It can now be devoted to valuable intensive crops, particularly to winter vegetables such as the Carlsbad district is famous for.

The Cuyamaca system, including the Murray dam reservoir at Lake Mesa, holds nearly 6,000,000,000 gallons and is the principal source of water for

La Mesa, Lemon Grove, Spring Valley, El Cajon and East San Diego, although El Cajon is supplied to some extent by wells. The Sweetwater system with a capacity in excess of 10,000,000,000 gallons, now full and overflowing, supplies National City, Chula Vista and Otay and in addition irrigates about 5300 acres of citrus and vegetable lands, there being practically no wells in the district covered by it. The Escondido system impounds something over 1,000,000,000 gallons and supplemented by wells supplies Escondido City and irrigates many hundred acres.

The San Diego City reservoirs, impounding about 47,000,000,000 gallons at their present capacity, supply water principally to the city itself although some small amount is also used for irrigation.

The total irrigated lands in the county approximate 25,000 acres and the prospects for increasing that acreage are immediate, due to the building of the Lake Hodges reservoir and to a general awakening on the part of the county in general as to the absolute necessity of providing for the care of surplus water.

Almost without exception citrus groves are irrigated wherever located in the county, either by privately owned water systems developed from wells 30 to 90 feet in depth or by water bought from a water company. The frequency of the irrigation and the amount of water used annually depends to some extent upon the rainfall and the type of soil, but in general an irrigation is given every 28 to 35 days during the season and from 12 to 15 acre inches are necessary to supple-

ment the rainfall. A better system of irrigation is gradually coming into practice, that of the deep furrow method, and this, combined with the intelligent use of the soil auger, is cutting down much of the waste of water that even in dry years has been the rule.

Vineyards in the lower valleys are not generally irrigated although there is no question but that they should be. In former years dependence has been placed upon the deep rooted habit of the grape, but growers are coming to find that by two or three irrigations during the season the yield may be increased from 1½ to 2 tons per acre. Not only has a failure to irrigate cut down the tonnage but the vines will suffer badly next season because of the shortage of water last summer.

This same condition will apply to most unirrigated deciduous fruits as well. No orchard should be planted on land that is not well drained, and a rainfall of 14 or 16 inches on such land, coming as it does in the space of a few months in the winter, is not sufficient to carry a tree or a vine through the long summer period, taking one year with another.

The acreage in winter and summer vegetables is being largely increased as the facilities for irrigation are being supplied. The amount of water used depends upon the soil, drainage and if summer or winter cropped, or both, but probably from 20 to 30 acre inches are necessary for more or less continuous cropping.

With reasonable methods of irrigation and the building of suitable reservoirs to take care of the flood waters in the county, there should be enough water developed and stored to place under irrigation many thousands of acres now idle or devoted to low value crops.

Irrigating Field Crops

By R. A. Condee

ASK an orchardist how much much irrigation water he applies to his grove and in nine cases out of ten the answer will be so many miners' inches per irrigation, or a certain number of acre feet for the season. Put the same question to the general farmer and in most cases he will frankly admit that he does not know or will tell you he just "pours it on" his alfalfa, corn or other field crop and lets it go at that.

As a matter of fact the majority of farmers do one of two things in irrigating their field crops. They either pour on too much water or starve their crops by applying too little water.

In irrigating we must keep in mind two important facts. First, that 95 per cent of the plant food for the growing of our crops must come from the water and air, and that while water serves the double purpose of furnishing plant food and carrying dissolved plant food from the soil to the plants, it can be applied in such quantities as to exclude the amount of air necessary for the growth of the soil bacteria without which the food supplied by the water is of no value. Second, that for every pound of dry matter manufactured in our crops we must supply from 500 to 1,000 pounds of water.

Efficient irrigation meets these re-

quirement at the least possible cost per acre irrigated.

The term, "duty of water," is used in two different senses; as the number of acres a given flow in cubic feet per second or other unit will irrigate, and as the annual depth of irrigation water applied to the land. The depth of water applied during the irrigation season to the land is reckoned in acre feet or acre inches. To convert this into the duty as defined by the number of acres one cubic foot per second or one miners' inch will irrigate, it is necessary to know the length of the irrigation season.

For example, if the duty of water is 2.5 acre feet per acre for the year and the irrigation season extends over a period of five months, say from May to September, the number of acres which can be irrigated with a definite flow of water is determined in the following manner: One cubic foot per second flowing for 24 hours is about two acre feet for 150 days, which would be equivalent to 300 acre feet. This amount of water with a duty of two and one-half acre feet per acre would serve 120 acres, the duty then being expressed as one cubic foot per second of water to 120 acres. To convert this into miners' inches per acre, since there are 50 miners' inches to

one cubic foot per second as used in California, one miners' inch will serve 2.4 acres, or 120÷50.

If an alfalfa grower wished to determine the amount of water to be pumped to irrigate 100 acres of alfalfa at intervals of 15 days to a depth of, say, three inches, he would have to solve his problem in the following manner:

One miners' inch flowing for 24 hours is equivalent to 0.476 acre inches. The irrigation interval being 15 days, one miners' inch for 15 days then is 0.476x15, or 7.14 acre inches. As we wish to apply the water to a depth of three inches, the flow in miners' inches per acre will be equal to 3÷7.14, or 0.42 miners' inches per acre. To apply this depth every 15 days with this amount available would require the continuous operation of the pump. If the pump is operated only half the time .84 miners' inch per acre, or .84 miners' inches to the 100 acre field of alfalfa, would be required. If the pump is operated one-third of the time, or ten 24 hour days each month, a pump capacity of 126 miners' inches would be required to irrigate the 100 acres.

It is not possible to give "blanket rules" to be followed in irrigating any particular field crop since the soil

conditions, locality, variation of seasons, method of water application, cost of water, and many other factors enter into the problem. Here, as in most other farm operations, horse sense must be used. The farmer must study his irrigation conditions if he hopes to produce crops that return the maximum of profit.

Alfalfa

More water per acre is required for the growing of this crop than most of the other forage or field crops. Alfalfa has been known to wilt on the heavy clay lands of Southern California when 15 per cent of moisture was present in the plants, while on sandy loam soil it will make satisfactory growth with six or seven per cent moisture content.

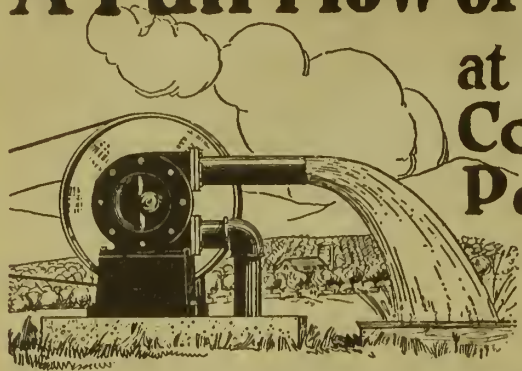
This is accounted for by the character of the plant, the rapidity with which it grows, the number of crops produced during a season and heavy tonnage obtained.

On most of the successful alfalfa ranches of Southern California duty of water for growing alfalfa is around 2½ acre feet for the season. This amount will vary with the condition of the land and the depth to a water table or other natural subirrigation condition present on the field to be irrigated.

Corn

Since a large part of the corn grown

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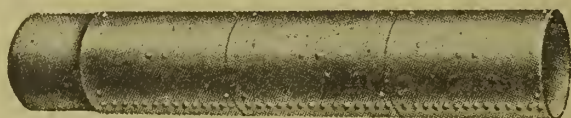
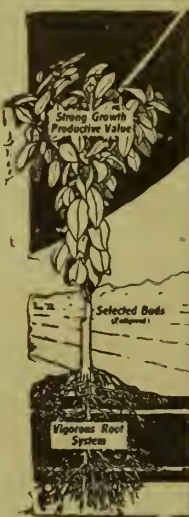
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If the corn planted is for silage use it is well to give frequent irrigations and produce excessive growth of stalks. If the object is the production of corn then the young plants should not receive a large amount of water until they are well along in growth. For this crop about three

good irrigations are sufficient, irrigating the last time about the time the tassels and silks begin to appear.

Irrigating in furrows between the corn rows is better than flooding the whole surface and allowing the water to come in contact with the corn stalks.

In the irrigation of the double crop land and of alfalfa the farmers of California are coming more and more to using the surface pipe method of applying irrigation water, and while this system has its defects it is much superior to the old border and check method.

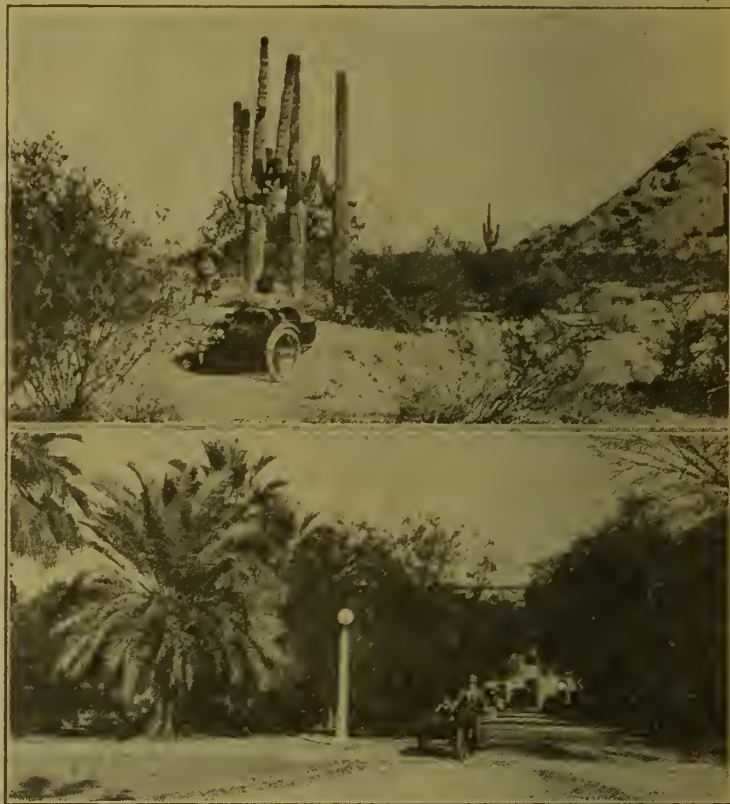
The soil auger for determining the moisture condition of our fields is a necessary tool on the modern farm. The saturation of the surface of the soil means very little to the irrigator unless he knows to what depth the moisture has penetrated.

Irrigation in Arizona: Past, Present and Future

By M. E. Bemis

JUST a few years ago, as we commonly count time, the Indians held undisputed and undisturbed dominion over the country that is now Arizona. The Indian that the early Spanish explorers found knew but little of irrigation. It is true that some prehistoric race, possibly the ancestors of the Indians of today, possibly not, had practiced irrigation on a large

States reclamation projects and one of the most successful. Scattered areas of smaller projects and considerable land supplied by water pumped from wells comprises the balance. Yuma County, with another project of the United States reclamation service, has the second largest area of irrigated land. In Graham County on the upper Gila there has been developed a considerable area of irrigated land, and



Before Taking Water and After Taking Water: Two Arizona Scenes

The desert as it was in Arizona and as it is yet in sections where water has not been applied. The lower scene gives a glimpse at the state capitol. The palms and the trees give an idea of the luxuriance made possible when the desert lands, Arizona climate and irrigation water are combined.

scale, but save for rows of trees and faint traces of their ancient canals there is nothing left to tell us of these ancient people or of their irrigation works which antedated any others in the United States. Present day irrigation is of comparatively recent date. Just a little over a half century ago the settlers in Arizona commenced to lead the water out of the streams to irrigate the desert valleys. It is only with the beginning of the work of the United States reclamation service that irrigation may be said to have been successful.

Arizona has a total area of a little more than 72,000,000 acres. While a considerable portion of this great area is grazed by cattle and sheep, and some is classed as dry farming land, considerably less than 1,000,000 acres are now irrigated. The acreage which is susceptible of irrigation is variously estimated but may be conservatively placed at between 3,000,000 and 5,000,000 acres.

Maricopa County has nearly as much irrigated land as all the rest of the state, the total acreage being something more than 300,000 acres. Of this more than 200,000 acres is under the Roosevelt Dam or the Salt River Project, one of the first of the United

in Pinal County irrigation from wells has been developed to a larger extent than in any other part of the state. In Apache County the state has financed the rebuilding of an irrigation project that will irrigate about 15,000 acres. Small projects in Pima, Santa Cruz, Yavapai, Greenlee and Cochise make up the irrigated land of Arizona.

As proof of what irrigation has meant for Arizona it should be necessary only to state that only one state in the Union increased its population in the decade from 1910 to 1920 as much as 50 per cent and this state was Arizona, with an increase of 63 per cent. Maricopa, the county with the largest irrigated area, increased 159 per cent. Next in rank was Yuma with an increase of 92 per cent in population.

Maricopa County ranks twelfth in the value of crops produced in the list of the fifty leading counties of the United States. During the past ten years the valuation of property in this one county has grown from \$17,800,544 to \$134,265,501; the deposits in banks from \$4,894,550 to \$24,608,275 and the number of farmers from 2,662 to 6,588. There was not a foot of paved streets or roads; now the larger towns have paved streets, and 150 miles of paved

roads throughout the county with as much more to be built in the near future. Schools have been built that are the pride of citizens and the admiration of visitors. This is what irrigation has meant.

Many other projects are contemplated. In Maricopa County a dam has just been completed west of the Salt River project on the Gila River, which will irrigate some 50,000 acres.

A plan is being worked out to utilize the drainage waters from the Salt River project for irrigating several thousand acres additional. Bonds have been authorized for the extension of the Salt River project on the east, by the utilizing of flood waters and the building of a dam on the Salt River above the present diversion dam and below the Roosevelt dam. In addition engineers have completed plans for several dams on the Verde River which will irrigate about 90,000 acres in what is known as Paradise Valley north of the Salt River Valley. In all a total of 400,000 acres is under partially completed or contemplated projects in Maricopa County in addition to the more than 300,000 acres already under irrigation.

Other projects proposed are the San Carlos project on the Gila in Pinal County to irrigate possibly 200,000 acres, the Lotus Valley in Yuma County, the Williamson Valley project in Yavapai County, and last and most important of all a great area of land mostly in Yuma and Maricopa Counties, which may possibly be irrigated from the development of the Colorado.

Irrigation has made great advances within the past ten years, and with land becoming more and more valuable, and with better methods of irrigation, it may well be considered that irrigation is still in its infancy and will not be complete until every stream has been harnessed, storing all waters for use as needed, developing power for pumping from underground sources, and leaving a surplus of power for manufacturing and for transportation of the products of the farms, and for lighting farms and cities. There is wealth in the water that now runs to destructive waste, and riches untold in the soil that can only be unlocked by water.

IRRIGATING THE VEGETABLE GARDEN

By D. F. Reichard

THE garden that gives the best results, other conditions being equal, is the one that gets water in proper quantities. Or it may be put stronger: A garden properly irrigated will give better results than one with other conditions more favorable but with the water supply inadequate. The amount of water applied to a garden is not the all important thing about irrigation. The nature of the soil and the atmosphere must be considered. The way in which the ground is handled after the water is applied is quite as important as the water itself.

Light sandy soil will require more water than heavier soil because it is more porous and does not retain as large a per cent of moisture. It is surprising, however, to note how nicely sandy soil does hold moisture when it is properly cultivated. There are stretches of very sandy soil that hold moisture enough to make good crops of melons or corn without any more moisture than is supplied by the seasonal rains. We can not depend on carrying on a successful garden without a regular supply of water, however. Atmospheric conditions have much to do with the requirements of irrigation. During the hot days of summer there is great evaporation going on all the time, both from the and from the growing plants. Windy weather taxes the stored up moisture even more. It is at these times that the water supply should be well under control so that it may be applied before the plants show signs of distress. A stunted vegetable is like a stunted animal; it is never as good as though it had been pushed right along from the beginning.

When irrigating, do it thoroughly. Soaking the ground to a depth that will reach the lower roots of the garden stuff is essential.

The method of applying water to the garden is a very important consideration. The furrow method is the best. Plant stuff in rows so that it

may be furrowed out to allow the water to flow slowly between the rows. Dirt is thrown up around the plants, preventing the water from getting immediately around them. If water gets immediately around young growing plants it makes the ground bake and harden, causing injury to the plant. Furrowing out prevents this.

the surface will appear to be thoroughly soaked while the roots are in dry ground. This can only be overcome by the use of a sprinkler that has a wide spread and that can be set to run for at least an hour at a time without having the water to run off.

It has been demonstrated that to get the best results thorough cultiva-

tion of having moisture in the soil is that the plant gets its food through the water taken up by the roots. Therefore it is necessary that there be an ample supply of plant food in the soil for the water to dissolve for the plant to assimilate. Rich soils will produce a quarter more on a given amount of moisture than poor soils, and the product will be of much better quality.



Pumping Plant Which Supplies the Municipality of Alhambra

The city of Alhambra has found the Pomona Duplex Plunger Pump entirely dependable in furnishing to that city its water supply. This is one of a system of deep well pumps and is proving economical and efficient. It is manufactured by the Pomona Manufacturing Company, Pomona. One feature of this house which makes for efficiency is an arrangement of the roof which permits opening and a hoist for lifting sections of the pump in case repair is needed.

Where a sprinkler is to be applied, use one that makes a large distribution of the water so that it may be left to run in one place for a considerable time. One is apt to be misled by the sprinkling method because

tion must follow each irrigation. The cultivation, besides killing the weeds, makes a fine surface mulch which retains the moisture from air evaporation.

The reason of the great importance

WATCH YOUR VALVES

The power of a tractor engine is largely dependent upon the good fit and accurate timing of its valves. The valves are put on an internal combustion engine to permit the fuel and air mixture to enter the combustion space in the cylinder, to inclose tightly the burning gases during the power stroke, and to give the burned gases an opportunity to escape on the next stroke. A good fit is essential because the valves must hold the gases within the cylinder under pressure at times, and even a slight leakage may mean a big loss of power. If the valves are not properly timed it is equivalent to permitting a deliberate leak of gases from the cylinder, which again means loss of power.

Valves should be examined at regular periods, and if they are pitted or if they show any indication of leakage, if the seat of the valve is not perfectly bright all the way around, then grinding must be done. On most tractor engines it is difficult to get valve timing out of adjustment so long as the cam shaft retains its relative position or the cam shaft gears are not changed. If by any chance they do become misadjusted, leave their adjustment to a tractor expert, or if it is necessary to adjust them without the aid of such a man, be sure that explicit directions are gotten and followed.—Allis Chalmers Nose Bag.

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Capacity		Outside Dimensions		Shipping Wt. Lbs.	Price	Capacity		Outside Dimensions	
Gals.	Bbls. 42 Gals.	Diameter ft.	Height in.			Gals.	Bbls. 42 Gals.	Diameter ft.	Height in.
500	12	5	5	440	\$ 24.00	10,000	238	13	10 1/2
750	18	5	9	580	30.75	12,000	285	13	10 1/2
1,000	24	6	6	655	35.25	15,000	357	15	6
1,500	36	7	1	830	45.00	20,000	476	17	10
2,000	48	8	1 1/2	975	52.50	25,000	593	18	4
2,500	60	8	4	1,145	60.75	30,000	714	20	2 1/2
3,000	71	9	1 1/2	1,270	69.00	40,000	952	23	0
3,000	71	8	5	1,290	69.00	50,000	1190	24	0
4,000	95	9	10 1/2	1,555	87.00	60,000	1428	26	3
4,000	95	9	2 1/2	1,580	87.00	70,000	1666	28	4
5,000	119	10	11	1,745	98.25	80,000	1904	30	3
5,000	119	10	3 1/2	1,790	98.25	90,000	2142	30	2
6,000	143	11	4	2,010	111.00	100,000	2380	30	0
7,000	166	12	1 1/2	2,160	118.50				
8,000	190	12	3	2,375	130.50				
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Complete instructions for erection accompany each tank. If erected according to these instructions, we will guarantee a water-tight tank.

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Rudiments of Citrus Fertilization

By E. L. Koethen

LIKE all other farm processes, the questions of irrigation and fertilization are inseparably interwoven. An error in one may neutralize the value of the other. To be more specific, should you apply water so freely to the orchard that it would wash the fertility away into the waste ditch the fertilization will fail to be effective. Again, after the application of soluble salts such as sulphate of potash, nitrate of soda, or sulphate of ammonia care should be taken to guard against carrying the salts clear away from the roots in the ground water. It should be remembered that in the case of the nitrate, for instance, it is claimed that all the nitrate not utilized by the trees before the third irrigation after its application is carried away in the ground water, and thus made inaccessible for the tree's use. For this reason it is the custom to apply such fertilizers in small doses at frequent intervals, and then the irrigator should be cautious not to use more water in the flow than will give a good wetting. It may be good practice at times to allow a run off, in order to carry away the accumulating

alkali, but not just at this particular time.

This touches upon what has become to us in California a very serious question, the accumulation of injurious salts in the soil. The recent rains have rendered a signal service in accomplishing this much needed office. We were formerly told not to allow the waste water to flow from the orchards in streams as we often see. But there is another side to this. A happy mean should be maintained between wasteful loss of fertility and the judicious washing of the orchard soil in order to remove an accumulation of injurious salts. In a series of dry years such as have just terminated this becomes a great menace to the orchardist.

After the application of barnyard manure in the growing season it is of course best to get it covered with soil as quickly as possible, and the best way to cover it is by a more or less deep plowing. A disking only partially covers, and for that reason is not nearly so effective. Plowing should be immediately followed by a good irrigation in order to settle the soil and prevent undue drying out. This also

puts the manure applied to immediate use as it causes decay to begin at once, and it is through the process of decay that the manure becomes available.

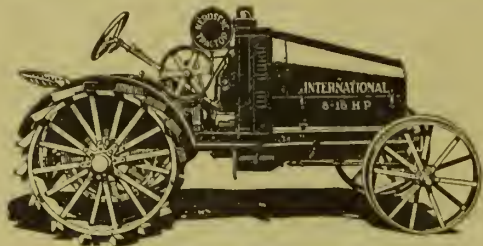
In the case of the application of manure by the more recent furrow system of application, the irrigating furrow should be placed along side the furrow where the manure has been covered so that it may be soaked well with water and put to work.

Some orchardists have tried the experiment of doling the nitrate of soda out into the flume while irrigating, and trusting to this as a means of applying the fertilizer. We do not know that this has been tried out in a really scientific way, and would not recommend it except as an experiment for we orchardists cannot afford to do much experimenting on our own initiative where it involves a radical change in methods, without sound advice from the experiment stations. At random we would warn that several things might be looked for in such an experiment. If the salts are distributed in the water at the beginning of the run it would likely place too much of the fertilizer in the soil at the head of the land; if after the water had been through it might not deposit it evenly as it flows down, but carry too much of it to the lower end of the orchard. In either case an even distribution would not be obtained. For these rea-

sons we would consider it much safer to irrigate first and then while the ground is still quite moist scatter the nitrate of soda, sulphate of ammonia, or sulphate of potash on the ground evenly, and then when dry enough cultivate. This insures an even distribution and gets the salts to work before the next irrigation, the moisture still being sufficient to dissolve it.

There is one more phase of the question not touched on above, that is the relations of soil moisture to fertility.

Moisture is just as essential to proper action in the soil to bring about real fertility as the chemical elements. Without moisture those subtle combinations which the chemist calls nitrification cannot take place. The layman says, "Moisture is necessary for decomposition." This means that the forms in which the plant food is found in the soil must be changed by breaking down the materials into other forms. The phosphorus may be tied up in the original rock from which the soil is made, so also with the potash. Nitrogen may be tied up in insoluble compounds until reduced by decay processes to available nitrogen. For these processes moisture is essential. Then again the soil may be kept so wet that deleterious compounds may be formed instead of available ones. The chemists say denitrification takes place. For these reasons the times for irrigation should be so timed as to obtain a maximum efficiency in the soil processes. The farmer says the soil must be kept friable and not sticky. The shorter time it remains too wet at the time of irrigation the better fertilizer conditions are maintained, providing the soil remains at all times moist and friable.



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WHY do thousands of successful farmers own International 8-16 Tractors and use International equipment with them? Here are plain reasons.

They know:

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5. That these factors are guaranteeing their investments for years of usefulness.

The International 8-16 tractor is a combination of sensible design and high-grade construction with many points of superiority. It has a 4-cylinder valve-in-head engine, with all working parts enclosed; throttle governor; removable cylinder sleeves; high tension magneto; and kerosene carburetor.

Its light weight, snug compactness, ease of control, generous reserve power, economical operation, and general fitness for diversified service has made it highly popular everywhere. Its present price includes all necessary equip-

ment—platform, fenders, governor, adjustable drawbar, belt pulley, etc. In case you require larger power, note that this same equipment is included also with the Titan 10-20 and International 15-30 Tractors.

Be guided by the judgment of thousands of International owners. For belt work now and for drawbar work in the spring, follow their advice. Use International equipment. Remember that both Titan 10-20 and International 8-16 now sell for \$900—lowest prices ever quoted on these tractors with their present equipment.

FIG PRUNING DEMONSTRATIONS IN STANISLAUS COUNTY

Two days of fig pruning demonstrations are staged in Stanislaus County by Farm Adviser Jungerman:

January 24, 10 a. m.—The Erb ranch, one mile north of Waterford, one and three year old Kadotas. 1:30 p. m.—Henry Long ranch, one mile west of Empire, one year Adriatics. 3 p. m.—J. W. Guyler, two miles east of Modesto on Waterford road, one year and full bearing Smyrnas.

January 25, 9 a. m.—Clark ranch, two miles north on Tully road, one, two and full bearing Smyrnas. 10:30 a. m.—Charles Sanders ranch, one mile north on Tully road, Smyrnas. 1:30 p. m.—J. W. Brown ranch, one mile west of Ceres, four year old Smyrnas. 3 p. m.—R. S. Hiatt ranch, across road from Brown farm, one mile west of Ceres, full bearing Smyrnas.

AVOCADO ASSOCIATION TO HAVE LOS ANGELES OFFICE

At a recent meeting of the directors of the California Avocado Association final arrangements were made for the marketing of the avocado crops for the next five years through the American Fruit Growers, Inc., one of the largest fruit and vegetable distributors in the United States, and with facilities for storage, packing and marketing in the principal cities throughout the country. The interests of the association will be looked after by Karl M. Wagner, who will have an office in the warehouse of the American Fruit Growers, 2160 East Seventh street, Los Angeles, and will be there on Mondays and Thursdays to receive fruit and to meet any of the growers who have business to discuss.

Preparations for the annual meeting in May are under way. There will be an experience meeting and several papers of interest to avocado growers, the usual avocado banquet and the annual business meeting. Wilson Pope of the department of agriculture expects to be in California at that time and will tell some of his experiences in hunting out avocados in Central and South America.—R. Agnes McNally, Retiring Secretary.

PRUNE AND APRICOT GROWERS EXPLAIN ASSOCIATION

A state wide campaign to give information about the great California cooperative marketing associations of growers has been launched by the California Prune and Apricot Growers, Inc. It will consist of a series of speaking tours by Dr. F. M. Coleman, formerly a grower, who will address chambers of commerce, commercial and other clubs. Manager Coykendall, in explaining the

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educational work undertaken by the association, said: "Cooperative marketing in California has been more successful than any other place in the world and has brought millions upon millions of dollars in prosperity to the state. The public in general is in sympathy with the work being done by the great California cooperative organizations of growers, but it is woefully ignorant as to how these cooperative associations are formed and how they operate. We are constantly receiving requests from business organizations, colleges and schools and private individuals asking us to explain our organization. Such widespread interest on the part of the public deserves special attention. The present plan of education means we are going to take our story directly to the public instead of waiting for the public to come to us."

EFFECT OF DIFFERENT LININGS ON SEEPAGE FROM IRRIGATION DITCHES

To prevent the seepage obtaining in unlined canals, linings of different materials have been tried. Those used or experimented with are concrete, wood, oils, and clay puddle. From investigations made for the Irrigation Investigations and the California experiment station, and from more recent experience on the efficiency of the different types of linings, the following results can be anticipated:

A good oil lining, constructed with heavy asphalt road oil, applied on the ditch sides and bed at the rate of about three gallons per square yard, will stop 50 to 60 per cent of the seepage.

A well constructed clay puddle lining is as efficient as a good oil lining.

A thin cement mortar lining about one inch thick, made of one part cement to four of sand, will prevent 75 per cent of the seepage.

A first class concrete lining three inches thick, made of one part of cement to two of sand and four of gravel, will stop 95 per cent of the seepage.

A wooden lining, when new, is as efficient as a concrete lining, but after two or three years repairs and maintenance will become an important item, and by the end of eight or ten years it will necessitate complete renewal.

The disadvantages of the cheaper linings are the following: An oil lining stops only a part of the seepage losses, and while it will resist erosion well, it probably will not prevent the growth of weeds for more than one season unless a high velocity is used, and it will not stop the activities of burrowing animals. Oil linings have not been sufficiently tested to determine their durability. Clay puddle will not prevent the burrowing of animals and weeds grow rapidly, especially since the velocity of the water must be small in order to prevent the eroding or washing of the lining.

Advantages of Concrete Lining

A concrete lining has none of the above disadvantages, and it meets the requirements of a good lining better than any other material. The only objection is its higher first cost. But where water is valuable its expense is well justified. In Southern California the use of concrete lining dates from about 1880, when the increasing value of water made it necessary to do away with losses. Since that time practically all canals in that section have been lined with concrete, and in some cases replaced with concrete pipes. Until recently very little concrete lining has been used outside of that region, but during the last few years concrete lined canals have been constructed on many of the projects of the United States reclamation service and on numerous private projects. There are now many examples in California, Oregon, Nevada, Washington, Idaho and other states, and during the past three years some good work has been done in British Columbia.

The feasibility of using concrete linings will depend on the extent and value of water loss and on the necessity for prevention of waterlogging of the land below by seepage water. Other benefits which must be considered are the decreased cost of maintenance and operation and the greater safety. There are no weeds to contend with, no breaks to mend, and consequently the cost of patrolling is largely eliminated. It must also be remembered that a higher velocity

can be given to the water in a concrete lined canal, and a smaller and better form of canal can be used which,

especially on a side hill, will materially decrease the cost of excavation. But even when only the value of the

water loss is considered, it does not require a large loss nor a very high price for water for this annual value to represent the interest and depreciation on a capital sufficient to put in a first class concrete lining.

MILK OF HUMAN KINDNESS STILL UP TO STANDARD

In these days of rush and hurry and thoughtlessness it is good to be able to take note of an instance of good old fashioned kindness and neighborliness such as is reported from a Minnesota community.

A serious accident which befell a farmer, confining him to the hospital for two months, left all his fall work undone. Utterly discouraged, he was astonished one morning at the approach of an army of neighbors, men and women, who took possession of the farm. A parade of men with teams clattered into the corn field. Twelve men, the carpenters of the bunch, set about repairing the buildings. Before the end of the day all the corn had been husked and stored in the newly repaired cribs.

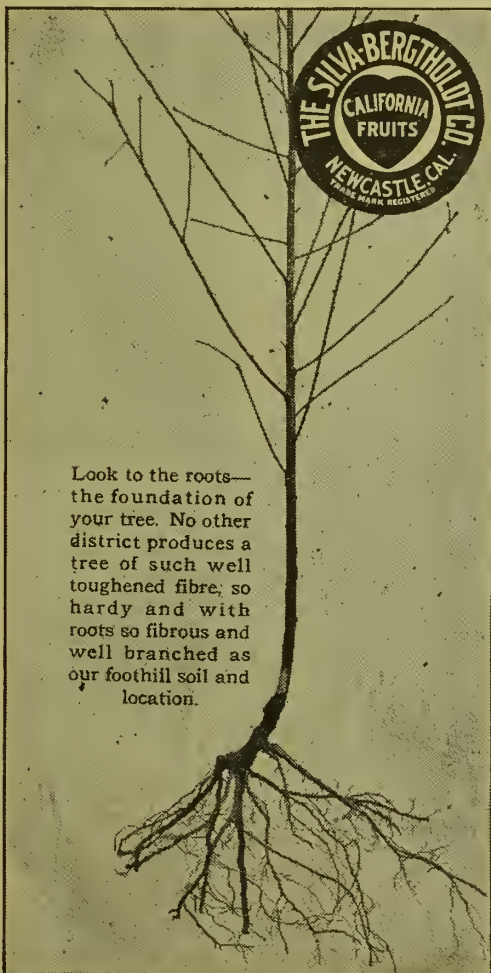
Seven tractors were turned loose in the stubble under the guidance of competent operators, and in a few hours the farmer's worry about his fall plowing was all over.

The feminine contingent cleaned the house from attic to cellar, and from the supply of food brought with them prepared the dinner for the hungry horde of workmen.



Water to Burn—and It's Burning
This is a striking photograph of a stream of water and gas being pumped on the ranch of Henry Norohna near Marysville. The pumping is accomplished by use of eight inch Viking Rotary pump. Water so heavily charged with gas makes a most difficult pumping problem. In this case the gas is so abundant that it was ignited just before the photograph was taken, and the blaze is the most striking feature in the picture. The De Laval Pacific Company are the coast distributors of the Viking.

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Growing fruit is the best paying business in California.

The acid test of any business is not what it will do under favorable conditions, but what it will do under adverse conditions.

Even under this year's depreciated values, the orchardist with a block of **Prunes, Bartlett Pears, Apricots, Cherries, Raisins, Shipping Grapes, Clingstone Peaches, Drying Peaches, Fall Pears, Almonds, Shipping Peaches, Shipping Plums, Canning Plums,** and **Figs** will make more money than the grower of grain, hay, alfalfa, beans, rice or the dairyman.

Every acre of land adapted to fruit growing that you now employ in growing grain, hay and other crops, is too valuable for fruit to be employed as you are now doing.

Every year that you grow these other crops instead of planting your acreage to orchard, represents not only a dead loss in money, but more than that, one year's loss of life's opportunities.

The trees you plant now will, five or six years hence, assure your share in the profits inherent to the California fruit grower.

We offer for your planting the most complete assortment of commercial fruit varieties.

Our trees are the best that care in propagation and efficient workmanship can produce.

Our catalogue, full of accurate practical horticultural information and suggestions, and our thirty years' experience in fruit growing, and fruit marketing, are at your service for the asking.

Submit us a list of your tree wants for quotation while the varieties you desire are still available in our foothill grown stock.

Write me today.

J. E. Bergtholdt
Sec. and Mgr.

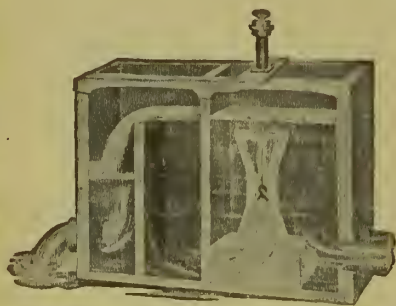
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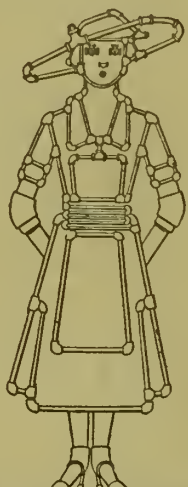
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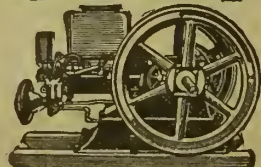
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DEALERS EVERYWHERE

California Crop Report for 1921



IN the annual crop report for 1921 to be issued by the California cooperative crop reporting service early in February, Agricultural Statistician E. E. Kaufman will say:

"The production of California crops in 1921 again failed to measure up to the record year of 1919 or even equal the production of 1920, while the steady decline in the price of farm products shows a very decided decrease in the total value as compared with either of the preceding years.

"The total value of all products of the soil in California for 1921 is \$362,690,000, which is \$126,420,000 less than the total for 1920 and \$198,384,000 less than the total of 1919.

"The acreage harvested of all field crops shows some decrease and the bearing acreage of all fruit crops a

cent higher than in 1919, while in 1921 they decreased from 25 to 30 per cent, compared with 1920.

"The 1920-21 winter rainfall was normal or better in the northern half of the state, but interfered to some extent with plantings, some land being fallowed on this account. Pastures as a rule in this section maintained an excellent condition until late fall. In the southern half of the state the rainfall was well below normal, consequently pastures were very poor. The hay crop, except where irrigated, was light and the acreage of grain curtailed.

"Killing frosts in April and the first few days of May damaged all fruits, except citrus, and were particularly severe on the grape crop. Temperatures were high the last of June and through July, but averaged near nor-



Typical Citrus Grove Pumping Plant

This installation was by Layne & Bowler and is on the C. J. Johnson ranch near Piru in Ventura County.

slight increase. The tonnage of both field and fruit crops decreased from the tonnage produced in either 1920 or 1919. The total acreage of all field crops harvested in 1921 was 5,194,149, compared with 5,689,573 in 1920, and 5,875,609 in 1919.

Expressed in the unit measure of tons, the production of all field crops in 1921 amounted to 8,132,243, as compared with 8,282,526 tons in 1920, and 8,134,749 tons in 1919. The total farm value to the grower of field crops in 1921 was \$162,202,000, as compared with \$235,558,000 in 1920, and \$298,146,000 in 1919.

The total production of all fruit crops in 1921 was approximately 2,416,950 tons, valued to the grower at \$181,488,000. In 1920 the fruit crop production was approximately 2,617,963 tons, valued at \$232,557,000; and in 1919 the production amounted to 2,635,070 tons with a record value of \$241,628,000.

"Shipments of cantaloupes in 1921 were 13,163 cars compared with 13,147 cars in 1920 and 12,010 cars in 1919. Shipments of other vegetables totalled 26,923 cars in 1921, compared with 24,563 cars in 1920 and 20,071 cars in 1919. The value to the grower of cantaloupes and vegetables shipped, canned and trucked to market was approximately \$19,000,000 in 1921; \$21,000,000 in 1920, and \$21,300,000 in 1919.

"The farm labor supply in 1921 was more than sufficient, and notwithstanding the fact that wages were greatly reduced, was more efficient than in any year since 1916. In 1920 farm wages were from 15 to 19 per

mal for the balance of the season. A late rain in May damaged the grain hay crop and injured pastures, and a heavy north wind on July 4 damaged fruit in the Sacramento valley, especially pears. Conditions at harvest were generally good, the rice and bean growers being favored with ideal harvest weather.

"The 1921 production and the value on the farm on December 1, or at time of harvest, for the various field and fruit crops are as follows:

Crop:	Production	Farm Value
Corn	4,060,000 bus.	\$3,126,000
Oats	3,780,000 "	1,928,000
Barley	29,700,000 "	16,632,000
Wheat	8,355,000 "	8,940,000
Potatoes:		
Irish	10,064,000 "	13,083,000
Sweet	960,000 "	1,200,000
Rice	5,880,000 "	6,762,000
Hay, tame....	5,003,000 tons	55,033,000
Hay, wild....	184,000 "	1,288,000
Hops	14,220,000 lbs.	3,555,000
Beans (all)...	3,618,000 bus.	10,130,000
Cotton lint...	35,280,000 lbs.	6,350,000
Cotton seed..	41,000 tons	533,000
Kafirs	4,340,000 bus.	3,038,000
Sugar beets	1,025,000 tons	8,016,000
Onions	2,098,500 "	3,588,000
Cantaloupes..	13,163 cars	5,100,000
Vegetables...	26,923 "	13,900,000
Apples	6,500,000 bus.	8,775,000
Peaches	320,000 tons	13,440,000
Pears	78,000 "	4,875,000
Prunes	90,000 "	11,700,000
Apricots	105,000 "	5,250,000
Oranges	22,500,000 boxes	49,500,000
Lemons	5,300,000 "	13,250,000
Raisins	130,000 tons	24,700,000
Grapes:		
Wine	310,000 "	25,420,000

Table	125,000	"	9,375,000
Cherries	13,000	"	1,625,000
Plums	40,000	"	2,120,000
Olives	8,200	"	738,000
Figs	8,000	"	1,160,000
Almonds	5,500	"	1,760,000
Walnuts	19,500	"	7,800,000
Total value all crops, 1921..\$362,690,000			
Total value all crops, 1920.. 489,110,000			
Total value all crops, 1919.. 561,074,000			

Stop the Floods, Save the Water,
Use the Power

(Continued from Page 59.)

the conflicting interests, the aim should be the reconciliation of these conflicting interests for common action based upon the great fact that all these various interests can be properly served because the mighty Colorado under the God of Nature and by man's conserving hand can supply water enough and to spare for all the agricultural lands of the vast Valley of the Colorado. And incidentally the river as it waters these lands will generate power and to spare for farm and city for a radius of hundreds of miles both east and west of the great stream. For a dozen great reservoirs will eventually impound the waters of this American Nile, creating irrigation, flood control and power all the way.

"The reclamation policies of this United States of America shall be revived and carried on; that though interrupted by the great war the reclamation policies of him who by his mighty arm built the Panama Canal, who by that same mighty arm initiated the great reclamation policies, specially for the seven states of the Southwest, which region he knew in its needs and loved; that this mighty work shall be revived and carried on to the upbuilding of this Empire of the Southwest; that as we will not forget him, so we will not suffer to lag or to die the great policies and good works of Theodore Roosevelt.

"And we do call upon President Harding and his cabinet and upon the congress of the United States immediately to revive and carry on the great Rooseveltian reclamation policies.

WALNUT GROWERS INSTITUTE

The Walnut Growers Institute, held at the high school auditorium at Santa Ana Friday of last week, brought together more than 400 representative walnut growers. This was the fourth annual institute and was called to order by W. M. Belding, president of the Orange County farm bureau. Six counties with a membership representing 85,000 acres of walnuts answered the roll call. Cultural and scientific questions of interest to the walnut growers were discussed by Messrs. Hodgson, Barrett, Fawcett, Newman, Quayle, Kellogg and Batchelor. W. S. Rosecrans, president of the Los Angeles County farm bureau, asked and answered the question, "Is the American Farmer Awake?"

EUROPEAN AGRICULTURAL CONDITIONS

The past year was the driest European agriculture has known for a century or more, says a cable from Alfred P. Dennis in London to the Department of Commerce. Subsoil moisture is still low in Germany, France, northern Italy and England. Sowings of winter grain were retarded by dryness of soil and unseasonable cold in November. There is a marked falling off of sowings in Austria, Rumania, northern Italy and France. The shortage may possibly be offset in the latter country by spring seeding. Acreage of other countries is fully maintained or increased, with favorable growing conditions throughout December. Intensive efforts being made to increase food production, particularly in Belgium, Germany, Denmark, Poland and Czechoslovakia, indicate that Europe is fast pulling up to pre-war production. A striking revival of the Danish pork products industry means sharpened competition with similar American products in British markets. Government control of foodstuffs is impending in Rumania. There is an embargo on grain export from Hungary and Yugoslavia. Bread subsidies are to be cut down in Austria after January 8. Rising prices in countries of inflated currency follow the suspension of bread subsidies, tending in turn to restrict consumption and stimulate production. Europe is returning to pre-war production faster than to pre-war consumption. Import demands are limited by reduced consumption and sheer inability to finance requirements abroad. Requirements in Italy, Austria and Germany, and in a lesser degree in Belgium, France and Greece, will become acute with the exhaustion of home supplies in the spring. The question of finance will largely determine the source of imported supplies. The pressure of the new Argentine crop is also a determinative influence. The demand for American grain, especially in central Europe, will tend to slacken unless extraordinary credit facilities are afforded importing countries by the United States.

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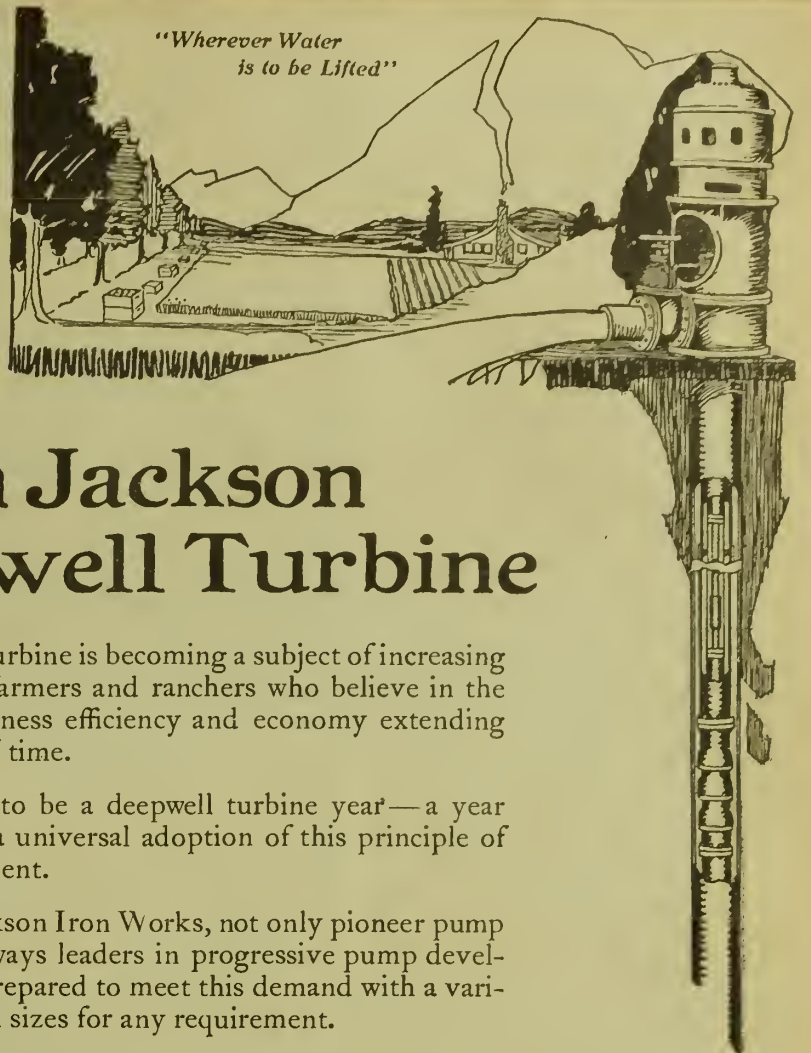
The deepwell turbine is becoming a subject of increasing importance to farmers and ranchers who believe in the practice of business efficiency and economy extending over a period of time.

This promises to be a deepwell turbine year—a year that will mark a universal adoption of this principle of water development.

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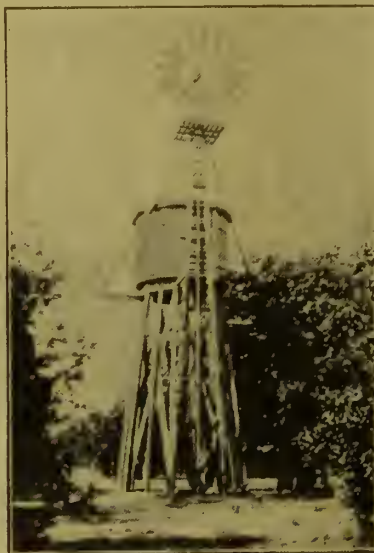
MAY it please the Court of Public Opinion, and especially those members of the court who dwell along the lower reaches of the Santa Ana River in the principality of Southern California, I am an orange grower. My local habitation and orchard is (I purposely use the singular verb for the two) on the elevated East Highlands mesa, high above all canals taking water from the Santa Ana River or from the Bear Valley system. I am a hundred feet above all possibility of flood damage from the Santa Ana or any other mountain stream. The water I use for irrigating 60 acres of orchard is pumped from a gravel filled depression in a prehistoric earthquake crack, the so-called San Andreas rift. This great crack, the longest continuous fault in the known world, can be traced all the way from the Imperial Valley in the south to Point Arena on the northern California coast. It takes its name from the fact that it was first noticed and studied in the San Andreas Valley just south of San Francisco. In 1857 a fresh slip along this ancient crack extending northwestward from Cajon Pass, in San Bernardino County, through Elizabeth Lake to and beyond Tejon Pass caused an earthquake which shook all Southern California; and it was a similar fresh slip along a more northerly section which resulted in the San Francisco disaster of 1906. The entire East Highlands mesa was uplifted at the time of the original crack, which may have occurred a hundred thousand years ago, the vertical displacement where the line crosses my own place being over 200 feet, as evidenced by the logs of various wells. The uplift being on the downhill side, it resulted in the formation of a long and narrow valley or channel along the south base of the San Bernardino mountains into which all the various

mountain streams debouched, the gravel and boulders washed down gradually filling this channel while the water flowed over the uplifted southern rim wherever it found a low notch. Now many centuries were required to fill this narrow channel to such a level that the streams were able to flow directly across it and again use their former channels below it. But this ancient rift, paralleling the base of the mountains and underlying all their present streams at right angles, still exists as a deep gravel filled reservoir, high above the general level of the Santa Ana after it has left the San Bernardino mountains. Doubtless this reservoir still receives a portion of its water from these streams as they flow above and across it; but it is believed that a major portion of its supply is from veins in the bedrock discharging directly into the crack at great and varying depths. Nothing can be done within the Santa Ana watershed that would affect in any way the water in this reservoir, from which I and a half dozen neighboring irrigators derive a supply. I have gone thus into the details of a rather interesting situation chiefly for the purpose of proving to the aforesaid court that I am a disinterested spectator from the standpoints of irrigation and flood menace and am therefore not disqualified to discuss the problems of the Santa Ana River, a subject of interest at the present moment because of the recent heavy rains and the resulting damage from overflow in its lower basins.

But while not directly interested in the waters of the Santa Ana, I am still interested in its development and control, because anything which affects the purse of the California Southland as a whole indirectly affects mine. It is for this reason that I now appear at the bar to plead for the utmost possible conservation of water along, and especially at the head-

waters of every stream, including the Santa Ana River.

It is a matter of public knowledge that the Santa Ana has its source in the San Bernardino and Sierra Madre mountains, draining a vast area, a portion at least of which seems almost to belong to the Mojave Desert. So precipitous are these mountains that there are no natural lakes within their confines and only a few places where lakes can be formed by the construction of dams. Because the Creator seemingly was in doubt as to whether the region directly north of



The Windmill Proves Efficient

This is an eight foot aeromotor windmill mounted on 36 foot tower with 3,000 gallon tank on 18 foot tank stand. This is standard unit for domestic service. This plant is on the Callette estate at Montebello. The Shaw-Palmer-Bakewell Company reports many such installations.

Mt. San Bernardino should drain to the north or to the south Bear Valley was left almost level, with the result that the erection of a dam only 70 feet in height made a reservoir seven miles in length, capable of holding the normal precipitation on nearly 80 square miles of watershed.

In the upper Santa Ana canyon, between Bear Lake and Mt. San Bernardino, is the Filaree Flats reservoir site, absolutely the only other place within the Santa Ana watershed where it is possible by the construction of a dam to impound an appreciable amount of water. This site is controlled by the Bear Valley Mutual Water Company, an organization which, as its name suggests, is composed of the people who own and use the water impounded in Bear Lake. It is estimated that a dam at this point 180 feet high and costing \$250,000 would impound enough water to equal a continuous flow of 600 miner's inches for six months. Although there has been no litigation in the matter it is known that no dam has been built here because the people along the lower reaches of the Santa Ana have threatened injunction proceedings, not against the building of the dam, but against the impounding of water behind it if it were built. They have taken the position that the water which would be thus restrained should flow down naturally and sink in the underground basins of the lower river in order that irrigators who pump from those basins may not be deprived of their accustomed yield. It has been contended that the water-level in this lower region should be permitted to rise until water appears at a certain point before the gates of any new reservoir above shall be closed.

At first glance this appears to be a natural and perfectly proper demand. On second thought, and in the language of Sir Roger de Coverly, "much might be said on both sides." Because my own observations, and data which I have, show it to be illogical I purpose saying something on the other side. Again falling into the phraseology of the bar, I expect to prove that if all the water which falls on the mountains within the Santa Ana watershed were impounded and used for irrigating lands within its successive basins from the foothills to the sea there would be more water for the constructive use of everyone in summer time and less to wreak destruction in winter.

Those who attended the recent convention of the League of the Southwest at Riverside, where every phase of the use and control of the Colorado River was discussed, will recall an exceedingly interesting address by R. E. Caldwell, state engineer of Utah, in which he pleaded for the utmost possible conservation and use of the water of mountain streams in their upper reaches. Mr. Caldwell recounted his experiences and observations along the Sevier River in Utah, where a succession of dams and reservoirs has been constructed to impound water for irrigation. This series of dams had its beginning on the headwaters of the stream. When the Piute reservoir, downstream from the Otter Creek reservoir, was begun, people asked where the water was to come from to fill it; and it is a matter of record that, 30 years ago, affidavits were made by many people that they had frequently camped in the dry bed of the river below the reservoir site. To day this same Piute reservoir, holding 100,000 acre feet, is providing water for the irrigation of 40,000 acres of land below it; and the Sevier River bridge reservoir, still farther down the same stream, impounds 250,000 acre feet and irrigates 125,000 acres. No streams of any consequence enter the Sevier River between the two reservoirs mentioned; and yet, in its habitually dry channel of 30 years ago there is now flowing a large stream during every season of the year. It is estimated that 70 per cent of the water entering the lower reservoir return flow from the irrigation lands in the upper portion of its own basin. In a letter received from Mr. Caldwell last week he says: "Last year the two reservoirs were filled at some water was carried over for next season."

Here, surely, is evidence worthy the attention of the people along the lower Santa Ana. Mr. Caldwell says nothing about flood control on the Sevier River—that problem of form years seems to have been forgotten during the recent years of good behavior and beneficent service of the river under control. I am not pleading that it is possible to master the Santa Ana as completely as the Sevier seems to have been. The Santa Ana

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in its total length of perhaps 100 miles falls more than 10,000 feet. The Sevier probably falls less than that in its 475 miles. But I am pleading that, with the astonishing record of the Sevier as an indication of what may be expected in the way of return flow, no time be lost in utilizing to the utmost every opportunity for retarding the mad rush of the Santa Ana to the sea.

H. H. Garstin, president of the Bear Valley Mutual Water Company, happens to be a member of the Tri-Counties Reforestation Committee, and in that capacity he has frequently proposed to the people of the lower Santa Ana region that they build the Filaree Flats dam merely as a flood preventive measure, releasing the impounding water as soon after heavy rains as it may safely be done, in other words, to use it in the same way that Devil's Gate dam at Pasadena is to be used. I believe, however, that if the impounding water of Filaree Flats reservoir were spread by irrigation over lands in the San Bernardino and Riverside valleys the resulting increase of water in late summer in the lower reaches of the Santa Ana would be worth the cost of the dam. But the people of the lower reaches need not build the dam. It is understood that there are power interests ready to do that in return for the potential power to be developed thereby. It is stated that the city of Redlands at one time contemplated building the dam in order to develop a water supply for municipal use, it being understood that the right to impound and use the water for domestic purposes could not be called in question by irrigators below. It seems that such a solution would be admirable, because, while forestalling litigation, the water, in the form of sewage, would be returned to the underground channels of the river just as effectively as if used for irrigation. It should be understood that there is no underground channel or avenue of escape to the ocean for the waters of the Santa Ana except through its lower canyon in Orange County. In half a dozen places between this gorge and the point where it emerges from the mountains in San Bernardino County all the water in the stream is taken out and used; and yet, as in the case of the Utah River, it somehow gets back into its channel in large volume.

It is safe to say that no irrigator near the coast would wish to have the stream taken into a conduit before it leaves the mountains and discharged, undiminished by irrigation, just above the lower canyon. On the contrary, the Orange County irrigators have for several years contributed to a fund for spreading and sinking several thousand inches each springtime in the gravel beds near Redlands. It may be said that the whole theory of water conservation in Southern California may be summed up in the slogan, "Retard the runoff." That, in a word, is the service performed by the timber and brush on the mountains and foothills. Any agency which restrains for a time the return of the rainfall to the sea may be likened to a savings bank, while the water companies and irrigators may be likened to the commercial banks. I have yet to hear a commercial banker object to the establishment of another savings bank—for the commercial banker knows that, while the savings bank encourages thrift and prevents dissipation of wealth, it also stands ready to yield its accumulated cash to commerce whenever the need for it actually arrives.

I am constrained to believe that it will be wise to deposit during the winter season the maximum possible amount of water in the Savings Bank of Filaree Flats Reservoir and to check it out and redeposit it in the Savings Bank of the San Bernardino and Riverside Fruit and Farmlands; for it will certainly find its way during the trying days of late summer into the great underground channel of the lower canyon, increasing the flow just as has been done in the Sevier River in Utah. A considerable sum has been expended in Southern California in the construction of check dams, so-called, to retard the runoff of storm water and to stabilize the supply for irrigation. I plead that every available catchment basin in the mountains and foothills be converted into reservoirs and that the irrigable lands below them be used as check dams and stabilizers.

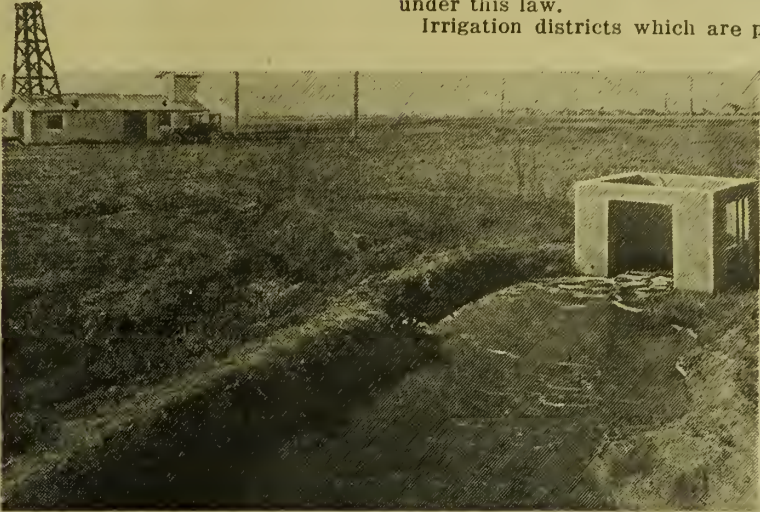
TYPES OF IRRIGATION ENTERPRISES

The types of irrigation enterprises are:

U. S. reclamation service, operating under federal law of June 17, 1902, providing for construction of irrigation works with receipts from sale of public lands.

U. S. Indian service enterprises which operate under various acts of congress for the irrigation of land in Indian reservations.
Carey act enterprises, operating under federal law of August 18, 1894, granting to states in arid regions a million acres of land on condition that the state provide its irrigation. No land in California reported as irrigated under this law.
Irrigation districts which are public

corporations operating under state laws. These districts are empowered to issue bonds, to levy and collect taxes which may be used for construction and operation.
Cooperative enterprises, controlled by water users under organized form of cooperation. This may be a stock company with stock owned by users or membership corporation, one vote per member.
Commercial enterprises which supply water for a consideration to land owners who have no interest in the work.
Individual and partnership enterprises which belong to the individual farmer or to a group of neighboring farmers who control and operate without any formal organization.



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American Well and Prospecting Company installation on the ranch of the Montana Ranch Company near Long Beach, Los Angeles County. This pump is known as the Johnston Turbine Pump.

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Is well drilled?.....
If so, what diameter?.....
Depth of well?.....Depth to water?.....
How much water desired?.....
How much does water lower?.....
Is water to be lifted above ground level?.....
Want belt or direct motor drive?.....
How many acres?.....
What crops raised?.....
NAME
ADDRESS
CITY..... STATE.....

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Hardy Avocado

I have become interested in avocados by reading articles in the Cultivator. I have a seedling three years old and doing well enough for the care it gets. The frost nipped the tip end of the top about a quarter of an inch this year. I would like to know which of the budded varieties would be the hardest in Fresno County. The seedling came from a local nursery. Would you advise me to send there for a budded avocado? What month

only? With Gyp corn what fertilizer is best? I have seen planters advertised with fertilizing attachment. Where it is put in furrow or drilled in with the seed, is this a success?—Subscriber, Denair.

We think the only fertilizer which would be of value this late would be a complete commercial fertilizer drilled in at time seed is planted. There are many drills fitted for drilling fertilizer with seed. As to vines, fertilization of the whole surface would probably be the best way for the spread of roots is almost equal to the tops and a small quantity of fertilizer applied in "hill" would have little effect. As to Gyp corn, and in fact these other crops, we believe best



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A 12 inch Krogh pumping plant installed for Walter K. Brown near Salinas. It is pumping from four wells all connected from the one pump and throwing 4,500 gallons per minute.

would be the best to set it out?—Subscriber, Fresno.

Fuerte is the hardest of the large fruited class in as much as it is a hybrid. It will no doubt better withstand the dry summer heat of the valleys, which lacks sufficient humidity for the pure Guatemalans. We would advise sending to the nursery you name for a Fuerte. If you so wish after a year or two of growth you may take buds or grafts from the Fuerte with which to top work your seedling.

results would be secured by crop rotation and building up fertility of the soil by growing alfalfa or other leguminous crops at least one year out of each three or four.

Whitewashing Deferring Blossoming

Was reading an article in the Cultivator in regard to whitewash retarding blossoming. Would like to know if it is too late for doing this. If not, how would one mix the whitewash, or would it be sufficient just to use lime

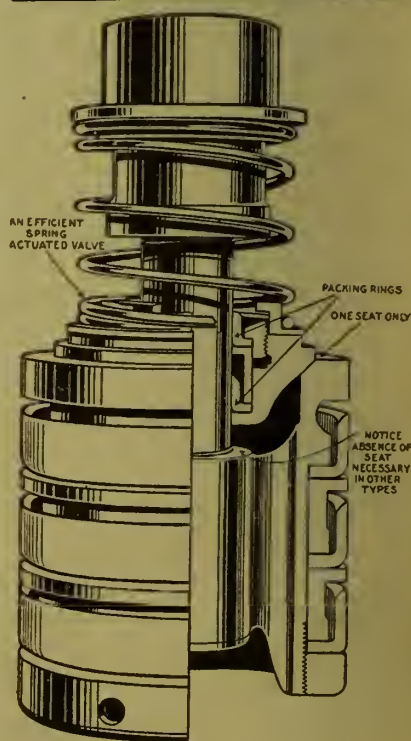
Planting Zinfandels

I intend planting out a vineyard, Zinfandel wine grapes mostly. Would like to know what one could expect from planting cuttings on good red hill soil with good cultivation and no expectation of rain after May first? How and when should cuttings be planted? Would a person gain by waiting a year and rooting cuttings? What is the best method of rooting cuttings? What portions of the cane should one use for cuttings and how long should cuttings be? Are stakes needed the first year?—Subscriber, Lakeport.

You should not expect good results from the use of cuttings under conditions you describe unless the soil retains moisture exceptionally well. Our advice would be for you to grow cuttings in the nursery row where they can be properly cultivated and, if necessary, irrigated. You will probably have difficulty enough getting a good stand of rooted vines under the conditions you mentioned, consequently you should make every effort to grow good, strong, vigorous rootings. Cuttings are made from sections of the cane, and that part of it nearest the base is preferable, making only one cutting from a cane. It is possible when the vines have made a vigorous growth to make more than this, but if you are looking for the best results make only the one. Cuttings should be approximately 16 inches in length and staking will not be required in the nursery or during the first growing season in the vineyard.—F. K. H.

Fertilizer for Oats

What fertilizer would be best for wheat or oats, and when should it be applied? For watermelons and cantaloupes, what kind would be best, and when and how applied? Watermelons are planted ten or 12 feet apart. Will it do as well to fertilize in the hills

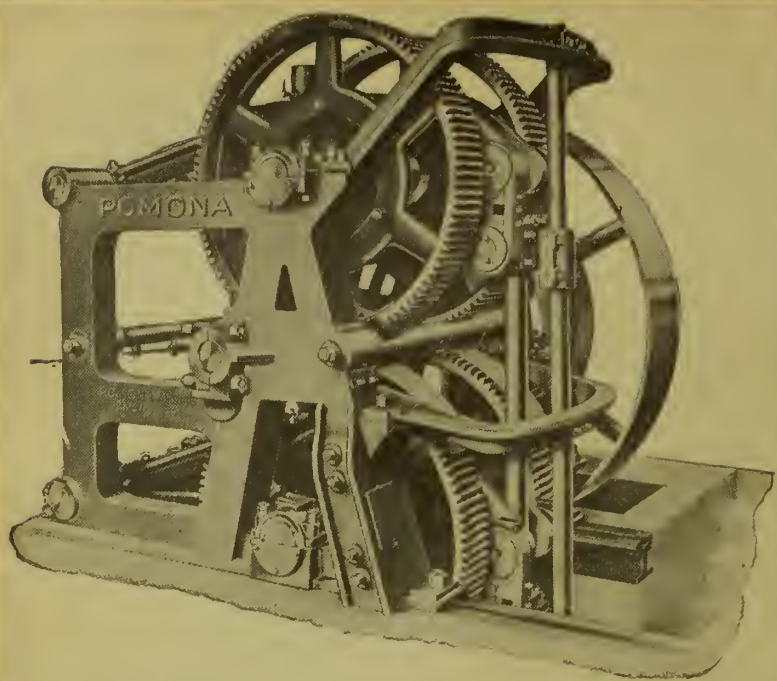


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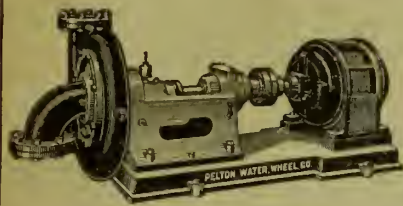
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HYDRAULIC ENGINEERS

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and water? Also would like to know how long the whitewashing will delay blossoming.—Subscriber, Durham.

There has not been sufficient experimental work along this line to give any very definite information as to results in California. In fact, we have seen denial of the claim that there is any material difference in blossoming period. We would urge trial, however, with a report as to behavior of trees. In any case the difference would be slight.

June Drop

I noticed an article in your January 7, 1922, issue on Scale—June Drop. I do not believe June drop is caused by scale, but by thrips and a fungus that works around the apex of the little oranges. The scale probably helps this along by keeping the tree in a weak, unhealthy condition.

My orchard was in very bad condition, covered with scale this last year. I sprayed the latter part of April thoroughly. The trees were in full bloom. I believe this killed the thrips and fungus, but not the scale, although it probably annoyed them some. About May 5 I examined the trees and found a large per cent of the scale were hatching out. I sprayed again in July, with lime and sulphur, this while the scale were young and tender. That sure got the larger proportion of them. I had some June drop, but nothing to compare with orchards around me that did not spray in the bloom.

I had a fairly good crop of oranges and of good sizes. The truck men said they were the best all around that they had hauled to the packing house. Lime and sulphur is good for the trees and I believe it is the only spray that will kill citricola scale.

Our season is earlier here than in Southern California, so you will have to keep the difference in climate conditions in mind. Hoping this will be of some benefit to your readers, I will gladly answer any personal letters.—H. C. Reynolds, Porterville.

Registration of Pure Bred Hog

Is registration of pure bred hogs denied after they are six months of age?—Subscriber, San Jacinto.

No. The best information in this matter is had from your own breed association, to whom one should write for blanks.

Capacity of Pipe

How much water in miners inches will a 6 inch pipe (inside measure) carry under 12 inch pressure, also under 24 inch pressure? Pipe line has 8 inch fall to 100 feet.—Subscriber, Hemet.

Six inch cement pipe as usually put together in lines for irrigation will carry 7½ miners inches under 12 inch pressure and 10¼ miners inches under 24 inch pressure. This is assuming 9 gallons per minute for one miners inch. If the pipes have been smoothly whitewashed with cement and the joints carefully smoothed the pipes will carry 8 to 10 per cent more water.—J. B. N.

Twin Calves

I have two fine twin heifer calves. Is it advisable to raise twin calves?—Subscriber, Oakdale.

We certainly would raise the calves, that is if they are from fine stock. We think there is no question about their breeding qualities. Where the heifer is twin with a bull, however, it has been a common belief that both may be sterile. This we have heard vigorously denied by some who say that they have seen some of the best cows ever from a heifer twin with bull.

Planting Two Year Olds

Can peach and apricot trees planted out last spring be taken up and replanted without cutting back? I want to use the long pruning system.—Subscriber.

No. We would prefer to cut back and think better growth would be secured. But in any case greatest care should be used in resetting peach or apricot trees which have been set in orchard form during the past year. As a matter of fact nurserymen will not sell nor use for planting trees which have had more than one year's growth in the nursery row. Also we think the slight cost should not stand in the way of purchasing new nursery trees. We would not attempt to move those which are older and at first thought might appear to give better growth.

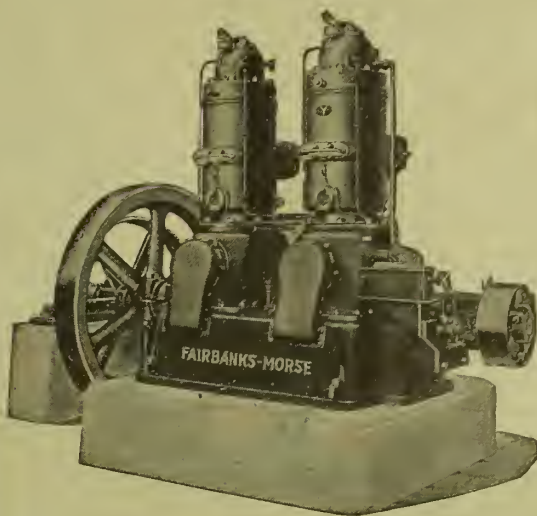
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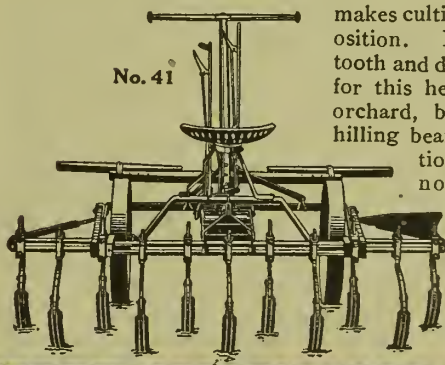
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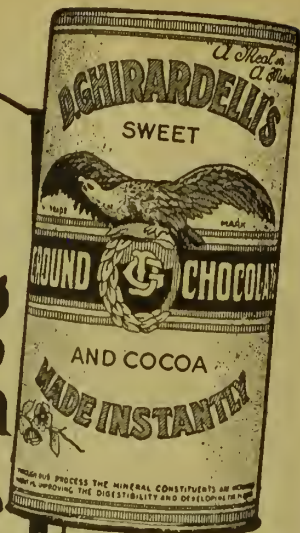
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It's wanting something just ahead,
And striving hard to come to it,
That brightens every road we tread.

That man is old before his time
Who is supremely satisfied
And does not want some hill to climb
Or something life has still denied.

The want of poverty is grim,
It has a harsh and cruel sting,
But fill the cup up to the brim
And that's a far more hopeless thing.

A man must want from day to day,
Must want to reach a distant goal
Or claim some treasure far away,
For want's the builder of the soul.

He who has ceased to want has dropped
The working tools of life and stands
Much like an old-time clock that's stopped
While time is mouldering his hands.

I'm truly sorry for the man,
Though he be millionaire or king,
Who does not hold some cherished plan
And says he does not want a thing.

Want is the spur that drives us on
And oft its praises should be sung,
For man is old when want is gone,
It's what we want that keeps us young.
Edgar A. Guest.

LOVE AND HONEY

By Ethlyn V. Corsline



HE road was dusty and so was everything within the swaying old vehicle that served as a twice a week stage between the railroad and the scattered ranches back in the mountains. The four rangy horses strained up one hill and rattled down the other only to begin the ascent of a still steeper one. But beneath her dusty traveling suit Alla Dale's heart kept singing. She was going home! Not her veriest own home, she told herself for she had never even seen it, but Uncle Price Monroe was her nearest of kin and he too was all alone. It was early spring and the grass grew green and thick where the chaparral and oak thickets gave it a chance, lupins and poppies waved to her as they passed and tiny yellow faced johnny-jump-ups peeped through the grasses; and still the old stage lumbered on.

The sun was disappearing behind the next hill when the horses were finally brought to a standstill.

"This here's Old Man Monroe's mail box," stated the driver. "I reckon he didn't expect you none for he ain't here to get your boxes. You'd better leave 'em here till morning and you just follow that trail and you'll run right inter his front door."

This seemed good advice and Alla stumbled to the ground trying vainly to find her two feet which seemed to have been misplaced somewhere along her long ride.

She saw her trunk and two boxes dumped unceremoniously beside the post which bore a tattered, rusty square oil can on which was lettered "U. S. Mail. Price Monroe," then turned and followed the narrow trail that wound in and out among trees and brush.

A few minutes walk brought her within sight of a low cabin half hidden among the trees. It was built entirely of trunks of tall straight pines. A great stone chimney at one end promised an open fireplace within while from the opposite end protruded a long length of stove pipe from which smoke was now curling. The door stood open and on the threshold a motherly looking red hen stood clucking lustily to a brood of yellow chicks scattered over the stone steps below.

"Here you, get out of here and go roost in the barn where you belong," came a voice from within, backed up by a "shooing" and footsteps directed downward.

The figure that appeared at the opening stopped short when Alla's laughing voice broke in: "The barn indeed, a pretty place to tell your niece to roost after she has been jolted and dusted and starved all day."

The welcome she received then, left no doubt in her mind as to her uncle's state of mind.

"Lord, but it's good to see ye, Honey," he exclaimed, when he lifted her off her feet in a bearish embrace.

"Why I can lift ye as easy as when you used to run to meet me and rumage through my coat for winter-greens." "Well, I'm a very much grown up young lady, if you please

now, Uncle Price," she assured him as she removed her dust laden hat that disclosed to view a crown of crinkly golden brown hair.

"Moreover I am famished. Did I smell ham?"

Her uncle opened the door at the far end of the livingroom as he answered: "Tain't often I have company, but this is the spare room. Just throw your little bunnit and coat in there and come outside and wash up. Supper's ready in a minute now."

The room was bare with the exception of a little cot, a chair and a chest of drawers. Alla hastened outside and made a hasty toilet with the aid of a wash basin of water from the spring which bubbled up less than ten feet below the house and tinkled away between willow hung banks.

Price Monroe watched her approvingly as she picked up a piece of comb which lay on a narrow cleat beneath the broken piece of mirror tacked to the outside of the house. She looked rather doubtful for a second for several very important teeth of this toilet article were missing.

"I don't keep that here for myself," he chuckled. "Sakes alive, I ain't had any hair to comb for ten years now. I keep it handy tho' for Ralph when he runs in for a bite."

"Ralph?" she queried lightly as she re-entered the kitchen, "a neighbor of ours?" "Yes, our closest, and a mighty fine young fellow, too. He lives about six miles west of here. Here you take this bench, Alla, I ain't any too sure of the hind leg of that chair."

The meal was spread upon a red oil cloth and the dishes were heavy and despite their sturdiness showed the nicks and cracks of a long bachelor reign. But Alla thought she had never eaten such biscuits and gravy or such delicately flavored ham. A plate containing a square amber colored comb of honey was the crowning treat.

"Is this some of your own gathering, Uncle," she asked.

She knew her Uncle's pet hobby was his bees, in fact they were practically his sole source of income during the summer months. They roamed the hills covered with wild sage and brought him their dripping golden treasure. In the winter he hunted and trapped and already Alla had noticed several beautiful skins upon the walls of the living room and thrown upon the couch before the fireplace.

The following morning the traveller awoke to find herself in a new world. The light that filtered into the little square window at the foot of her bed seemed to have taken on the color of the leaves that screened the opening as it sifted through. The whole outer world was a concert hall full of bird song and from the kitchen came the snapping and crackling of a brisk wood fire. Dressing hastily she slipped through the door unseen and followed the little brook toward a cut in the hills. When she came in to breakfast her arms were full of poppies and her cheeks glowed.

"You won't mind, Uncle, will you, if I fix the old cabin over a little?" she coaxed when they had finished the meal, "and I have such splendid ideas for the yard outside."

"You can go as far as you like so long as you let me and the bees alone," he conceded.

"Well, you run along and play with your bees then, while I do the housework, but please bring me my trunk before you start."

When it arrived Alla removed from the top tray a dainty lavender house dress which she had purchased for the express purpose of keeping house. She felt very business like when she was thus attired and attacked the livingroom with broom and mop. The floor looked so bare she decided that at least two of the big bear skins on the wall would be serving to more advantage as rugs. She pushed the heavy home made table from a dark corner to the center of the room and placed her big bowl of poppies thereon. Next she emerged from one of her boxes with a bright colored Indian blanket which she threw over the couch and used another pelt from the wall (a fox this time) to cover the missing rungs in the back of the rocking chair.

When she had finished the place had taken on that homey air that a man

alone is never given though he strive with all his heart. Moreover there were four blisters on a pink palm and a thousand aches in a stiff young back. But Uncle Price's pleasure in the reconstruction paid for all and she planned still further.

"Is there any one around here I can get to spade up some flower beds," she asked the next day.

"I'd be glad to do it for you Honey, but I'm off for all day today and I don't know just when I will find the time but I'll stop in at Jeff Barnes and send him up for you. He's big and strong as an ox but just plain shiftless. Still I guess you can get him to work if anyone can."

He saddled a horse and galloped off up the canyon leaving Alla busy planning her work. About an hour later steps sounded on the path leading to the house. She stepped to the door to confront an impressive figure of masculinity. Standing upon the stone step a foot below the threshold as he did, she found as she opened the door that his clear dark gray eyes were on a level with her own. An olive gray wool shirt was open at the throat and a pair of high laced boots came to his knees. He seemed to stare at her for a second, then fumbling helplessly, reached for his hat. He removed it and still seemed unable to regain his wits. Alla stook the situation in hand at once.

"Good morning," she smiled. "You are very prompt, aren't you, which suits me exactly this morning. Just come with me and I will get you the shovel and show you what I want spaded."

The young man opened his mouth once or twice to speak, seemed to think better of it and followed meekly behind his determined leader.

"Now, right here on this side of the house there is to be a border three feet wide the full length. That is for hollyhocks behind and smaller flowers in front. By the spring here I intend to start a rockery with the crevices filled with ferns. I want all these rocks (pointing casually over a considerable area) gathered and banked about the sides of this hollow. The twisted trunk of that cottonwood is a natural rustic bench but I want boughs placed in such a manner as to form a back. Do you think you can get it all done today?"

"I don't know, ma'am, but I can start anyway."

His voice sounded low and pleasant and Alla found herself noticing that it seemed to blend in perfect harmony with the other sounds of the forest whereas her own always had the effect of something alien.

They worked together the whole sunshiny morning. Her companion had a naive way of explaining the various bird songs that they heard and he seemed versed in all the lore and legends of the country. Time and again she wondered at her Uncle's tone of contempt when he had spoken of Jeff Barnes. This man had no trace of shiftlessness about him and he seemed in every way a gentleman born and bred. At noon they stopped long enough for her to run into the house and bring out biscuits and meat, a pitcher of milk and a plate of ginger bread. They ate by the spring and planned the rockery as they feasted.

So diligent had they been that by four o'clock everything was done that could be until the seeds and slips arrived that she would send for. As he was about to mount his horse Alla appeared with a dainty little silver mounted purse.

(Continued next week)

HINTS FROM HOUSEKEEPERS

Corn Meal

Corn meal cooked thoroughly and poured in loaf pan to cool may be used in many ways beside the one so common of frying for breakfast. We often slice, put in colander or on buttered pans, slide in moderate oven and brown like toast. This with generous supply of butter is splendid for breakfast or supper.

Also I cut the cold meal in cubes about three-fourths inch, add to creamed tuna, chipped beef, etc., instead of toast. It is delicious with creamed lobster or lobster Newburg. —Subscriber, Los Angeles.

Curing Olives Without Lye

When I came to this state 25 years

ago I thought an olive was the bitterest, most detestable thing on earth, but now I often eat one or two right off the tree. By persistent practice in eating them I now prefer olives above any other fruit. To cure them I slit them with a knife on three sides and soak them in pure water without using any lye. I never soak the bitterness all out because I prefer them a little bitter. The vat or pan of water they are soaked in should not be over six inches deep and should be set out in the sun where the direct rays can shine into it. It is the sun that takes the bitterness out. This bitterness of the olive will stop headache, toothache, neuralgia, asthma, cancer, constipation, piles, diarrhoea and many other ailments. The water should be warmed up by the sun every day to change the rotary action. The water should not be changed at all.—C. W. Dayton, Owensmouth.

For Wide Sleeved Coats

The new wide sleeved coats sometimes let the hands and arms get very cold. To prevent this set in a little sleeve, merely a straight piece like the lining, tacked to the sleeve lining at the elbow and gathered on an elastic at the other end where it will slip easily over the wrist.—F. K.

Sunshine Cake

In the last Cultivator there was a request for sunshine cake recipe. Here are two which I find very good:

Yolks of 5 eggs and whites of 7 eggs, 1 cup sugar, 2/3 cup flour, 1/3 teaspoon cream of tartar. Beat whites to a froth and add cream of tartar and beat till stiff. Add sugar gradually, then beat yolks till thick and then add flour a little at a time. Bake about 45 minutes.

No. 2—Beat yolks of 4 eggs until stiff and add gradually 1 cup sugar, beating well, then 3 tablespoons cold water and 1 teaspoon lemon extract or lemon juice. Next mix 1 1/2 tablespoons cornstarch with 1 teaspoon baking powder and 1 scant cup sifted flour. Add these ingredients slowly to the above mixture and lastly fold in the stiffly beaten whites of 4 eggs. —Mrs. J. C. Dames, Fresno.

Carrots and Beets

Perhaps a little suggestion for your table department might be acceptable. When nuts are not to be had for cake or puddings, salads or desserts chopped raw carrots take the place very nicely and supply a nutty flavor, not using too much. May be used in hot or cold dishes. I use it in puddings, cake and gelatines and for garnishing.

I also use grated baked beets. To develop the sugar in beets let the beet become frosted until soft, then bake it. If large, cut in half, turning cut side down. Will be good several days. —Mrs. Jack Filby, Rohnerville.

Uses for Lemons

I was much interested in many uses given for lemons in a late issue of the Cultivator. I would like to add a few more.

For sore throat lemon juice slightly diluted with water as a gargle. For small children a little in a teaspoon or medicine dropper.

For corns bind a piece of lemon on affected part over night.

For bilious or bloated stomach, sour stomach, bad breath, put lemon juice and a piece of rind in a teacup, pour boiling water on it and drink as sour and hot as you can.

For sprained ankle or other sprains first rub gently with a piece of lemon, then lay slices of lemon on cloth, sprinkle with salt and bind on affected parts.

Lemon juice and glycerine, equal parts, makes an excellent hand and face lotion for whitening and softening the skin.

A fourth of a teacup lemon juice and hot water given each morning to children will cure the bad breath so many children have on first arising.

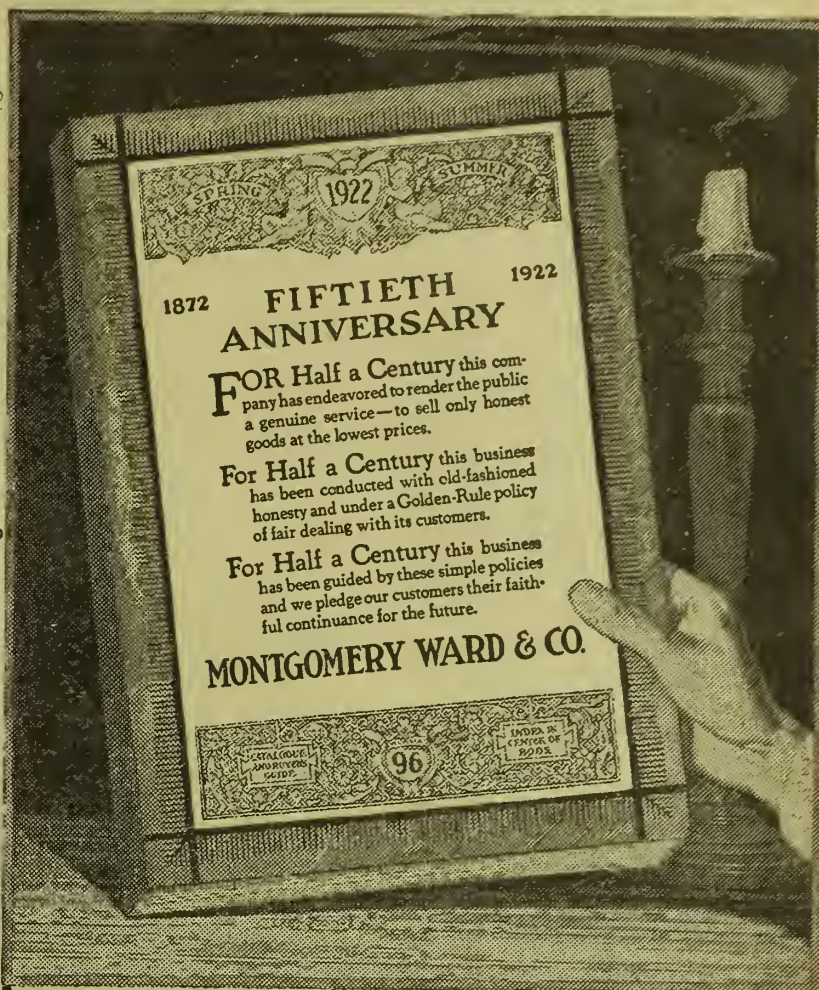
Lemon juice and salt frequently applied will remove from clothing iron rust, mildew, ink stains and some kinds of fruit stains.

Lemon juice and sugar will often relieve hoarseness.

Lemon juice and water will relieve sunburn and tan. —Mrs. F. M. Hubbell, Woodland.

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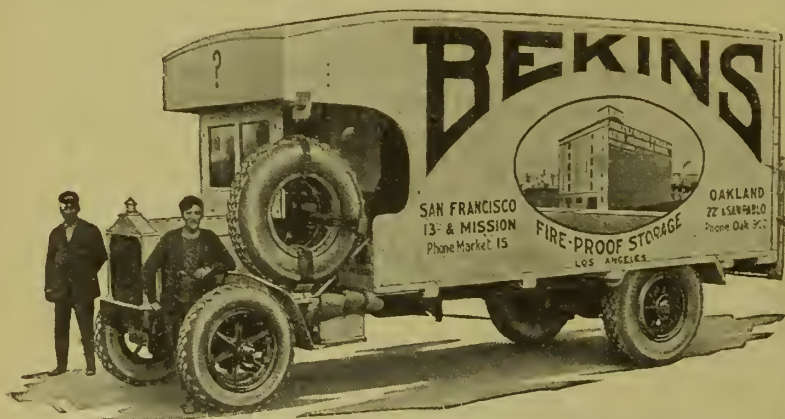


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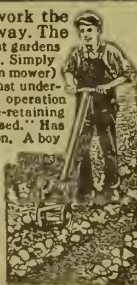
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Irrigating the Home Garden



THIS is an irrigation issue. Every department, orchard, vegetable garden, livestock, poultry, this week discusses the necessity and the problems of irrigation. Now is the time for the household department as well to put on its thinking cap and plan for the summer's irrigation needs.

First of all, the home flower beds and the kitchen garden need to be plowed or dug deeply and if necessary leveled so that there will be as little labor as possible in keeping plants growing at their best during the hot days. Permanent ditches are very satisfactory where the housekeeper is also the home gardener and has little time or strength for the outside work.

If you have water under pressure all the time available the watering of the garden with hose and sprinkler may be counted as one of the pleasures and relaxations of the day rather than an added burden.

Mulching of the individual plants and rows of vegetables, berries or roses will retain moisture, keep down weeds and save the labor of cultivating after each irrigation. The ordinary weed growth cut from the garden, wild oats, etc., makes excellent surface mulch. Leaf mold from the canyons or oak groves is the best possible and the half rotted material from the trash heap is always available.

Orchardists depend upon the soil auger to bore down in the ground and find just exactly how far the water has penetrated. It is a curious fact that many gardeners—sometimes not alone the inexperienced—do not realize the fact that the plant has roots which extend one or two or four or more feet beneath it and spread one or two or four or more feet around the stalk, and that those roots must not only be fed but given ample drafts of water. A muddy spot around the stalk of a plant doesn't indicate that the roots one or two or four or more feet beneath it and around it are also thoroughly wet. It pays to get acquainted with your plants, branch and root. Make sure by actual seeing that they are neither over nor undersupplied with water.

Look Over Irrigation Supplies

If the hose is leaking it can be mended, or if it is too far gone, replaced. Hose menders are very cheap and easily handled. Don't wait for George to do it; just get a sharp knife, a pair of pliers, some canvas gloves and wire, and go to it—get acquainted with the hose. A good hose in many short sections is a wonderful back saver and crop grower. If your 50 foot or 100 foot length of hose is too heavy for you to manage, get new couplings and cut it up into 25 foot pieces or less. This will double the life of the hose by saving dragging over the ground. Another thing: It may look shiftless to leave a good hose lying out in the garden instead of neatly coiled on spindle in the shed, but often it means actual economy of time and strength to leave it just where it will be needed next time. One can always manage to draw it under the shade of a tree or the house so it will not blister in the sun. But even the price of a new hose is less than that of an injured back or what is so apt to happen—neglected plants, not watered when dying of thirst because the hose was too heavy to carry to them.

Speaking of short length hose, do you know that you may now purchase two-way and three-way couplings with sprinkler in the center, thus allowing a number of sprinklers to be operated from one hydrant. Think of the time saved in watering the lawn by this method. The underground piping with outlets for sprinklers through the lawn is the ideal method, of course, but not always available because of initial cost. There are many types of sprinklers and it pays to have several adapted to use in different locations; a circular spray is not the thing to use in a corner, for instance; there are others which shoot the water straight in front and may be approached dry shod from the rear.

Where water is drained from the kitchen sink or tubs, a number of short sections and elbows of movable surface pipe are a great convenience, as is also collapsible canvas hose.

When the home garden must depend for irrigation on the regular ditch run it is all the more imperative that the ground be properly leveled now before planting in order to insure a thorough irrigation of all parts. In this case also, mulching will be found to conserve moisture until the next run.

The suggestions regarding the use of hose are made because many California farm homes are supplied with "running water" or water under pressure. No section of the world is so favorably situated as is California. Where the "system" is not installed by a neighborhood and operated under cooperation the farmer should provide it through the erection of a tank or other pressure system. It is due to the housewife that this convenience be given for use inside the home; it is due to all in the farm home because of the lawns, the vegetable and the ornamental gardens which are made possible.

Notice Mr. Reichard's hints on irrigation of the vegetable garden. All the directions there given are true gospel in the home garden. Then in the first issue of each month, as you know, the Cultivator gives, with its planting calendar, directions for seasonal work at that particular time. Hunt up the Cultivator for January 7 and read the garden articles, then watch for the issue of February 4 which will continue the story.

APPLE SAUCE CAKE

A delicious way to fix up apples which will appeal to the family. Use 1 cup granulated sugar, 1 cup apple sauce (4 apples), one-half teaspoon cinnamon, allspice and cloves, one-half cup shortening, 1 egg, 1 teaspoon soda, one-half cup nuts, one-half cup raisins, one and three-fourths cup flour. Cream butter and add sugar and apple sauce. Mix spices with soda and flour. Add raisins and nuts floured to first mixture, then add dry ingredients.

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A Word About Sorghums

By H. L. Musser

SORGHUMS generally are of two classes, the saccharine and the non-saccharine. The former are so named because they have a large per cent of sugar; the latter are referred to as grain sorghums because the grain they produce is used for feeding livestock and is listed on the feed market along with other grain. While saccharine sorghums produce a grain it is not offered as food for livestock and is listed in the commercial world as seed for seed purposes only.

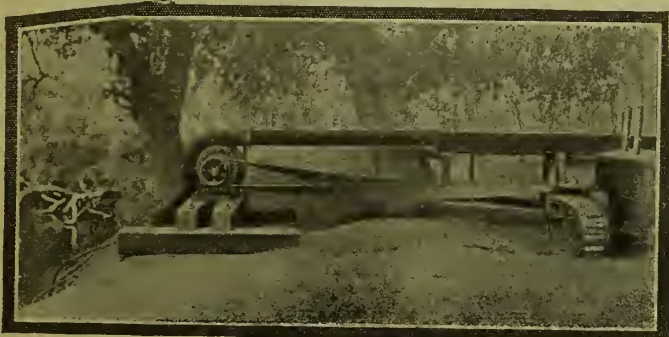
The saccharine sorghums are largely grown for the syrup obtained by boiling the sap pressed out of the canes, but more largely for soiling; and since the silo has become of general use they are grown more extensively for silage than for any other purpose. They are seldom put into a silo without corn or some other roughage that contains less sap and no sugar, for the reason that when sweet sorghum is used alone it is liable to excessive fermentation.

Non-saccharine sorghums are more satisfactory for the silo because of the abundance of rich grain that is allowed

and the time and manner of cultivation must be governed by soil and climatic conditions, especially the former.

The tonnage of saccharine sorghums for silage varies according to soil and culture, but 30 tons per acre has been obtained while 15 tons is a high average. Honey sorghum has been pronounced by experts the most desirable for silage. We would say there is no best, for half a dozen growers all having different varieties each would claim he has the best. Of the non-saccharine or grain sorghums, tonnage refers to the amount of grain produced. While there are records of enormous production of each and every variety, practical experience covering a long period of years settles down to the fact that dwarf milo will out-yield in production of grain under either adverse or favorable conditions any other variety, having a record of 8120 pounds of grain from an acre. Two thousand pounds per acre is a fair yield.

If you want green feed for soiling we know that Amber cane is very good from the standpoint of repeated cutting and continuous growth. We



A Pumping Plant At Fresno

A Pelton, Type B, four inch centrifugal pump connected up with a Yuba 30 tractor. This plant is lifting water from the Sacramento River for a Sutter County orchard.

to mature before it is cut for the silo and because the stalks are very palatable to stock when it comes from the silo, especially where it has been siloed together with the saccharine sorghums. H. Alexander of Holtville, who is feeding silage of Dwarf milo, states that his dairy cows are giving as much milk as some neighboring cows which feed upon silage of sweet sorghum. He says also that he changed his feed from sweet sorghum to milo without any noticeable decrease in the quantity of milk and his cows are in excellent condition.

There is another class of sorghums known as sorghum grasses, of which Johnson grass is a well known member, but there are many hybrids, and since the introduction of Sudan grass these hybrids showed up in many places and in just as many different characteristics. One of these hybrids was first cultivated by Mr. Benedict of Riverside and later offered by a local seed house under the name of "The Wonder Forage Plant." This has all the characteristics of Amber sorghum with a habit of stooling equal to Sudan grass. It also has a high sugar content but not equal to that of sugar cane. It is truly a wonderful forage plant.

Cultivation

All sorghums require about the same culture, i.e., drill the seed to fall about six inches apart in rows three or four and one-half feet apart. Medium to heavy loam is preferable, but with extra irrigation a normal crop may be grown on a sandy soil, and with intelligent cultivation, together with ample moisture, an enormous tonnage may be grown on clay or adobe soil.

Where the soil is sandy planting may be advisable during April but only after the soil has become sufficiently warm. If the soil is clay or adobe do not attempt to plant earlier than June and then only after the soil has been thoroughly and deeply pulverized.

It is generally conceded that sorghums generally respond well to dry farming. It is also an established fact that a plentiful supply of water intelligently applied, together with proper and timely cultivation, will vastly increase the tonnage per acre. The amount of water, the time to apply,

are not prepared to say that it is the best of the regular sorghums, but we can say from actual demonstration that the Wonder Forage plant greatly exceeds all other sorghums. From the standpoint of soiling it is beyond all comparison, unless it be compared with Napier or Elephant grass under proper culture.

Hardiness

If you would have early feed, your field of sorghum, no matter which variety you have, may be protected so that the crowns will survive the freezing point by allowing a growth of a foot or more to stand over the winter. When danger of frost is over allow the cattle to pasture the roughage, then give the crowns a chance to grow, and you will have early feed. We demonstrated this point with 11 varieties. Five were saccharine, five were non-saccharine, the other, the Wonder Forage Plant. There was little or no apparent difference in their hardiness. Mrs. McConnell of Lankershim gave us the information that there was not a month during the winter that they did not pasture their Wonder Forage. Although it frosted frequently, with a few warm days it would grow several inches. It never stopped growing. The McConnell field has withstood three summers, two winters, and at this writing it is in the third winter and still growing. It was cut twice each summer and freely pastured when not growing a crop.

Poison

The only case of sorghum poisoning that has come positively to our attention during a period of 25 years happened in Imperial Valley when some cattle broke into a field of milo about six inches high. Therefore, it is dangerous to pasture fresh green sorghum, but the University of California in a circular edited by C. M. Haring gives this precaution: "If it becomes necessary to pasture stock on sorghums which are suspected to be in the dangerous stage, the crop had better be cut and dried before being fed to stock, or it may be made into silage. Forage is not likely to prove dangerous when grown with an ample supply of moisture. No losses have been recorded." (Continued on Page 87.)

Something New in Deep Well Turbines



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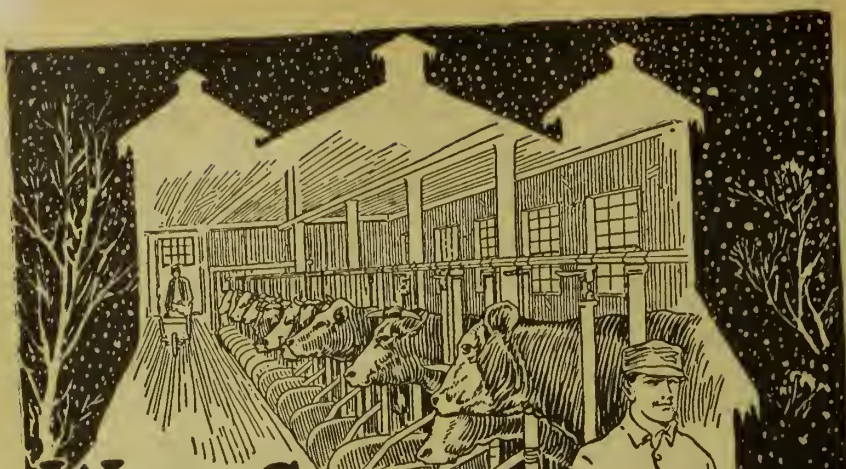
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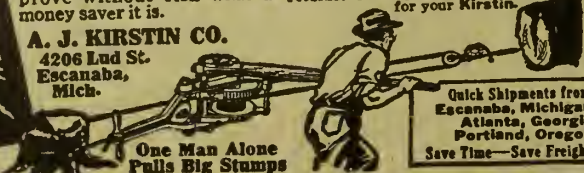
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Relation of Irrigation to Livestock Production

By R. P. Royce



WHILE the practice of irrigation has been a prime factor in the development of the livestock industry of California, the further development and more economical and efficient utilization of our water resources holds out possibilities of such tremendous importance and proportions as to be but matters for conjecture. The further development of the state as a livestock center will be measured largely by the extension of irrigation practice.

Broadly, the ideal livestock country is one possessing an equable climate and a fertile soil, making possible the growing of a wide variety of feed crops and the uninterrupted growth of animals. Such conditions are present in this state to a greater degree than elsewhere. No country on the face of the globe can boast of more fertile soils and better climatic conditions than prevail in this state. The one limiting factor in our approach to the ideal is the problem of water and fortunately that problem has been and will be solved as conditions warrant.

With water it is possible in this state to have such a succession of crops growing as to provide green feed every month in the year along with maximum yields. The advantage such feed conditions give the California rancher over producers in less favored sections is as obvious as it is important and should enable our ranchers to produce a pound of pork or beef or mutton or butterfat cheaper than their contemporaries of the corn belt and East—and be sure that economy of production is going to cut a larger figure in the future than in the past.

The complaint most frequently heard regarding livestock production under irrigation is that the industry does not pay on high priced land. Doubtless there is some basis for such a feeling on the part of many ranchers, but is it not possible that in the majority of cases the complainant is expecting rather too much? Too often ranchers have made heavy investment in irrigated lands with the idea of engaging in some branch of animal husbandry and for the purpose of their operations have installed a class of livestock no better than used years ago on land rated at a tenth of their present holdings. Under such conditions it is natural that they reach the conclusion expressed above. The very fact that irrigated lands have a high value only serves to make necessary the adoption of more efficient livestock. Then, too, a lot of California livestock producers owning irrigated land have failed to make the most of the opportunities water has given them. They do not keep their fields working hard enough. With ample water there should be slight reason for much land on any ranch remaining idle for any length of time—certainly not if any appreciable profit is expected. Efficient irrigation practice should result in maximum acre production and maximum acre production will sooner or later necessitate rotation of crops and the addition of plant food in the form of fertilizers. With the growing of a diversity of crops it will be found that they can be more efficiently marketed through good livestock with the added advantage of securing the necessary fertilizer to maintain production.

Wider diversification of crops is highly important from a livestock standpoint. Too many irrigated ranches are given over solely to alfalfa production, and as a consequence alfalfa is the sole feed reliance. Now, of course, alfalfa is a valuable feed and should always be regarded as the basic crop on any livestock ranch, but no single feed, not even alfalfa, will give the best results when fed exclusively as is commonly practiced in this state. Under average conditions, and certainly with dairy cows of better quality, less alfalfa and more silage will result in more economical production.

In irrigated sections the production of crops suitable for the silo is so easy and the value of silage in the ration so well established that it is difficult to understand why more of our livestock producers do not avail themselves of the opportunity for cheapening their feed costs. Aside from making possible heavy production of alfalfa the chief value of irrigation

to the livestock men of California lies in the wide variety of heavy yielding silage crops possible through irrigation.

The list of crops well adapted to the silo is extensive, but for practical purposes Indian corn, the sorghums, Egyptian corn, milo, feterita will probably remain the standbys, and the choice will depend upon local conditions covering soil, amount of available water and planting season.

Silage is fed principally in the winter and there is a growing tendency to utilize more or less silage as a summer feed. This practice is to be especially recommended where no pasture is available during the summer. The one weak spot in livestock production in most sections of California is the lack of green feed during the summer. After the fall rains and well into the spring most sections afford green grass, and if a satisfactory plan for filling in those months can be worked out California will come mighty close to approaching the ideal.

So far all too little investigation has been carried on in this state looking to solve this problem. Where alfalfa is available the matter is quite satisfactorily taken care of, but there is a real need for developing more grasses and forage plants suitable for pasture. This need is especially acute in the foothill sections where irrigation is more difficult or impractical under present conditions. Several comparatively new plants appear to hold much promise. Sudan grass, an annual yielding a heavy tonnage under average conditions, is winning many friends. The new annual sweet clover, Hubam, is regarded as having wonderful possibilities. Both these crops with but little irrigation can be utilized as pasture or soiling crops. Other grasses, such as Napier, Rhodes, Smilo, Harding, are still untried in a large way. Several of these grasses have proven quite drought resistant and doubtless under irrigation will prove quite satisfactory.

Another form of feed made possible by irrigation but not generally used by our livestock men is root crops. Roots when properly handled do well in most sections, yielding 10 to 50 tons per acre. Roots require a rather heavy expenditure of labor, and where silage is grown successfully it is a question whether extensive root production is profitable. Roots furnish a succulent feed in the fall and winter and even if silage is fed add considerable value to a ration by reason of their palatability. In general practice early planting, February and March, gives the best results. Mangels are the heaviest yielding roots and are more generally used. Yields above 50 tons per acre are not uncommon.

Next to the mangels the sugar beet furnishes satisfactory yields. If roots are put in late, following a grain crop, the turnip is most satisfactory.

The future relation of livestock development to irrigation appears to be quite clear. It is not so much a question of these two agricultural activities being incompatible by reason of the high investment in land as it is a question of adjusting the two. Under irrigation our lands must be made to produce more in order to realize on the investment, and this increased production necessitates a wide use of livestock—but mark this: the sort of livestock used must be a more efficient type than is now found on our average irrigated ranch.

There is no question but that the bulk of California dairying will continue to be carried on on irrigated farms. Under such conditions the economy of feed production is such that dairying can be maintained at satisfactory profit. It is also certain that the raising of hogs will undergo extension. With abundant cheap protein forage in the form of alfalfa, suggested wider uses of other forage and grain crops, the hog as an adjunct to the dairy industry fits in most satisfactorily.

Beef cattle production presents somewhat different problem. Because of the vast range area represented the foothills and mountains it is doubtful if beef cattle production, that the growing of market cattle, will be taken up very soon by owners of irrigated farms. However, it is likely

that as the demand for better cattle develops many irrigated sections will assume importance as finishing grounds for stock produced on the range, and at the same time it is certain that the majority of our breeding herds of registered beef cattle will be located in the valleys.

Quite the same is true of the sheep industry.

SOUTHERN CALIFORNIA PURE-BRED ASSOCIATION

The Southern California Purebred Livestock Association, organized some two or three years ago, is taking on renewed activity. This association is organized to promote the breeding, sale, exhibition and protection of purebred livestock, and in these objects to use every lawful ways and means

for the benefit and advantage of the breeders of purebred livestock.

Probably its most important activity so far has been the effort for more efficient methods in exhibiting purebreds at the state and other fairs. It will now work along the same lines and in addition look after interests of the purebred whether it be horses, cattle, hogs or sheep.

The affairs of the association are in the hands of a board of directors, each breed being represented by one director. In other words, it is a representative organization, each breed association electing its one director to the board. The board in turn elects an executive committee of five which has charge of the activities of the association. Mr. Michaels of Santa Monica is president and W. W. Van Pelt of Riverside, secretary.

The "Pitiable" Plight of the Farmer?

By Howard Vaughn, Mountain View Farm, Dixon

DURING the past six months the press has repeatedly called attention to the "pitiable plight" of the farmer. He was the first to feel the effects of the readjustment in business which was the inevitable aftermath of war conditions. The farmers of the East and Middle West were considered especially unfortunate by the writers in most papers.

In view of all that has been said and written along this line it has been particularly interesting to me to spend a few weeks in Missouri, Iowa and Illinois, talking with farmers and bankers and attending sales of pure bred cattle, horses and hogs.

It is true that prices for grain crops are lower than for ten years past. This, however, is the inevitable result of a decided overproduction caused by the war. When corn was \$2 per bushel many an Iowa and Missouri farm was put to raising corn almost exclusively. Many a good old bluegrass pasture was overturned that corn might take the place of livestock as its contribution to the wealth of its owner. This general policy, continued for two years after the armistice, has left the Middle West "grain poor" and with a decidedly subnormal supply of livestock. It is an actual fact that the working margin between the price of grain and livestock has never in the past ten years been so favorable to the farmer as it is right now. The "pitiable" thing is not the cheapness of grain; it is rather the shortsightedness of the average farmer in allowing himself to get short on the livestock which will market the grain to so good an advantage.

The inflation of land values in the East during the war has added to the seriousness of the situation for some farmers because at the reduced prices of products it is difficult to pay taxes or rents. This condition is also due to the fact that the majority of farmers must sell grain because they cannot feed stock.

During the war there was a general policy among breeders of pure bred stock of boosting prices and giving notes indiscriminately for their purchases. Many an ordinary cow was sold at \$1,500 to \$4,000, a mark far beyond her capacity to produce in calves. Sales of brood sows averaged over \$600, and in some of them I absolutely know that there was not enough cash exchanged to pay the sale expenses. These conditions, and not present prices, constitute the really "pitiable" plight of the farmer in the Middle West.

But all farmers did not follow such a shortsighted policy. As a class the farmers are far from being broke today. Some, indeed, have become bankrupt and some others undoubtedly will follow in the near future. These, however, are only the extreme plungers, and the fact that these are farmers who went through the war period in every locality to their financial advantage shows that it has been the policy of the man and not the condition of the times that is mostly to blame. The soaring prices for grain and the opportunity for speculation in pure bred livestock proved too great a temptation for many a farmer, and farming became a "game to be played" instead of a legitimate business to be eco-

nomically and carefully pursued, which is its rightful basis.

Sufficient evidence of the stability of farming and livestock business in this country is the outcome of recent public sales. Fifty Shorthorn calves in Wisconsin two weeks ago averaged \$812. Fifty-five Shorthorns in Chicago averaged \$660. Forty Angus cattle made \$360. Some 35 Clydesdale horses averaged over \$600. In southern Iowa, in the heart of the "pitiable" district, a herd of Shorthorn cattle, over 90 head in all, including big and little, good, bad and indifferent, and in rather thin condition, averaged better than \$280. At an ordinary farm sale in central Iowa grade Shorthorn cows made better than \$100 average.

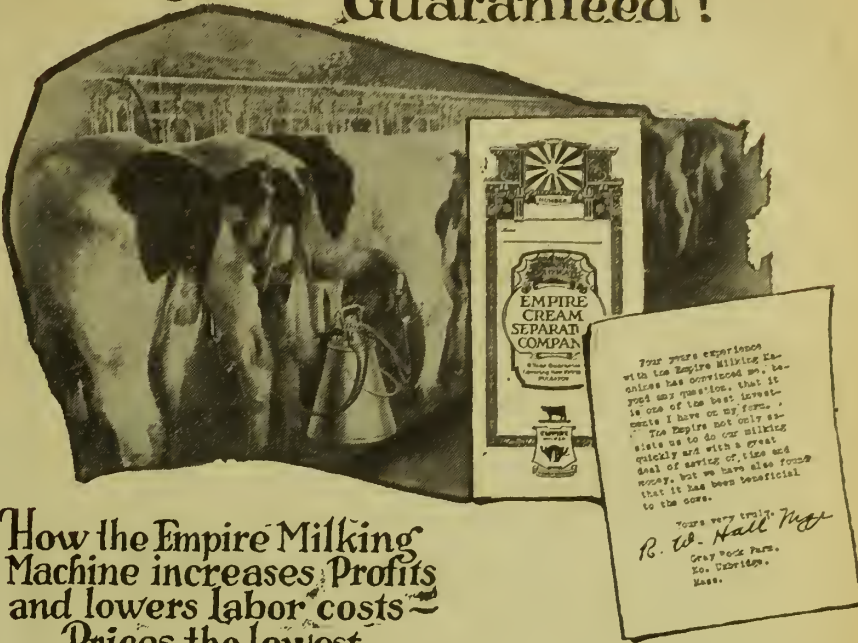
It is true that the lists of buyers in these sales included many names not heretofore associated with good livestock. But this to me is the redeeming feature of the livestock business. New men are beginning to see the value of stock as a means of marketing grain. They are finding in more conservative prices an opportunity to get started in the livestock business to better advantage now than at any recent time. No well bred beast of individual merit has looked for a buyer at a price which will prove very profitable to the producer. If there is any one thing that a trip through the farming districts of the Middle West will emphasize it is the absolute necessity of some kind of good livestock in every permanently successful agricultural enterprise.

FARM DAIRY HOUSES

Farmers Bulletin 1214, "Farm Dairy Houses," contributed from the bureau of animal industry, United States department of agriculture, is filled with plans and descriptive matter of dairy houses. The bulletin says: "The necessity for a milk room separate from the stable arises from the delicate nature of milk. Milk is easily contaminated by stable dirt and absorbs stable odors very readily. If contaminated it may become unhealthy for the consumer and may occasion losses to the producer through souring and the development of bad flavors. It should therefore be removed promptly to a clean, airy place, free from dust, insects, and objectionable odors."

"Building material. A concrete or tile house with an asbestos shingle or slate roof is fireproof, durable, and sanitary. While the initial cost of such a house is high, it is believed to be cheapest in the long run, for it requires few repairs, and no painting. Other materials that may be used are brick, stone, cement block, and wood. The roof may be covered with slate, asbestos shingles, tile, prepared roofing, wooden shingles, or metal. Any of these materials may be used in the plans given if due allowance is made for the thickness of walls of different materials. Outside walls should be of approximately the following thicknesses: Concrete, 6 to 8 inches; brick, 9 inches; tile, 8 inches; stone, 14 to 18 inches; cement block, 8 inches; and frame, 6 inches."

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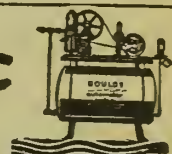
Has built up a truly great herd of this breed. He urges all who are interested to visit the ranch.

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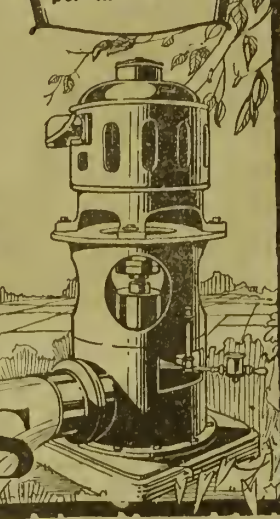
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per minute.



ANNUAL BRED SOW SALE

AUSPICES

California Duroc-Jersey Breeders' Association

University Farm, Davis, February 8

This annual event will maintain the standards of previous sales and will afford opportunity to select breeding material of sterling worth.

Watch for detailed announcement. Room for a few more entries.

California Needs More Hogs
Let Durocs Pay Your Debts

Watch for detailed announcement. Room for a few more entries.

For information address

H. C. Witherow, Live Oak Calif.

Greenwood Durocs

We Will Offer at Public Sale

Jan. 26—31 Bred Sows and Gilts—Jan. 26

Young sows that have raised one good litter of pigs, and gilts that are well grown out and ready to make a good record in the farrowing pen. Our Durocs are known for their easy feeding qualities and prolificacy. We have many testimonials to the fact that GREENWOOD DUROCS MAKE GOOD FOR THEIR PURCHASERS. This will be the season's greatest opportunity to buy quality brood sows at most satisfactory prices. The first sale of the season always offers the best values.

We have a reputation for selling quality hogs. Our Durocs make good in the show ring as well as in the feed lot. We are offering some outstanding individuals of popular breeding, some of them prize winners. Most of them are sired by our well known sire and show boar, Johnson's Defender, Jr., and Western Pathfinder, an excellent breeding son of Pathfinder. They are bred to these boars and to Pathmaster's Sensation.

If you want money making sows attend the sale or send a bid. We will handle bids conscientiously and guarantee absolute satisfaction. Catalog on request.

We will meet Sacramento Northern (at Stafford Station) or S. P. trains if previously notified. Farm on state highway, 3 miles South Live Oak. Sale in comfortable quarters.

Sale at 1 P.M.

Lunch at Noon

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Guernseys

March 2, C. S. Rasmussen, Hynes.

Herefords

February 21, Pacific Coast Hereford Breeders' Association, University Farm, Davis.

Shorthorns

February 22, California Shorthorn Breeders' Association, University Farm, Davis.

Durocs

January 26, Greenwood Farm, Live Oak.

February 8, California Duroc-Jersey Breeders' Association, University Farm, Davis.

February 9, June Acres Stock Farm, Davis.

February 16, Sierra Vista Stock Ranch, Perris.

Poland Chinas

February 24, California Poland China Breeders' Association, University Farm, Davis.

The 1922 Guaranty Sale, the annual Pacific Coast Holstein Classic, will be held on Wednesday, April 5, at Rhoades & Rhoades Sale Pavilion, Hynes, which is about 25 miles south of Los Angeles. The committee of selection this year, appointed by F. L. Morris, president of California Holstein-Friesian Association, has four members—R. A. Condee, Chino; W. J. Higdon, Tulare; J. M. Campbell, Escalon, and C. L. Hughes, Sacramento. The committee will start its work of selection at once, and following the rule established in 1921, cattle will be selected only from herds owned by members of California Holstein-Friesian Association. Already members of the state association have expressed willingness to allow a class of cattle to be taken from their herds that will make this sale one of the most notable offerings of the breed ever held in the west.

Bessie Veeman Alcartra Prilly, the wonderful first calf senior two-year-old daughter of the four times grand champion bull, King Segis Alcartra Prilly, has delivered the promised world's milk record in the Bridgford Holstein Co. herd at Patterson, having finished her 365 day test with 27,250 pounds milk and 1061 pounds butter. Her milk production is the world's record in class by a wide margin, and her butter record is the California state record in class by a margin of 128 pounds, and is also the second highest in the world in class. She is of course the most sensational yearly record daughter of her sire to date, but the large 305 and 365 day records being made by her sisters are fast carrying their sire to a place among the top young sires of the breed in respect to long time record daughters.

De Kol Gerben Duchess Gem, owned by Pottenger Sanatorium Co., Monrovia, lately completed a 305 day record of 634 pounds butter from 17,050 pounds milk as a junior two year old, and within eight weeks dropped her second calf as a junior three year old. At this freshening she has made 30.27 pounds butter from 611.7 pounds milk, a splendidly balanced record for both milk and butter.

In order to avoid conflicting with Stockmen's Week at Sacramento the dates of the American Berkshire Congress show and sale at Riverside have been changed to February 27 and 28. The premium lists, which include \$650 in cash prizes and a large number of handsome silver trophies, are being mailed out. W. N. Corea, president of the American Berkshire Association, has a committee at work gathering up a carload of Eastern top notch animals to be sent out here to the show.—Geo. A. Stingle, Secretary Southwestern Berkshire Congress.

Another splendid list of official records has recently been completed in the J. S. Gibson Co. herd of registered Holsteins at Williams. Among them are two daughters of Prince Alcartra Korndyke, the great proven son of Tilly Alcartra, both with records above 30 pounds butter in seven days. The first of these, California State Fair Queen, as a junior four year old made 31.47 pounds butter from 619.5 pounds milk, and is a daughter of Queen Pontiac Charlotte Korndyke, a 31 pound daughter of

King Korndyke Pontiac. The second, Roma Princess Korndyke Alcartra, as a senior three year old, made 30.80 pounds butter from 579 pounds milk in seven days. Inka Tritomia Alcartra Walker, a junior three year old daughter of Prince Alcartra Korndyke, made 22.40 pounds butter from 626.8 pounds milk in seven days. Sigma of Linwood, a full age daughter of Dutchland Hengerveld Sir Gladi, made

HEREFORD BULLS IN CARLOAD LOTS

AT PUBLIC AUCTION

Tuesday, February 21, at 1 P.M.
University Farm, Davis, Calif.

This sale affords the first opportunity in California for buyers of range bulls to buy them in groups suitable for the carload buyer.

There will also be at least 20 bulls sold individually, to take care of the buyer who wants only one or a few head. There will also be about 25 cows and heifers of good breeding for the man who wants to increase his she stuff.

Every Animal Registered,
Transferred Free of Charge,
Guaranteed a Breeder, and Tuberculin Tested.

These choice registered Herefords are consigned by fifteen leading Pacific Coast breeders under auspices of

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California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

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Write for dates
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Is cheap, durable and
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Can be easily removed.
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10 in. long, 7 in. wide	\$10.00
12 in. long, 7 in. wide	11.00
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16 in. long, 7 in. wide	13.50
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29.30 pounds butter from 633.2 pounds milk in seven days. Anoakia Hiske Walker, a senior four year old daughter of Merci Lad Korndyke Burke and the 34 pound four year old Lady Hiske Walker, made 26.29 pounds butter from 639.6 pounds milk. The large milk flow present in all of these records is particularly pleasing. The final figures from Mr. Gardner's office give Aaggie Korndyke of Nevada 1297.3 pounds butter from 30,669.5 pounds milk in 365 days, giving her tenth place for milk and twenty-second place for butter for the entire breed, and she is also the twentieth cow of the breed to make above 30,000 pounds milk in one year.

The \$41,000 bull, King Korndyke Pontiac Acme, heading Anita M. Baldwin's herd at Santa Anita, promises to become a sire entirely worthy of his wonderful pedigree. His first calves show a degree of type and uniformity not excelled by the get of any sire we have yet seen in California, and in addition they are beautifully marked and clean cut in appearance. The bull himself is developing fully up to the great promise of his yearling form.

Frank M. Helm's herd at Corcoran is producing excellent official records as the cows freshen. Among the latest are Helm Lady Gelsche Mead, a junior three year old daughter of King Hiske Mead, with 28.51 pounds butter from 486.1 pounds milk; Helm Acme Prilly, a junior four year old daughter of King Mead Acme, with 25.64 pounds butter from 524.9 pounds milk; and Rouble De Kol Juliana, a mature daughter of Prince Juliana De Kol Walker, with 26.56 pounds butter from 510.5 pounds milk. Herdsman Harry L. Redd has a large number now headed toward the test barn.

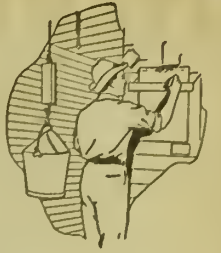
Frank M. Helm, Fresno, recently sold his 1,100 acre ranch at Corcoran to Southern California buyers who will subdivide it. It is understood that an arrangement has been made with the buyers whereby the big herd of registered Holsteins will not be disturbed for the present.

In a recent letter from H. C. Withrow, Live Oak, he sounds an optimistic note in regard to the hog business and says:

"A keen interest in Duroc sows seems to be developing, and it looks as though there would be a strong demand for bred sows before the season is over. It is the usual thing that the first sale of the season brings less money in proportion to the value of the animals than any of the later sales, and for that reason and the apparent awakening of a demand I believe that our sale on January 26 will be an opportunity to buy good bred sows and gilts. The lot of sows that we will offer are practically all of our own breeding and represent selections and reservations for the past two years. All of the tried sows, with one exception, are young, having raised only one litter. The gilts are mostly yearlings with plenty of size so that they may go right ahead raising two litters a year. We have planned this sale for the purpose of giving nearby farmers a chance to put some sows on their ranches that will make them more money, and to allow them to buy them at prices that they feel they can afford, but there are a good number of sows and gilts in the sale that should not be overlooked by breeders who have need of good sows."

Entries for the third consignment sale of the California Duroc-Jersey Breeders' Association, to be held at the University Farm on February 8, have been coming in, and while it looks as though there would not be enough sows for a very large sale, the consignments so far received represent the leading herds of the state. The sale this year will be another opportunity for farmers and new breeders to get some of the best stock from the best herds of California. Breeders who have not yet consigned are urged to do so at once, as these sales not only stimulate interest in the breed but constitute one of the very best means for getting a herd before the public. All entries must be in within the next ten days so that the catalog may go to the printer. Mail all entries to H. S. Withrow, Live Oak.

A "Knack" for Milking

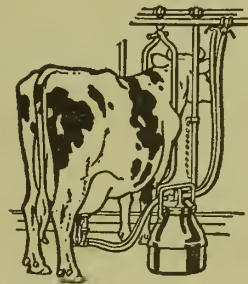


You know that some hand milkers can get more milk out of the same cows than others. They have this "knack" because they milk uniformly, energetically, and yet with an action that is pleasing to the cow.

You know, too, that it pays to keep the same man on the same cows. A change in milkers usually means a decrease in production, for a day or two at least.

Further than this, you know the cow which is properly milked from day to day will hold up for a longer lactation period.

These facts show that the organs of the cow which secrete milk work best under certain conditions, are very sensitive to change, and that they respond best to uniformity and gentleness. These facts were taken into consideration in developing the De Laval Milker.



The Better Way of Milking

The De Laval Milker is the only method of milking that insures absolutely uniform, good milking—that milks the cows in the way they like best, that milks them as the very best hand milker would, and keeps it up without changing. It is doing so on thousands of farms, whose owners say it pays for itself in less than a year by saving time and increasing milk production. Easy terms. Write for full information.

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King Paul Korndyke Vale 189268
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You have heard about King Paul Korndyke Vale 189268. He sold for \$2,500 as a calf. Desiring to change herd bulls, we offer this splendid young bull for sale for only \$500 and will sell a son of this sire out of a splendid 23 pound cow for only \$100. Here are two splendid chances to obtain fine herd heading bulls at the lowest prices you ever heard of. King Paul Korndyke Vale is one of the greatest bulls in the world from any angle from which you may study his pedigree. He comes by his size and individuality honestly. His seven nearest dams weighed over 2,000 pounds. His great granddam on both sides of pedigree is the greatest cow in the world of any breed—SADIE VALE CONCORDIA. She was the first cow of any breed to make 30 pounds butter, which was the world's record at the time. She had four daughters, all of which made wonderful records, one of 41 pounds butter. She is the granddam of six 30 pound cows.

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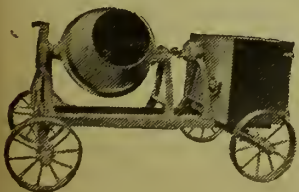
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2 to 3 ft. per 1, 25c per 10, \$2.30 per 100, \$20.00
3 to 4 ft. per 1, 35c per 10, \$3.30 per 100, \$30.00

Other sizes proportionately low.



Kinds of Pumps



THE kinds of pumps commonly used to raise water for irrigation are centrifugal pumps, power plunger pumps, deep well pumps, air lift pumps and hydraulic rams. Where the source of water supply is a surface body of water, either a centrifugal pump, a power plunger pump or hydraulic ram will be used; where the source of water supply is ground water developed by wells, usually either a centrifugal pump, a deep well pump, or an air lift pump will be used and in some cases a power plunger pump. For deep wells usually the vertical centrifugal pump placed in a pit or an air lift pump is used. Hydraulic rams are used for small quantities of water such as for domestic purposes or for irrigation of small pieces of land. They are economical in operation, but require special conditions, such as a nearby stream or canal with sufficient fall in a short distance.

A centrifugal pump consists of a circular casing with the inlet or suction end connected to the center and the outlet or discharge end formed tangent to the perimeter. Inside the casing is the runner or impeller keyed on the shaft and revolving with it. It is formed of curved vanes closely fitting the casing. There are two general types: the horizontal centrifugal pump, which has a horizontal shaft; the vertical centrifugal pump with a vertical shaft. When in operation the impeller by revolving imparts a velocity to the water between the vanes and forces it away from the center of the casing towards the perimeter or rim of the casing through the outlet and up the discharge pipe. This produces a partial vacuum at the center of the impeller which induces a flow through the suction pipe into the casing. The number of revolutions of the runner or speed of the pump has an exact relation to the head or lift against which the pump is working and for every head there is a speed for which the pump works most efficiently. This speed can be obtained from the pump manufacturers. It is important that the pump be connected to an engine or motor which will give it the proper speed. Overspeeding is preferable to underspeeding but either reduces the pump efficiency.

Power piston or plunger pumps are used where the water is obtained from a surface source or where the water is near the surface of the ground and the lift to the point of delivery is large. It consists of one or more cylinders, in each one of which a piston or plunger moving backwards and forwards sucks the water into the cylinder and forces it up the discharge pipe. When the cylinder has only one suction valve and one discharge valve, the motion of the piston in one direction causes suction and the displacement in the opposite direction forces the water through the discharge pipe. With two sets of valves so arranged that there is a discharge for each displacement of the piston, the pump is known as a double acting pump. When the pump has two cylinders, it is known as a duplex pump, with three cylinders, it is a triple pump, and in either case may be either double acting or single acting. The cylinders with the driving gears or pulleys are assembled and built at a height above the water plane, which must not exceed the suction lift.

Deep well pumps are used where the water plane is at large depths below the ground surface. A deep well pump consists of a brass cylinder in which operate two plungers with valves. The lower plunger is connected to a solid rod which fits into a hollow rod to which the upper piston is connected. The plungers are so operated by the driving power that the pump is double acting, one plunger moving up while the other moves down, so that there is a continuous discharge. Above the cylinder and connected to it is the vertical discharge or column pipe into which discharges the water passing through the valves in the plunger. The cylinder is about two inches smaller in diameter than the well casing and about one inch smaller than the delivery pipe; the cylinder and delivery pipe are both lowered into the well until the plungers are under water. At the surface the driving power and cir-

cular motion of the belt of the engine is transmitted to the driving rods by means of gears and levers combined into a power head designed to produce overlapping strokes, so as to eliminate to some extent the pulsations, which are further decreased by an air chamber. The size ranges from 6 inch cylinders and 28 inch stroke to 16 inch cylinders and 36 inch stroke. The number of strokes ranges from sixteen to twenty-four per minute, depending on the lift and the size. The maximum lift is 350 feet. The capacity ranges from about 115 gallons per minute to a maximum of 1000 gallons for the largest pump with extra long cylinder.

Air lift or compressed air pumping plants consist of one or more air lift pumps. The air compressor with receiver and motive power and the necessary piping to deliver the compressed air from the receiver to the pumps. Each pump consists of: The discharge pipe, which is smaller than the well casing and is placed inside of it, extending below the water surface to a depth equal to one and a half or two times the lift measured from the water surface; the air pipe, which is usually inside the discharge pipe, but may, if the well is enough larger than the discharge pipe to so permit, be placed outside and connected at the lower end of the discharge pipe by means of standard fittings or special castings; the foot piece which is a special casting connected to the lower end of the air pipe and so designed to admit the air evenly in small bubbles—there are various designs of patented foot pieces, but there is little difference in their efficiency; the tail piece which forms a slightly enlarged extension of the lower end of the discharge pipe below the foot piece. The air is delivered through the foot piece at pressures varying according to the lift and the ratio of diameters between air pipe and water pipe, and its expansion and displacement produces the lifting power. The relation between the volume of air supplied and the volume of water pumped for different lifts has been found by experiment to be as follows:

Head in feet....	10	20	30	50	100
Cubic feet of air.					
Ratio	1.0	1.5	2.0	2.5	3.0
Cubic feet of water.					

The velocity of water in the discharge pipe, based on the volume of water pumped, should not exceed 5 feet per second in order to keep down friction losses.

The compressor may be direct connected to a steam engine or gasoline engine or may be connected by means of belts, gears, etc., to the driving power which may be a steam engine, a gasoline engine or electric motor. The compressed air passes from the air cylinder to the receiver, which is used to store the air and equalize the pressure. From the receiver the air is conducted through pipes to each well.

The efficiency of the plant when properly installed as calculated from the ratio of actual water horsepower to the indicated horsepower in the cylinder of the engine is generally between 20 and 30 per cent. Air lifts are best adapted for pumping from several wells not further apart than half a mile and where the wells are sufficiently deep to allow proper submergence.

The hydraulic ram works on the principle that a large volume of water falling through a low head will pump a smaller volume of water through a higher head. The ram consists of the valve box and air vessel, the supply or drive pipe which connects the valve box with the source of supply and the delivery or discharge pipe which connects the air vessel with the point of delivery. The efficiency of the plant is $E = \frac{q_h}{QH}$ where q = volume of discharge water, h = discharge head in feet above ram, Q = volume of drive water, H = drive head in feet. For best results the ratio of the length of drive pipe to the length of drive head should not exceed 2.5; but it is practicable to increase this ratio to 25 and use a drive pipe 1000 feet long. The delivery head may be anything up to about 250 feet and the drive head anything above 18 inches. The efficiency dimin-

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ishes as the ratio of delivery to drive head increases. With this ratio as great as 30 to 1 the efficiency will not be over 20 per cent; with a ratio not greater than 4 to 1 the efficiency may be as high as 75 per cent. Hydraulic rams are usually limited to small quantities of water.—B. A. Etcheverry in U. C. Circular 117.

SECOND FOOT, MINER'S INCH AND SOME OTHER THINGS ABOUT WATER

Perhaps not more than one irrigator in ten knows the value of either a second foot or a miner's inch, and often confusion results because of this lack of knowledge.

The term "second foot" is a contraction of "cubic foot per second" and is the rate of discharge of water flowing in a stream 1 foot wide, 1 foot deep, at a rate of 1 foot per second. It is, therefore, a definite and a fundamental unit.

The term "miner's inch" without some sort of qualification is misleading. Since the early mining days in California, the miner's inch was the unit of measure, and it had no definite meaning until it was qualified by "measured under a four inch head." It then had the value of 1/50th second foot of 50 miner's inches, equal to 1 second foot (old law).

On March 23, 1901, the legislature of California passed a law which made the miner's inch equivalent to 1/40th second foot, although there seems to be a desire on the part of many water users to adhere to the value of the old miner's inch, which often results in confusion.

Values

The following list will aid in converting values:

1 second foot=40 miner's inches (new) law of March 23, 1901.

1 second foot=50 miner's inches (old).

1 second foot=7.48 U. S. gallons per second.

1 second foot=448.8 U. S. gallons per minute.

1 second foot=646,272 U. S. gallons per day.

1 second foot=approximately 1 inch in depth over 1 acre in 1 hour.

1 second foot=1.983 feet in depth over 1 acre in 1 day.

100 California miner's inches (new) =18.7 U. S. gallons per sec.

100 California miner's inches (new) =4.96 ft. in depth over 1 acre in 1 day.

1 California miner's inch (new)=11.22 gallons per minute, though in general practice the irrigator figures on a basis of four inch pressure which would be nine gallons per minute.

100 U. S. gallons per minute=0.223 second foot.

100 U. S. gallons per minute=8.92 miner's inches.

1 acre foot=43,560 cubic feet=1 foot deep over 1 acre.

1 acre foot=325,850 U. S. gallons.

1 cubic foot=7.48 U. S. gallons.

1 cubic foot water weighs 62.5 pounds.

A gallon of water, U. S. standard, weighs eight and one-third pounds and contains 231 cubic inches.

A cubic foot of water weighs 62½ pounds and contains 1728 cubic inches, approximately seven and one-half gallons.

To find the pressure in pounds per

square inch of a column of water multiply the height of the column in feet by .434. Approximately every foot elevation equals one-half pound per square inch.—Brown Book of Martin Iron Works.

TANK OR CISTERN CAPACITY

Diameter in Feet	Gallons per Foot in Depth
2	23.5
2.5	36.7
3	52.9
3.5	72.0
4	94.0
4.5	119.0
5	156.9
5.5	177.7
6	211.5
6.5	248.2
7	287.9
7.5	330.5
8	376.0
8.5	424.5
9	475.9
9.5	530.2
10	587.5
11	710.9
12	846.0
13	992.0
14	1151.5
15	1321.9
20	2350.1
25	3672.0
30	5287.7
35	7197.1

IRRIGATION IN CALIFORNIA

Of California's 117,670 farms 67,391, or 57.3 per cent, are irrigated. The number in 1910 was only 39,352, an increase of 28,039, or 71.3 per cent.

The area under irrigation in this state on January 1, 1920, was 4,219,040 acres, an increase of 1,554,936 acres over the irrigated lands of 1910.

The figure above gives the number of acres under actual irrigation while the area included in enterprises is 7,805,207 acres.

Only 4.2 per cent of the land area of the state is under irrigation.

Capital invested in California irrigation enterprises, \$194,886,388, an increase of 168.5 per cent over the investment of 1910.

Estimated final cost of all enterprises will be \$225,799,123.

Average per acre cost of enterprises, \$33.06.

Average cost of operation and maintenance per acre of California irrigation, \$4.40.

GRAPE EXCHANGE ELECTS NEW DIRECTORS

At the January 11 meeting of the California Grape Growers' Exchange, the new directors selected are: E. G. Smith of Geyserville, representing Lake, Mendocino and Sonoma Counties; H. J. Klein of Napa, representing Napa and Solano Counties; Frank T. Swett of Martinez, representing Contra Costa and Alameda Counties; Eugene Frye of Elk Grove; C. L. Crawford of Ukiah, and E. M. Sheehan of San Francisco, directors at large. E. M. Bowles of San Francisco was chosen to represent the state market director on the board.

Problems taken up by the growers at this annual meeting were marketing of consignments of grapes by the exchange, pooling of crops, suits instituted by the exchange, and a membership campaign.

COMPARATIVE VALUES OF FERTILIZERS

Amount and Value of Ingredients in 2000 Pounds. (Supplied by the State University College of Agriculture).

	COW										
	Duck	Chicken	Horse	Fresh	Rotted	Partially Rotted	Dry	Pigeon	Sheep	Alfalfa First Cutting	Rate per Pound
Water	1132	1120	1426	1500	1500	1580	200	1856	300		
Ash	144	170	66	76	116	130	none	8114			
Nitrogen	20	32.8	11.6	7.8	10	11.6	64	28.2	44.6		
Value	5.00	8.15	2.90	1.95	2.50	2.90	16	7.05	11.5		.25
Phosphoric Acid	28	30.8	5.6	3.6	5.2	6	38	22.2	10.8		
Value	1.68	1.85	.34	.21	.31	.36	2.28	1.33	.65		.06
Potash	12.4	17	10.6	9	12.6	10	20	44.6	44.6		
Value	1.86	2.55	1.59	1.35	1.89	1.50	3.00	6.69	6.69		.15
Organic Matter	664	630	480	404	346	263	1678	1003	1600		
Value	1.66	1.58	1.20	1.01	.87	.66	4.30	2.50	4.00		.0025
Total	10.20	14.13	6.03	4.52	5.57	5.42	25.58	17.57	22.39		

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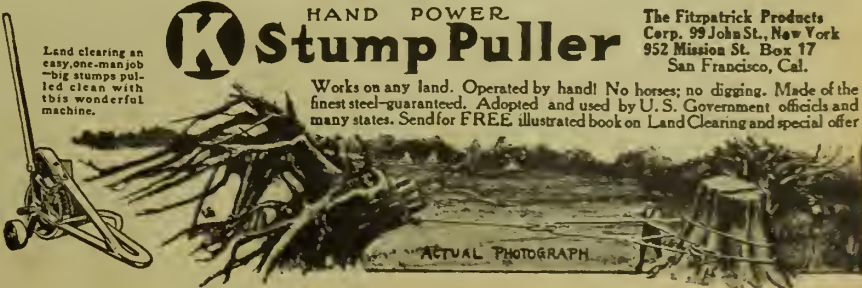
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Baby Chicks—When you buy baby chicks the big thing for you to remember is QUALITY, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves; for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

White Leghorn Baby Chicks from a flock of California's best layers. This flock has been bred and selected for 8 years. Our chicks are the best. 25 chicks \$5; 50, \$9; 100, \$16; 500, \$75. Barred Rocks and Rhode Island Reds \$20 per 100. All chicks delivered by Parcel Post prepaid. Write for circular. Established 1915. **Hargett & Son, Route 2, Box C, Compton, California.**

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. **Lyon Hatchery, Gardena, California.**

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the Vineburg Hatchery. All baby chicks guaranteed safe delivery. **Vineburg Hatchery, Vineburg, California.**

Santa Cruz Chicks—Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching, choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Soquel, Santa Cruz County, California.**

White Leghorns—Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder "Secret of Success." **Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.**

Baby Chicks—From the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. **The White Leghorn Hatchery, Pomona, California.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. FISCHER POULTRY RANCH, Route 2, Compton, California.**

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEBNICH POULTRY YARDS, Arroyo Grande, Calif.**

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. **Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.**

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Santa Clara Valley Hatchery, Lincoln Ave., San Jose, California, for White Leghorn, Brown Leghorn, B. P. Rocks, White Rocks, R. I. Reds, Black Minorcas, and Ancona baby chicks.

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Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

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We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 198A, Sunnyvale, California.**

POULTRY

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guinea \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

Our Prices Are Right For

SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? **White Leghorns Only—the laying strain.**

Custom Hatch—2c per egg

We have the capacity for you.

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. **Albert Sly, 1642 C. Middleton Place, Los Angeles.**

Baby Chicks from Petaluma Electric Incubator have "Pep" that surprises customers. Electricity is life. Modern poultrymen are rapidly adopting our system with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself or get chicks from hatcheries using Petaluma Incubators. Write for our free catalog. **Petaluma Electric Incubator Co., Petaluma, California.**

January-February Chicks Pay Well—Ask for our Circular and Special Letter about them. **White Leghorns, Brown Leghorns, \$15 hundred; R. I. Reds, Barred Rocks, Black Minorcas, \$18 hundred.** Quality the best—Prompt service and reasonable prices. **The Mission Hatchery, Box 17, Campbell, California.**

BABY CHIX

LAYERS AND PAYERS

Ours pay. Hens tested and mated for egg production. **R. I. Reds, Barred Rocks, Black Minorcas, \$18.00 per 100.** **White Leghorns \$15.00.** Expressage prepaid on January and February deliveries.

DENTON POULTRY YARDS
Box 9, Campbell, California

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. **White and Brown Leghorns, R. I. Reds, Barred Rocks.** Safe arrival guaranteed. Order early. Write for circular. **Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Penn's Quality Barred Ply. Rocks and **Ferris heavy-egg-type White Leghorns.** Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM, Porterville, California.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Baby Chix from mature White Leghorn hens mated to cockerels from mothers trapnesting 240 eggs and better in pullet year. Also Barred Rocks and R. I. Reds. **Hawleys Hatchery & Poultry Farm, Route A, Box 315a, Lodi, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. **Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas.** Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Los Gatos Hatchery solicits your order for purebred W. L. Chicks 6 weeks pullets, laying pullets. Vigorous heavy laying stock. **Shannon Station, Los Gatos.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. **BABY CHICKS.** Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

Buff Rocks, Cockerels—\$5.00, first prize stock. **Mrs. Wm. Hoefer, R. 1, Santa Ana, California.**

Partridge Wyandottes, Premier Strain, prize winners. Cocks and Cockerels. **Mrs. J. L. Dunn, Valley Home, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

POULTRY

NOTICE

Note the similarity of the names, Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from 1921 record pen. Sittings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.

Capacity 200,000.—For 20 years our reasonably priced chicks from 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, ducks, have made foundation flocks and filled repeat orders for hundreds. Reasons: Superior vigor, size, winter laying, profit. Still booking for any month below pre-war prices. Can yet fill 5,000 chick orders most weeks. Profitable Poultry, 13 North Fair Oaks, Pasadena.

Quality Chicks—Western Washington leads the world in high egg producing birds. We can furnish a limited quantity of Tanager strain Trap-Nest White Leghorn chicks from 200 egg females and better, mated with 250 egg cockerels and better, at \$20.00 per 100, f. o. b. Seattle. We also hatch R. I. Reds, Barred Rocks, Black Minorcas and Anconas. **QUEEN HATCHERY, SEATTLE, WASH.**

Hudson White Leghorns—More years of official 200 egg records than any other California breeder. Records made by our pullets in Oregon, three Washington and last Missouri contests. Booking orders now for cockerels, eggs and chicks. **Hudson Poultry Farm, ESCONDIDO, CALIFORNIA.**

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. **Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.**

Parks P. R. Pedigreed Cockerels and eggs for hatching (230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, Rt. D. No. 2, Fillmore, California.**

White Leghorn Chicks—Egg lines to 288. Bred for beauty, size and vigor as well as eggs. Hoganized two and three year hens on orchard range insures strong chicks. **Mrs. Robert Goddard, Los Gatos, Route A, California.**

75 Trapnested White Leghorn Cockerel, March hatch. Dams records 265 to 286 Sires dam record 274, \$5.00 and \$7.50 each. Male line trapnested 18 years. **Bonnie Brae Farm, Burbank, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

For Sale—Thoroughbred Single Comb Black Minorca cockerels and one rooster. **C. F. Schwab, San Fernando, California.**

Pure Bred Andalusians, pullets and cockerels for sale. Eggs \$3.00 for 15. **Mrs. John Woolery, Loma Linda, California, Box 145.**

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

Hatching Eggs from well Hoganized Walter Hogan strain White Leghorns. Will run 96% fertile. \$1.50 for 15 or \$8.00 a 100. **C. M. Bradford, Hemet, California.**

Brown Leghorn Cockerels, Light and Dark, for sale; excellent breeding birds \$2.50 each. **Anderson's Hatchery, Modesto.**

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. **Pause Pheasantry, Fair Oaks, California.**

Baby Chicks, 90% Pullets Guaranteed. Place your order early. **Lightening Hatchery, Box 16A, Seabright, California.** **Langshans Purebred—Eggs \$2.50; Stock \$2.50.** **Francis Rudkin, Fillmore, Calif.**

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder 1 Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. **Derryfield Farm, Capital National Bank Bldg., Sacramento, California.**

Greenwood Farm Durocs—Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. **H. C. Witherow, Mgr., Live Oak, Sutter County, California.**

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. **J. Boyd Harrold, Dixon, California.**

Big Type Durocs—Better Durocs at right prices. **Harvey M. Berglund, Dixon, California.**

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA, CALIFORNIA**

BERKSHIRES

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. **Calac Orchards, Martinez, California.**

POLAND-CHINAS

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. **Bassett Bros. Hanford, California.**

WANTED

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address **J. H. Yetter, 317 Central Ave. Los Angeles.**

Cash Buyers want Western farms. Will deal with owners only. Write **R. A. McNown, 370 Wilkinson Bldg., Omaha, Neb.**

Wanted—12-1500 Black Mexican Avocado seeds. Mail prices to Otto Gutkaes, 1310 W. 40th Place, Los Angeles.

SEEDS AND PLANTS

HAIRY PERUVIAN ALFALFA SEED: EACH SACK CERTIFIED AS COMING FROM OFFICIALLY INSPECTED FIELDS. PLANTING SEASON NOW AT HAND. SAMPLES, PRICES, GOVERNMENT STATISTICS, ETC., CHEERFULLY FURNISHED UPON APPLICATION. **E. F. SANGUINETTI, YUMA, ARIZONA.**

For Sale—California Concord, Eastern Concord and Niagara grape vines; well rooted; 25c each. **Brandywine, Klondike** and **Sen. Dunlap strawberry plants, \$1.50** per 100. **Cory's Thornless Blackberry, 25c** each. **Loganberry, \$1.50** per doz. **Mammoth and Himalaya blackberries, \$1** per dozen. **St. Regis and Cuthbert raspberries, \$1** per dozen. All postpaid. **The Hopkins Nursery, 153 South Hartwick Ave., Eagle Rock, California.**

Berries and Small Fruit Plants. Grown and shipped Direct from my large **Berry Farms and Nurseries** here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

Seed Barley—Pure Marlow Seed Barley, 2c per pound, re-cleaned. **Carload lots, \$1.85** per cwt. Produced 40 bags per acre 1921 crop. Also good common barley seed, 1½c per pound. **Carload lots, \$1.40** cwt. **Smith & Hardin, Box 87, Stratford, California.**

For Sale—Mountain grown Strawberry Plants, **Americus Everbearing;** fruits from May to November. Strong plants, \$3 per hundred. **Carolina, \$2;** **Banner** and **Ettersburg No. 80, \$1.50;** **Brandywine** and **Klondike, \$1** per hundred. Postpaid. **B. Bryan, Camp Baldy, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest, Standish, California.**

Strawberries six months in the year: **Plant Everbearers, Superb, Progressive,** \$2.00 hundred. **EVERBEARING RASPBERRIES,** six \$1.00, inspected. **Apple Blossom Nursery, Route 6, Seattle, Washington.**

For Sale—Millions of tomato, pepper, rhubarb, pansy and other plants at reduced rates if ordered in time. **L. C. Johnson, Gardena, Cal. Spanish American Institute.**

Cory Thornless Blackberry—Large vigor-ous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas. E. Mortensen, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. **Wm. Mortenson, Route 1, Lodi, California.**

Cabbage Plants—Any quantity at 50c per 100, postpaid. Varieties, **Winningstadt** and **Cannon Ball.** **The Hopkins Nursery, 153 South Hartwick Ave., Eagle Rock, California.**

Banner Strawberry Plants—Mountain grown, heavy bearers, \$2.50 per hundred, \$12.00 per thousand. Special prices for large plantings. **A. L. Emery, 550 Kingsley Ave., Palo Alto, Cal.**

For Sale—Rooted Grape Vines, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 936, R. 2, San Gabriel.**

Mason's Everbearing Strawberries, \$1.25 hundred. **Klondike, 75c** hundred. **Cory's Thornless Blackberry** rooted tips, 12, \$2.00. **L. Specht, Galt, California.**

Concord and Niagara Cuttings, \$1.50 per 100 postpaid. **Aug. J. Motzeck, Encanto, San Diego County, California, Box 104.**

400,000 Rootings, Thompson, Malaga, Em-peror, Muscats, Sultan and Cornichon and cuttings, also vine grape cuttings; 4 kinds of alfalfa seed. **Box 501, Fowler, Cal.**

For Sale—Brandywine Strawberry Plants, fifty cents per hundred, postage extra. **E. A. King, West Fourth Street, Riverside, California.**

Cory's Thornless Blackberry—10,000 selected, well rooted tips. Write us or call. **Sylvan Nurseries, Lincoln Highway, Roseville, California.**

Cory's Thornless Blackberry Plants, extra fancy, 15c each or rates by the thousand. **Corner Inglewood Ave. and Arborvitae, Inglewood, California. C. C. Bryson.**

Save Work—Plant Iris and Perennials; a \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurt, San Bernardino.**

Alfalfa Seed—Certified Hairy Peruvian, Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, San Jose.**

For Sale—Black Monukka Rooted Vines, a few thousand, \$25.00 per hundred, \$225.00 per thousand. **Q. C. Webster, Brawley, California.**

Garlic—For sale, good large, fresh garlio sets, per pound, 10c. Orders of 100 lbs. or more postpaid. **C. J. Baden, R. D. 2, Orange, California.**

Strawberry Plants, Harris and Gold Dol-lar, 60c hundred, \$4.00 thousand. **D. R. Bannister, Oakdale, California.**

For Sale—Florida Sour Orange Seed. **Milo Hunt, Whittier. Phone 250.**

Seed from Fine Papayas, 25c per ounce, postpaid. **Box 144, Brownsville, Texas.**

Malagas—5,000 rooted vines for sale. **Paul B. Magee, Mecca, California.**

TREES

Citrus Trees, 1 and 2 years. Supply Co. and performance record bud selection quality trees, Valencia, Navel, Eureka, Lemon, Grapefruit. We think we know how to handle trees. Try us. We have a good line of stock. Prices right. Orchards planted to order. **WANT TO BUY 50,000 sour seedlings.** Cyrus W. Wilhite Citrus Nurseries, P. O. Box 154, Glendora, California.

Prune Trees—We offer planters a few thousand Petite, Imperial and Sugar prune trees, on both peach and plum roots, at very close prices while they last. Also have a complete line of other nursery stock at attractive prices. Quality guaranteed. Send us your want list today. **Benedict Nursery Company**, 185 E. 87th Street, N., Portland, Oregon.

Walnut Trees grafted on Northern California black, Eureka, Placencia, Chase, Payne, Royal Apricots on apricot roots. Tuscan, Phillips and Sims Cling Peaches. **HACHIYA PERSIMMON**, locally grown on Lotus roots, extra fine stock, rooted grape vines, berries. **Los Nietos Valley Nursery**, Downey, California. Phone 692.

Thousands of choice homegrown selected budded walnut trees, 50 cents and up according to height, also everything else that grows in Southern California in trees and shrubbery for sale, reasonable. We have what you want. **Snyder Nurseries**, Box 74, Burbank, California, 721 W. San Fernando Road. Telephone 122J.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON, NAVEL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

BUDDED AVOCADOS
All leading varieties—Fuerte, Pueblo, Dickinson, Spinks, Queen, Knight, Linda. Get our planters' prices. Field grown. Selected buds. **MATHER'S AVOCADO NURSERY**, PASADENA. Phone Colorado 6044. P. O. Box 585.

Nursery Stock at bargain prices. Prune 10c each, grafted walnuts \$1.00 each; pears 20c each, Black caps \$20.00 per 1,000; other stocks at bargain prices. Submit your want list, and send for planters list. 31 years in business. **Carlton Nursery Co.**, Carlton, Oregon.

For Sale—One and two year old citrus stock budded with "Supply Co. Buds." We have also all commercial varieties of deciduous. Now is the time to order. **F. A. Tetley and Son**, 415 W. 8th St., Riverside, Calif.

To Get Acquainted—I will mail three rhubarb and three assorted blackberry plants, or one seedless fig and one pomegranate, or four assorted rose bushes for \$1.00. Send for price list. **Bishop's Nursery**, Highland, California.

Kadota Fig Trees—Taft lineage and direct from original Taft Kadota trees. Grown for root formation. Make reservations. **John H. Oliver**, 1969 Wilcox Avenue, Hollywood. Phone 57116.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. **Ketscher's Nursery**, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. **J. F. Miller & Sons**, Healdsburg, Cal.

For Sale: Valencia Late, Washington Navels, Eureka lemon trees. Prices right. **V. V. Skillman**, R. F. D. Box 387, San Fernando, California.

For Sale—ATHEL OR EVERGREEN TAMARIX. Best tree for immediate windbreak and shade in hot dry localities. **Leonhardt Swingle**, Indio, Cal.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 6294.

For Sale—Hachiya Persimmon scions from one of the best 5 acre groves in the county. **George M. Ketscher**, 1101 E. 4th St., Santa Ana.

Sampson Tangelo and Dwarf Chinese Lemon; the two best citrus products ever introduced. **Coolidge Rare Plant Gardens**, Pasadena, California.

I Have Ready for Planting 300 Ascolano Olive Trees, also 200 Mission ditto. Nursery 3 miles east of Ojai. **Anton Relovich**, Prop., Ojai, Cal.

I want 100,000 Sour Orange Seedlings, Dorton's Southwest Nurseries, Harlingen, Texas.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. **Burke's Nursery**, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees. fine stock. **J. W. Irwin**, Lindsay, California.

Citrus Nurseries, **Murphy Oil Company**, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena. Quality Trees—Cheap. Send list for prices. **Cash Nursery**, Sebastopol.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. **La Corona Goatsery**, El Monte, California.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. **The Kruckeberg Press**, 236 Court St., Los Angeles.

BEES

For Sale: 80 Colonies of Bees in two story hives with full equipment. Best location in Imperial Valley. For full particulars write **J. E. Beck**, 1244 A Street, San Diego, California.

TURKEYS

Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address **Bronze King Mountain Farm**, Calistoga, Cal.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of **POULTRY FOR PROFIT**, \$1.00 postpaid, success is assured in the poultry business. **Cultivator Publishing Company**, Los Angeles, California.

Mammoth Bronze Turkeys—Stafford strain Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. **R. M. Dodge & Son**, R. D. 2, Box 129, Bakersfield, California.

Mammoth White Holland Turkeys—Choice hens and toms from our famous breed of large vigorous turkeys, improved by Eastern stock. **Earl V. Smith**, Loma Vista Ranch, Willows, California.

Thoroughbred White Holland Turkey Toms, a few beauties at \$12.00. Three hens for \$20.00. **Pause Pheasantry**, Fair-oaks, California.

Pure Bred Bronze Young Toms, 25 to 30 lbs. each, \$15.00. **Buff Orpington Roosters**, \$5.00 each. **Mrs. M. L. Trewitt**, Route B, Box 47, Hanford, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. **Lone Star Ranch**, Lankershim, California.

Bourbon Red Turkeys—Prices reasonable. **Mrs. L. S. Grosse**, Scottsdale, Arizona.

Bourbon Red Turkeys, **Buff Orpingtons**. The Ferris Ranch, Reservoir Street, Pomona, California.

MACHINERY

Tractor Buyers—I have two late type 18-30 track laying tractors, never used; procured through banks at exceptionally low prices for quick sale. Tracks are manganese, guaranteed for two years against wear or breakage. A full line of parts is carried in California for these popular tractors. Who will be the lucky buyers of these rigs? Terms can be arranged. Trades considered. Implements at bargain. **V. B. Jensen**, 120 S. Aurora Street, Stockton, California.

For Sale—Fine Deep Well PUMPING PLANT, 15 h. p. Western engine just rebored. Famous double acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well, for cash or trade for late model Dodge auto. **Demmitt Co.**, office upstairs, 120 N. Main, Los Angeles.

For Sale: Union Tool Tractor, used 365 days. **Killefer 28 Disk**, **Killefer 18 Cultivator** and **3 Disk Plow**, all in first class condition. Will sell at a bargain as I will discontinue using them in orchard, being too heavy. **Ira P. Bradley**, Covina, California. Phone 798.

Tractor Bargain—Almost new Sandusky tractor; plowed less than 100 acres. Taken back on foreclosure. Will sell for less than half the cost of new tractor, and arrange easy terms. 1121 Charles C. Chapman Bldg., Los Angeles, California. Phone 64191.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? **Demmitt Co.**, office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. **Drew Carriage Co.**, Ontario, Cal.

MISCELLANEOUS

Tobacco, Natural Leaf. Sweet and mellow hand picked chewing or smoking; 5 lbs., \$1.50; 10 lbs., \$2.50. Smoking, 10 lbs., \$2.00. **Furnish free receipt for preparing.** Quality and delivery guaranteed. **FARMERS' TOBACCO EXCHANGE**, Sedalia, Ky.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. **P. Barnes**, Dept. E, Santa Rosa, California.

Pruning—Commercial orchard pruning. Work guaranteed. For rates address **W. I. SCIBIRD**, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656W.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the **Engineering Service Company**, 1316 Washington Building, Los Angeles, California.

For Sale—Edison Diamond Disc Phonograph with Victrola attachment, \$95. Taken in trade. **Demmitt Company**, 120 N. Main, Los Angeles.

Anyone Desiring Good Location for Dairy near sugar factory where ample silo pulp can be had, apply to **Los Alamitos Sugar Company**, Los Alamitos, Calif.

Avoid Law Suits by having your property lines properly surveyed and established by the **Engineering Service Company**, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. **Light's Mail Order House**, Box 127, Birmingham, Ala.

Tobacco—Kentucky Honespun natural leaf chewing and smoking. 10 lbs., \$3; 20 lbs., \$5. **Maddox Bros.**, Dept. 24, Mayfield, Kentucky.

HORSES

For Sale—Registered Imported French Percheron stallion. **J. W. Proctor**, Hughson, California.

CATTLE

Guernseys—**Grape Wild Farms**—**Berkshires**—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. **Grape Wild Farms**, Escalon, California. **A. B. Humphrey**, Proprietor.

Ridgewood Ranch—Registered Herefords: Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. **C. S. Howard**, prop.; **Otis Cordell**, herdsman. **Willits**, Mendocino County, California.

Berylwood Stock Farm—**Breeders** of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O and T. B. tested Bulls and females for sale. **J. W. Snodgrass**, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. **T. T. Miller**, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. **A. W. Morris & Sons**, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. **John Lynch Ranch**, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. **Millbrae Dairy**, Millbrae, California.

Polled Herefords and Durocs—**Diablo Stock Farm**, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein heifers and bulls of serviceable age for sale. **J. W. Scudder**, Escalon, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. **BONITA, CALIFORNIA**

BUILDING MATERIAL

BUILDING MATERIALS

Foundation to Roof
Cheapest and Best
MILL GOODS

French Doors, Windows, Casements, 1, 2 and 5 panel; Garage Doors, Frames, Sash. No. 1, "A" grade, less in price than inferior stock.

PLUMBING

"A" grade Tubs, perfect, \$27.00, some damaged. Vitreous Toilet Combinations, \$17.50. Sinks, Basins, Laundry Trays, Pipe and Valves. Everything in plumbing at prewar prices.

LUMBER

Choice, seasoned second hand, light for shipment, sized at our own mill to any dimension desired. Also new, \$25.00 up. Shingles, Shakes, Corrugated Iron, Lath, etc., etc.

MISCELLANEOUS

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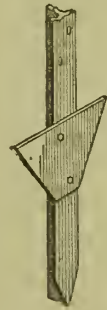
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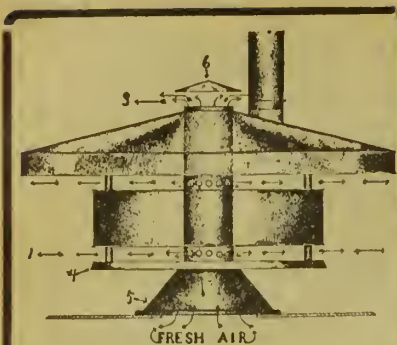
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Greens for Hens and Chicks

By Jean A. Koethen



GREEN feed, poultrymen and investigators are finding out, is the sine qua non of poultry raising. If one grain is not available another may take its place. Milk takes the place of meat and vice versa. There are mashers galore, some better, some worse. The one essential feed that cannot be changed nor substituted for and without which success is impossible is green feed. And green feed cannot be raised without water. In a rainy season barley can be grown without irrigation, but for other greens, year in and out, green feed means irrigation, and the poultryman who attempts to produce eggs on soil that cannot be irrigated is doomed to failure. The term "green feed" does not mean dried beet pulp nor even sprouted oats nor alfalfa hay, useful as these are in their place. It means green alfalfa, and barley growing up out of the ground a foot high at least, kale as high as your head, and chard with big, succulent green leaves. Green means succulence and succulence means water. The more water the more succulence and the more vitamins.

Vitamines Mean Health

Success with poultry centers largely around health, and health, it seems, depends very largely, for chicks as well as for children, on the vitamins in the diet. Just what vitamins are nobody seems to know exactly, but they are something that is found in green vegetables and in fresh fruit, something absolutely indispensable to the health of most forms of animal life. When you say "I feed my hens green feed when I can get it" you are confessing your own responsibility for their sickness or their non-productiveness. Hens that have all the greens they can consume, as is the case generally with hens on range, will often produce a good many eggs without mash and with very little grain, not because the green contains egg material, but because it keeps the system in the condition to do the very best work with whatever egg material it receives.

The Alfalfa Patch

The one best green for chickens is alfalfa. If every poultry raiser had a patch of alfalfa, and the alfalfa could be cut every month in the year, the green feed problem would be solved once for all. Most people who keep chickens can also have a patch of alfalfa, but unhappily alfalfa is dormant from October to April, and some other green must be substituted during these months. Alfalfa may be planted from January on, and this season, which promises to be a wet one, should see every backlot poultry plant supplemented with its patch of alfalfa. Though the space available be only ten feet square, plant it, water it abundantly and see what a nice lot of green feed your chicks will get from it. If you have a vacant chicken yard, or a corner that can be fenced off, plant it and give your chicks a chance to run on it. I have seen in some plants where space was very limited a little yard of this sort kept for the different broods of chicks to take their turn on for a short time each day, and I remember one large breeding plant which had a little patch of alfalfa not over two feet square, wired over, in each pen. There is many a corner, even in a city lot, that might be made to grow alfalfa if its owner only realized its importance. A single alfalfa plant, such as I had growing over my backyard fence one summer, will grow to a height of three or four feet if allowed all the water it can drink up, and may be cut again and again for baby chicks.

Alfalfa contains more protein than any other green feed except clover. Its crude protein content is 4.94 per cent, while that of barley is only 2.70 per cent and that of lettuce is 1.20 per cent. Alfalfa is therefore valuable not only for its vitamins but because it contains real egg material.

Cut Green Barley

For the season when alfalfa is dormant the poultryman's best dependence is barley. Every vacant chicken yard, every available bit of unused ground should be planted this month to

barley. It grows rapidly when rains are frequent, without irrigation, and each stand can be cut three or four times. One poultryman I know, who has two yards for each laying house, plants one to barley in the fall, cuts three times and then turns the hens in to eat up the roots. As soon as his hens are in this yard he plants the other. In a dry year barley can be irrigated, but most seasons the rains are sufficient to insure a good stand, especially on the well fertilized soil of poultry runs.

Poultrymen who make the greatest success with their chicks plant the chick runs to barley in the fall so that when the chicks are hatched in January or February they find the grain ready to run in. Chicks that can run in a grain field always make the most rapid growth. If any one doubts this let him try running one flock in the barley field and the next in a bare yard. A patch of alfalfa should supplement the winter barley patch, but the two together make an ideal provision for greens for either chicks or hens. Both alfalfa and barley are run through a green feed cutter and fed in troughs or hoppers.

Kale to Piece Out

There are times when the alfalfa has been cut to its limit, and a transition period when barley does not grow quite as well, and alfalfa is not ready to cut. For these times, and for other times when a change seems desirable there is nothing quite so good as kale.

Kale is a heavy feeder and a great drinker and to be of great value must be well fed and watered. It may be planted in boxes in fall or winter, but there is nothing to be gained by transplanting before March. As soon as it has begun to grow irrigation should be commenced. After the first irrigation pile on poultry manure, and in two or three weeks (depending on the season) irrigate again. It is not possible on a sandy soil to overirrigate or overfertilize kale. It will take all you give it and call for more, and the more it gets the faster it grows. For producing a great deal of green feed on a small plot of ground nothing can excel the thousand headed kale, but most poultrymen prefer alfalfa, perhaps because it is the better feed, perhaps because it is raised with less work and less water. I understand that in the Petaluma district kale is used far more than in the south.

Other Greens

There are other greens which may be planted for hens, but they are not important. Some poultrymen prefer lettuce to alfalfa for baby chicks, and for the early chicks alfalfa is not available. I have heard it objected that lettuce makes chicks "dopy" because of the opium it contains, but lettuce has been so long considered the very best green for chicks that I doubt the validity of this objection. Lettuce can be bought so cheaply from the truck gardeners, however, that it is hardly worth while planting it for chickens. If it is raised for the family table the waste leaves can be utilized for the chicks, but the backlotter who does not understand how to raise it successfully had better leave it to other hands. Chicks that have any kind of green range need very little other green. Nothing that is cut and thrown in to them quite takes the place of what they pick for themselves.

Chard, like kale, may be planted for supplementary greens, but it requires just as much water and produces less to the plant. It is better than kale for chicks, and a few rows will be worth while if there is room for them. Chard may be planted in boxes in January and February but does not transplant well till the soil is quite warm, say from April on. Successive transplantings may be made throughout the summer.

Spineless cactus and Sudan grass have been tried by a number of poultrymen, and Sudan grass at least has made good for summer use. It is quite susceptible to frost and should not be planted till April or even later. Spineless cactus cut and thrown into the yards for the hens to pick at is better

than no green at all but hardly fulfills the condition of succulence which is demanded of chicken greens.

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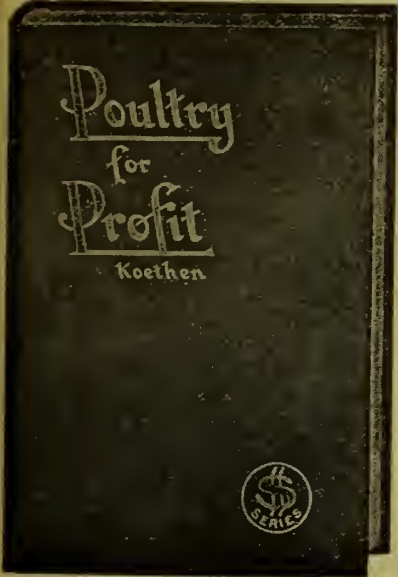
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Poultry Queries

Conducted by Jean A. Koethen

Roup

What shall I do for roup which has appeared in my flock of 1200 hens? Will separating them into smaller flocks keep the disease from spreading? How many should I put in a flock?—Subscriber, Wasco.

Putting the roup birds by themselves will help, of course, to check contagion, but as long as conditions are unsanitary you cannot altogether stamp out the disease. What I am trying to say is this: Your birds have roup because something is wrong with your housing or management. Perhaps you are keeping too many in a house; perhaps your house is not properly ventilated; perhaps it is dampness in the houses or standing water in the yards that has caused the birds to take cold; perhaps your house is not kept clean enough. You will have to find out for yourself what the cause is and then remedy it. Filth and dampness are the two great fundamental causes of roup, but drafts and crowding are often responsible. If by putting the birds in smaller flocks you can lessen the crowding you will find the disease easier to cure, but the mere fact that you have 1200 birds running together does not necessarily account for their illness. Put the sick birds in the sunniest, warmest, cleanest place you have, give them plenty of greens, and once a day dip their heads in the permanganate solution so often recommended in this column. Put a few crystals of potassium permanganate in a lard pail or quart measure filled with warmish water, and dip the head in this for a few seconds, first massaging the nostril to loosen the secretion. The permanganate solution cleans the passages and gives them a chance to heal, but you cannot expect a permanent cure till you have removed the cause.

Scaly Leg

Do young pullets have the disease called scaly leg?—Subscriber, Tulare.

Yes, pullets seem to be rather more susceptible to this disease than old hens, though it is always passed on from an older hen to the pullets. Rubbing the legs and feet every few days with an ointment made of 1 part oil of caraway and 5 parts white vaseline is the best remedy. Another ointment that is recommended is equal parts vaseline and zinc ointment. If yards are kept clean and no bird with this disease taken into the flock it is easy to eradicate it by persistent treatment.

Egyptian Corn

What is the proper amount of Egyptian corn to give to six R. I. Red pullets just starting to lay? They have green feed night and morning and meat when we can get it. Would you advise any other kind of feed or any laying mash?—Subscriber, Tulare.

A laying mash should be kept before the pullets. Any one of the prepared commercial mashes will do, through it is better to add 50 per cent bran at the beginning and gradually diminish the amount as the pullets settle down to their work. Two or three kinds of scratch grain are better than one, say equal parts wheat, barley and Egyptian corn. Too much corn of any kind is not good for layers. If you use a mash containing meat scrap you do not need fresh meat, but a little green cut bone once a week is a good thing and will help increase production. To six hens you should give less than a pint of grain per day.

Bare Backs

The feathers are worn off the backs of my best pullets. Will they come in again before next fall? I have four roosters with 92 hens. Is that too many? Does a capon ever bother a hen?—Subscriber, Lancaster.

If you took the hens away from the males the feathers would probably come in again before the regular molting time. As long as they remain in the flock they have no chance to grow. Four males with 92 hens may not be sufficient. Most poultrymen allow from 20 to 25 hens to one male. You can only tell by the fertility of the eggs how many males are needed.

If many eggs test out clear add another male to the flock. Capons are unsexed and will not bother the hens.

Smut in Wheat

Will chickens eat the smut in wheat when it is scattered on the ground?—Subscriber, Lancaster.

There seems to be no rule as to just what chickens will eat and what they will leave under any given set of circumstances. It depends on how hungry they are and how they have been trained. For instance, my hens will not look at the tenderest, juiciest worm. They have not been brought up to eat worms and I cannot persuade them to touch them. It is much safer not to feed smutty wheat. You cannot tell how much the hens will eat, and if they do eat it the consequences may be disastrous.

Broken Eggs

Since last spring we have lost eight hens, some White Leghorns and some mixed. The Leghorns droop a few days and die quickly; the others have the same symptoms but live till they are mere skeletons. One that was examined contained in the region of the oviduct what looked like a hard fried egg with mold inside. A large R. I. Red has now the same symptoms, and the last egg she laid was shoft shelled with a mass of what seemed to be the white of another egg. We feed a laying mash, wheat, Gyp corn and cracked corn, and an abundance of green. Some of the cracked corn has been moldy but the hens had very little of it.—Subscriber, San Jose.

A shock or injury is generally believed to be the only cause of eggs breaking in the oviduct, but Dr. Beach of the poultry division of our state college of agriculture stated in discussing epidemics of cholera in certain flocks that in many cases of this disease a broken egg was found in the oviduct. Whether the broken egg was the cause of the attack of cholera or the disease was itself the cause of an abnormal condition in the oviduct he did not make clear, but he did say that a general cleaning up was the only satisfactory cure for these epidemics. Whatever your hens have or had, moldy corn is bad for them and should not be fed under any circumstances. I think too that you may be feeding too large a proportion of corn in the ration. One-third corn is enough at most times, and a quart of grain daily for 16 or 20 hens is better than more.

SOUTHERN CALIFORNIA EGG LAYING CONTEST

The production of eggs at the Southern California farm bureau egg laying contest at Pomona has been increased somewhat during the month of December with a production of 23.55 per cent. Some interesting things have developed during the month also.

First ribbon for the bird laying the most eggs during the month of December goes to a Rhode Island Red pullet belonging to Ferd Heying of Anaheim. This bird began her year's record by laying two double yolked eggs on the last three days of October. One of her November eggs and three of the 26 eggs which she laid in December were also double yolked. She now weighs six and a half pounds and her normal eggs weigh on an average more than 28 ounces to the dozen.

Three White Leghorns with a production of 25 eggs each tied for second place and on the basis of the previous month's record A. L. Swinton's bird wins second ribbon and Geo. C. England's bird third ribbon. The latter bird, which made the highest record in October, took a straight two weeks' rest in November but came back strong enough to tie for second place in December and also make the highest record, 68 eggs, for the three months. B. S. Smallwood's bird, which holds second place for the three months' production with a record of 66 eggs, has laid in perfect cycles of three eggs in four days since the twentieth of October.

A gradual increase in the egg production of the contest flock during December resulted in a 23.55 per cent production for all birds for the month. A record is now being made of Leghorns and Anconas laying tinted eggs. (Continued on Page 87.)

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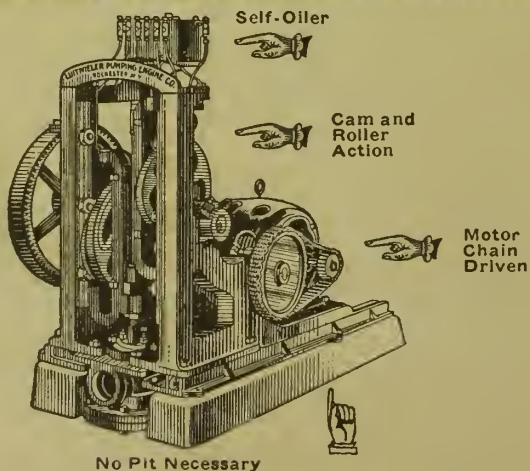
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Most Efficient Principle in Deep Well Pumping

Can Make Good Deliveries of Various Sized Equipments

Luitwieler Pumping Engine Company

707 N. Main Street

A. A. BARTON, Gen. Manager

Los Angeles, Cal.

Los Angeles Markets

Los Angeles, January 18, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 41 cents.

Jan.....	11	12	13	14	16	17
'22.....	36	36	37	37	39	41

CHEESE

Brokers' prices:

California flats, 23@25.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 41; cass count, 40; pullets, 35.

Jan.....	11	12	13	14	16	17
'22.....	36	36	37	37	38	41

POULTRY

Price to producers: Hens, 27; colored, 32; broilers, 35; roasters, 32; old roosters, 16; fryers, 35; ducks, old, 20; ducklings, Pekin, 3½ up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 70. Belgian hares, 12@17; old, 8.

LIVESTOCK

Los Angeles, Jan. 17.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 8.00; 175 to 225 lbs., 8.50.

Cattle (on foot, gross weight): Steers, good, 6.50; medium, 6.00; cows, good, 5.00; medium, 4.50; bulls and stags, 3.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 7.00.

Sheep: Ewes, 3.50@4.00; lambs, 8.50@9.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 17, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during this day's trading.

Potatoes: Movement moderate, market steady. Lugs, mostly 1.00@1.10. Stocktons: Burbanks, per cwt., best, special brands, mostly 2.85; others, 2.50@2.75; poorer, 2.25@2.40. Idahos: Russets, best, 2.75@2.90; bakers, 3.50. Sweet potatoes: Movement slow, market steady. Locals: No. 1, best, per lug, 1.00@1.10; poorer, 80@90. Arkansas: Nancy Halls, bushel baskets, 5@5½ lb.

Onions: Demand moderate, market strong. Stocktons: Per cwt., Whites Globes, best, mostly 8.50@8.75; browns, best, 6.50@7.00; poorer, 6.00; lugs, whites, best, 2.50@2.75; browns, 2.00@2.25; Lompoc browns, 7.00.

Garlic: 8@9; poorer, 5.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, January 17, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.00@1.65. Beans: Limas, local, 12@15 lb. Brussels sprouts: 8@10 lb.; fy., 14@16. Bunched vegetables: Market steady. Per doz. bunches: Turnips, 30@40; carrots, 65@75; beets, 55@65; radishes, 20; parsley, 15; spinach, 40.

Cabbage: Market firm. Per field crate, mostly 1.75@2.00; poorer, 1.50. Cauliflower: Market stronger. Wids range in quality. Per field crate, best, 2.50@2.75; fair quality, 2.00@2.25; poorer, low as 1.25.

Celery: Market stronger. Locals: Best, 4.75@5.25; poorer, 4.00@4.50. San Diego: 5.75@6.00 per crate. Chicory: 60@75 crate.

Cucumbers: Market steady. Hothouse, mostly 1.00@2.50.

Eggplant: San Diego, fy., 15@16.

Lettuce: Demand moderate. Locals: Field crates, best, 1.25; mostly 90@1.00.

Parsnips: Lug, 70@80; few 90.

Onions, green: 15 bunch.

Peppers: Locals: Bells, per lb., 20@22; chili, mostly 15; Mex., 15@16.

Rhubarb: Best, 1.00@1.10; poorer, 75@85.

Squash: Banana, lb., 1¼@1½; Hubbard, 2.

Tomatoes: Market steady. Mex., lug, 4.25; poorer, 75@85.

FRESH FRUITS

Apples: Demand and movement light, market dull. Locals: Winesaps, Romes and King Davids, mostly 4@5; Delicious, 6@7; few 8@9 lb.; B grade Delicious, 2.50@2.75; fancy, 3.25@3.50; Winesaps, fancy, 2.75@3.00. Watsonville: Fancy, 3½ and 4 tier Bellefleurs, 1.60@1.75; poorer, 1.40@1.50; 4½ tier, 1.35@1.45; loose, per lb., 3½@4½; fancy, 4 tier, White Winter Pearmain, 2.00; Yellow Newtowns, fancy,

2.10@2.25; B grade, 1.65@1.90. Northwestern: Spitzenburgs, medium to large, extra fancy, 3.25@3.50; fancy, medium to large, 2.75@3.00; Winesaps, extra fancy, medium size, 3.00; small size, fancy, 2.50; Romes, extra fancy, 2.75@3.25. Pears: Winter Nellis, 5@8; Kieffers, 7@8; Comice, 7@8 lb.

CITRUS FRUITS

Grapefruit: Movement slow, market dull. Californias, Northern: Packed box, 2.75@3.00; small, 2.50; market pack, 2.00@2.50. Imperial Valley: 4.00@5.00. Arizona: Seedless, 3.75@4.75, according to size and quality.

Lemons: Demand and movement slow, market steady. Locals: Loose boxes mostly 1.25@1.50; poorer, 1.00; lugs, 40@50; few best, 75.

Oranges: Demand limited for packed stock, market weak. Navels, special brands, 100s-150s, mostly 3.75@4.00; 176s-216s, 3.50@4.00; market pack, 2.25@3.50, according to size and quality; culls, field boxes, best, 1.00@1.25; poorer, 50@75.

Tangerines: Demand and movement light, mostly 4½@6 lb.; few fy., 7½@8.

HAY

Alfalfa Growers of California report: Market past week did not show improvement expected as result of improved weather and shipping conditions. Receipts continued almost as light as during the rains, which means that they were again materially below requirements for

current consumption, thus further reducing reserves supplies of buyers. This explanation probably is that in some of the producing and shipping sections conditions are still unfavorable for baling or hauling, but the principal reason would seem to be that the stocks remaining in growers' hands are very light in the aggregate. This has greatly reduced the number of shippers and is therefore making the movement irregular. It will probably continue so during the balance of the old crop year.

There were 1,100 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending January 14, with 190 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots, handling and commission must be added to obtain retail prices on new hay.

Prices on local Grain Exchange:

Barley.....1.32½@1.35

Imperial Milo.....1.37½@1.42½

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, January 18, 1922.

BUTTER

Extras.....	11	12	13	14	16	17
Jan.....	35½	36½	36½	40½	41	

'22.....

CHEESE

Dairy Exchanges quotations: 20@21

California Flats.....28

California Y. A.....28

EGGS

Dairy Exchanges quotations: 37½

Extra Pullets.....36

Undersized No. 1.....30

Jan.....	11	12	13	14	16	17
'22.....	32	33	33	36	37½	

'22.....

POULTRY

Prices furnished by the state department of agriculture, division of markets:

Sales to retailers: Below are listed the averages of actual prices obtained between 7:30 and 9 o'clock this morning by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Broilers: 1 to 1¼ lbs., 35@36 per lb.; 1½ to 1¾ lbs., 35@37; 1¾ to 2 lbs., 36@38.

Colored Fryers: 2 to 3 lbs., 33@35.

Colored Young Roosters: 3 to 4 lbs., 29@32 lb.; over 4 lbs., 29@31; staggy, showing spurs, 24@25 lb.

Colored Old Roosters: 18@20 lb.

Leghorn Old Roosters: 17@18 lb.

Leghorn Hens: 2½ to 3 lbs., 25@27 lb.; 3 lbs. and over, 29@31 per lb.

Large Colored Hens: 30@32 per lb.

Ducks: Young, 23@25 per lb.; old, 22@24 per lb.

Geese: Young, 28@32 per lb. Supply light.

Live Turkeys: Young, 36@38 per lb.; old, 32@34 per lb.

Dressed Turkeys: Young, 45@47 per lb.; old, 42@43 per lb.

Belgian Hares: Live, 16@20 per lb.; dressed, 25@28 per lb.

Squabs: Live, 55@65 per lb., 3.50 doz.

Old Pigeons: 2.50@2.75 per doz.

Guineas: Young, 6.00@8.00 per doz.

Jack rabbits: 2.75@3.00 per doz.

LIVESTOCK

Western Meat Co. quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 6½@7½; second quality, 5½@6; cows and heifers, No. 1, 5@5½; second quality, 4½@5; bulls, stags, 3½@4.

Calves: Light weight, 7½@8½; heavy, 6@6½.

Sheep: Wethers, 5½@6; ewes, 3½@4.

Lambs: 8½@9.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 10; 200 to 250 lbs., 9; 250 to 300 lbs., 8; light sows, 8; heavy, 7.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Fancy, 19.00@21.00; choice lower; Nos. 1 and 2, 1.15@1.50 per doz.

Nos. 3 and 4, 50@75 per doz.

Bunched vegetables: Carrots, 50 doz. turnips, 40@50 doz.; beets, 40@50 doz. parsley, 30.

Cabbage: 2.00@2.25 per crate, 1½ per lb., 75@1.00 per doz.

Carrots: 90@1.00 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River fy., mostly 4.75@5.00 per crate; poorer, 4.00@4.50.

Cucumbers: Per outside sm. box, 1.75@2.25; hothouse, fancy, 2.50@3.00 doz.; English, 1.20@1.50 per doz.

Eggplant: Lb., 15; poorer, 5@10.

Endive: 40@50 per lb.

Garlic: 4@6 per lb. for medium grades poorer quality, less.

Lettuce: Small crate, local, 1.00@1.25; iced, Los Angeles, 1.25@1.75; Imperial Valley, 2.50; few sales at 2.75.

Mushrooms: Small box, 50@75; large 75@2.00, or 25@50 per lb.

Olives: 5@9 per lb.

Onions: Cold storage, browns, firm mostly 5.50@6.00; white globes, mostly 7.50; pickle onions, brown, 4.50; green onions, 2.25 box.

Peas: 15@20 lb.

Beans: Poorer, 10@15; Florida, fir quality, 40@50; limas, 6@10.

Peppers: Bells, best, 20@25 lb.; chili 15@17½ lb.

Potatoes: Rivers, fancy, 2.15@2.35; Oregon Burbanks, 2.25@2.40; Idaho Netteed Gems, 2.60@2.85.
Pumpkins: Per sack, 75@1.00 per 90 lb. sack.
Rhubarb: 2.75@3.00 per apple box; off grades, 1.75@2.25.
Squash: Summer Brawley, 3.00@3.50, small crate; cream, 75@1.00 per lug; Hubbard, 1.00@1.50 per 90 lb sack.
Spinach: 9@10 per lb.
Sprouts: 7@9 per lb.
Sweet potatoes: Per cwt., 3.75@4.00.
Tomatoes: Repacked, Southern, best, 2.50@2.75 cr.; Mex., lug, 2.75@3.50.
Turnips: 90@1.15 sack.

FRESH FRUITS

Prices furnished by state department of agriculture, division of markets:
Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Apples: California Newtown Pippins, 4 tier, 1.85@2.00; 3 1/2 tier, 2.00@2.20; 4 1/2 tier, 1.65; B grade, 1.00@1.50. Langford Seedlings, 4 1/2 tier, 1.10@1.25; 4 tier, 1.40@1.60. Northwestern: Newtown Pippins, extra fancy, 3 1/2 and 4 tier, 2.40@2.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitzenburg, extra fancy, 2.25@2.65; fancy, 2.00@2.25; Rome Beauty, fancy, 2.00@2.25; choice, 1.50@1.75; banana, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fancy, 3.50; Jonathan, nominal (practically off the market).
Avocados: California, large, 6.00@8.00 per doz.; medium, 4.00@6.00; small, 2.50@4.00.
Bananas: Eastern, 7@7 1/2 per lb.; red, 3 per lb.; Hawaiian, 7@7 1/2.
Cranberries: Slow, 4.50@5.50 box; 1/2 bl. Cape Cod, 17.50@20.00 per bbl.
Pears: Winter Nelis, 1.75@2.25 per box; Beurre Clairgeau, 1.75@2.50; De Anjou, .50@2.25; poor storage, 1.00@1.75.
Pineapples: 5.50@6.00 per doz.
Pomegranates: Storage, 1.50@1.75 per small box; poorer, 1.25@1.50.

CITRUS FRUITS

Prices furnished by the state department of agriculture, division of markets:
Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by

wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Lemons: Special pack, fancy, 3.25@3.75; others and poorer, 1.50@2.75; lemonettes, 1.25@1.75. Oranges: Special pack, 126s-200s, fancy, 4.00@4.50; 150s, 3.75@4.00; 200s-216s, 3.25@3.75; choice, 2.25@2.75. Tangerines: 2.00@2.50 per small box.

GRAIN

Sales on Grain Exchange:
Barley: Feed, 1.22 1/2@1.27 1/2.
Wheat: Mill, 1.85@1.95, feed, 1.85@1.95.
Red Feed Oats: 1.40@1.55; seed, 1.75@2.10.
Corn: California yellow, 1.40@1.45; eastern yellow, No. 2, 1.37@1.40; No. 3, 1.25@1.27; No. 3 Kafir, in bulk, 1.43@1.45; white Egyptian, 1.72 1/2@1.77 1/2; California red milo, 1.45@1.47 1/2.

Citrus Markets

Los Angeles, January 18, 1922.

Reaction from the brisk holiday trade and overloading of markets with Florida and Porto Rico fruit shows in slow demand and dropping of prices for California. Slowing down of market has naturally slowed down shipments of oranges so that this week's shipments are light. The Exchange will put out its crop estimate about February 1.

The lemon market is inactive. Over 16,000 boxes of foreigns will be available on the market within the next 30 days.

Shipments

Shipments of citrus fruits to date since November 1, 1921. Southern California: Oranges, 3,427 cars; lemons, 1,137; total, 4,564. To same date last season: Oranges, 2,818; lemons, 1,006; total, 3,824. From Central California to date this season: Oranges, 4,073; lemons, 56; total, 4,129. To same date last season: Oranges, 3,390; lemons, 50; total, 3,940. From Northern California to date this season: Oranges, 364; lemons, 6; total, 370. To same date last season: Oranges, 297; lemons, 3; total, 300.

A WORD ABOUT SORGHUMS

(Continued from Page 75.)

ported from feeding grain heads, silage, dry fodder or stover."

Livestock

We are sure the livestock production in California and throughout the Southwest may be greatly increased by an intelligent cultivation of sorghums, making use of the varieties according to their best adaptation to local conditions.

Small herds may be maintained more economically when a better understanding of sorghums is more general and when more silos are built.

EGG LAYING CONTEST

(Continued from Page 85.)

but this will in no way affect the contest records of the birds. All birds above referred to except the highest individual for December are S. C. White Leghorns.

SAVING THE WASTES

Reclamation of over 100,000 acres of land in the Salt River Valley has been brought about through the development work of the Salt River Valley Water Users' Association. Three or four years ago a large expanse of land in the Salt River Valley was considered to have very little value, much of it in fact was worthless on account of the oversaturation of water due to excess irrigation and other reasons. D. W. Murphy of Los Angeles, a consulting engineer formerly associated with the Reclamation Service of the Government, assumed charge of the work of reclaiming the land and under his direction the development has been brought to a successful conclusion. The problem was to eliminate the water and deliver it to other land within the bounds of the project requiring the water.

Since 1918, fifty-two Layne & Bowler Turbine Centrifugal Pumps have been installed in various parts of the project, which are successfully draining the wa-

ter from the oversaturated land. The water produced by these fifty-two pumps, amounting to 60,300 gallons per minute, is delivered through canals and laterals to other parts of the project requiring the water.

The entire project comprises approximately 200,000 acres of land. All of the pumps are of the direct connected type and are operated night and day. Supplementing the fifty-two pumps an additional twenty are now being installed. The land is being devoted to general farming and a considerable portion of it has been placed under cultivation for the raising of cotton.

AGRICULTURAL ENGINEERING PROBLEMS

Practically every community in California has its irrigation or drainage problem, and there are many individual problems. Experience has taught many to realize that expert advice is most satisfactory when thousands of dollars are to be invested in a project that will make or break a community, and the more competent the engineers the better.

Specializing on irrigation and drainage, the Ranch Development Company now offers a field service to any who desire preliminary examinations on irrigation projects and similar engineering problems. Many organizations and members residing in an irrigation district find it economical and most satisfactory to obtain competent, reliable engineers to manage and supervise the surveying, forming of the organization, buying the materials and the actual construction work. Numerous instances are on record where the engineer's skill has saved many times the fee in the purchase of materials and in reducing construction expenses to the minimum. The formation of an irrigation district, the planning and carrying through to completion of irrigation and drainage projects costing thousands of dollars is too important to be entrusted to any but skilled engineers who have proven their ability.

WEATHER REPORT

San Francisco, Cal., Jan. 14, 1922.

Stations.	Rainfall		Temp.	
	Week.	Season.	Norm.	Max. Min.
Eureka	.0	13.56	19.94	58 38
Red Bluff	.0	10.15	11.89	66 28
Sacramento	.0	7.32	8.44	54 32
San Francisco	.0	9.94	9.86	60 42
San Jose	.0	7.81	7.18	62 30
Fresno	.0	5.88	4.30	54 32
San Luis Obispo	.0	9.75	7.99	76 34
Los Angeles	.0	10.78	6.27	78 44
San Diego	.20	12.94	4.06	72 46

Rules and Regulations for Carrying Out the Provisions of The California Economic Poison Act of 1921

PROCLAMATION BY DIRECTOR OF AGRICULTURE

Proclamation by Director of Agriculture

By virtue of the authority vested in the Director of Agriculture by section 3, California Economic Poison Act of 1921, approved June 3, 1921 (Statutes 1921, Chapter 729), I, G. H. HECKE, Director of Agriculture of the State of California, do hereby proclaim that the following rules and regulations will be in full force and effect on and after the expiration of thirty days from date hereof, and after having been published in one or more newspapers and farm journals of general circulation in the State of California and sent to each person registered in compliance with the provisions of said act:

General

Interference with Agent

1. No person shall interfere with, delay or hinder, or attempt to interfere with, delay or hinder, the taking of samples of economic poisons, making analysis or examination thereof, making investigation concerning the use, sale, adulteration or misbranding of economic poisons by the Director of Agriculture, his agents or authorized representatives.

Inspector

2. Any agent or authorized representative of the State of California Department of Agriculture, or any other person authorized by said department to collect samples of economic poisons, shall be designated as an "inspector."

Collection of Samples

Official Samples

3. Official samples of Economic Poisons shall be those samples only which have been taken by the Director of Agriculture or by an inspector.

Taking Samples

4. Samples of economic poisons may be taken by an inspector from such places, at such times, and in such manner as in the opinion of the Director of Agriculture are necessary for the full enforcement of this act.

Damage to Containers and Contents

5. When it shall be necessary for an inspector to open any container for the purpose of obtaining a sample of economic poison, the inspector shall use reasonable care to avoid damage to said container and the material contained therein, but the State of California Department of Agriculture shall not be liable for unavoidable damage resulting therefrom.

Claim for Value of Samples

6. Any person from whom a sample or samples have been taken by an inspector shall have the right to file a claim against the State of California Department of Agriculture for the value of the sample or samples taken. Said claim shall be made by rendering an invoice of the sample or samples so taken. Said invoice must be rendered in triplicate and filed with said Department within ten days after such sample or samples were taken.

Method of Sampling

7. In the absence of specific directions, the method of sampling of economic poisons shall be that determined upon by the mutual consent of the inspector taking the sample and the person from whom the sample is to be taken, or if the method of sampling cannot be determined in such manner, the inspector shall determine the method of sampling, but the person from whom the sample is being taken shall have the right to file a protest in writing with the Chief of the Division of Agricultural Chemistry of the State of California Department of Agriculture. If such protest is not received within ten days from the date upon which the sample was taken, it shall be assumed that the sample was properly taken.

Methods of Analysis

Methods of Analysis

8. Unless otherwise specified by the Director of Agriculture, the methods employed for the examination or analysis of economic poisons shall be those prescribed by the Chief of the Division of Agricultural Chemistry. In case of dispute the results obtained by following an official or tentative method agreed upon by the Association of Official Agricultural Chemists shall be given the preference, provided there is such a method for the examination or analysis of the material under examination.

Registration

When Application Is Made

9. No person shall be considered as having applied for a certificate of registration unless his application is accompanied by the required registration fee or a sufficient proof of the right to exemption therefrom.

Proof of Exemption from Fee

10. Any person claiming exemption from the payment of the annual registration fee under the provisions of section 12, upon demand of the Director of Agriculture shall furnish such evidence as the Director may require to establish the validity of such claim.

Hearings

Kinds of Hearings

11. Witnesses may be compelled to attend hearings, as provided for in this act, by issue of subpoena, or attendance at a hearing may be voluntary, at the discretion of the Director of Agriculture.

Subpoena of Witnesses

12. In the subpoena of witnesses for attendance at a hearing the procedure shall be followed as provided for in section 353 of the Political Code of California as amended (Chapter 602, Statutes of 1921, p. 1023).

Voluntary Hearings
Adulteration and Misbranding

Reports of Analysis

13. If after examination or analysis a sample appears to be adulterated or misbranded, a report thereof may be given to the person from whom the sample was obtained, or to the person holding license for the manufacture or sale of the material, or to both parties and to such other interested parties as may seem advisable, but such report shall not be published until after ten days from the time the report has been rendered.

Comments or complaints concerning these reports must be made to the Chief of the Division of Agricultural Chemistry within ten days in order to receive consideration.

Evidence of Adulteration or Misbranding

14. When the Chief of the Division of Agricultural Chemistry has obtained sufficient evidence to prove beyond any reasonable doubt that an adulterated or misbranded economic poison has been sold or offered for sale, he shall present the facts to the Director of Agriculture.

Notice of Hearing

15. Upon the Director of Agriculture notifying any person that the person so notified has apparently violated section 2 of the act in regard to adulteration or misbranding, he shall also specify in such notice that such person so notified may request by registered letter a hearing on said matter, the time and place of said hearing to be fixed by the Director of Agriculture.

The person so notified may appear in person or by attorney and may submit oral or written evidence to show any fault or error in the finding of the examiner or analyst.

Serving Notice of Hearings

16. Notices of hearings and findings in regard to adulteration or misbranding may be served in person by any authorized agent of the State of California Department of Agriculture, or by registered mail sent to the last known address of the person to be notified.

At least ten days' notice shall be given prior to the holding of a hearing in regard to adulteration or misbranding.

Voluntary Hearings
Selling Without License or Label

Hearings by Inspector

17. If it appears that an economic poison has been sold or offered for sale without first having been registered as provided for in section 12, or has been sold or offered for sale without being properly labeled as provided for in section 9, a hearing may be held by an inspector at a time and place designated by the inspector.

In these cases, ten days' notice of hearing shall not be required, but the length of time that a notice shall be given prior to the hearing shall be at the discretion of the inspector.

Enforcement

When Enforced

18. With the exceptions noted in Regulations 19 and 20, all the provisions of this act will be enforced on and after the day this regulation becomes effective.

Stocks on Hand

19. A reasonable length of time will be allowed for the disposal of stocks of unregistered economic poisons in the hands of dealers if purchased prior to the time this regulation becomes effective and are not adulterated or misbranded, provided a permit, in writing, authorizing such disposal has been obtained from the Director of Agriculture, or from a person authorized to issue such permit.

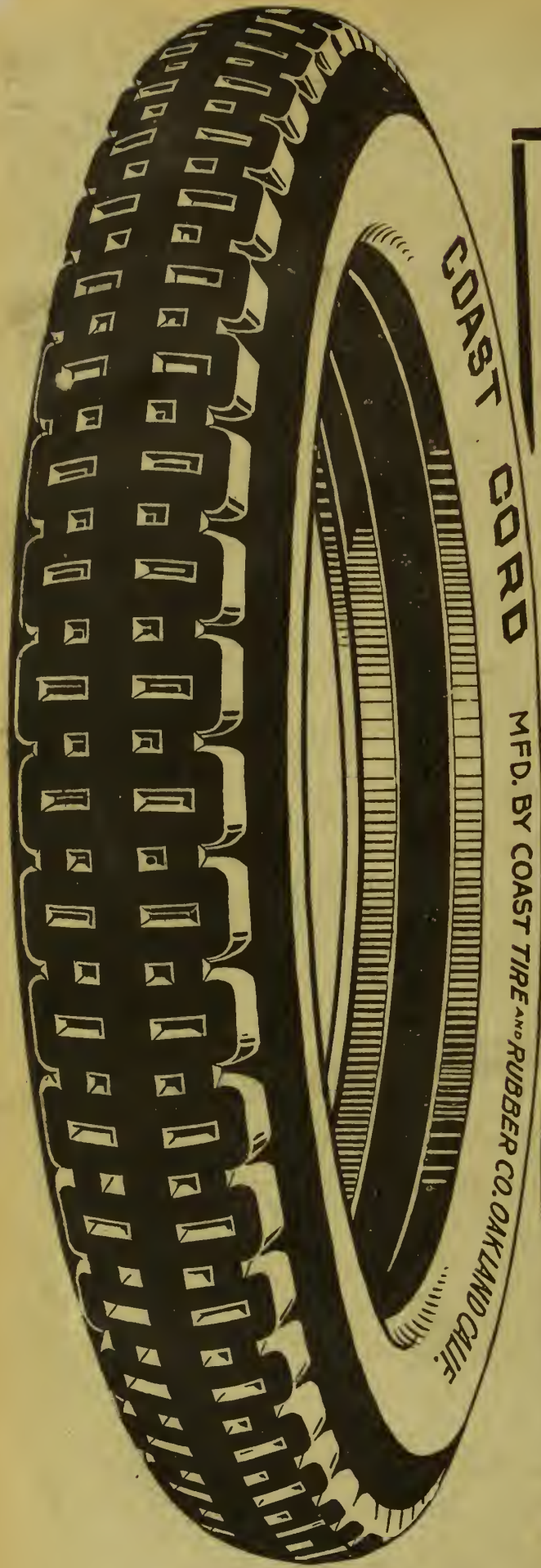
Labeling Herbicides and Rodenticides

20. Labeling requirements in respect to substances intended to be used for the control or eradication of weeds and rodents will not be enforced prior to July 1, 1922.

In testimony whereof I have hereunto set my hand and caused the official seal of the Department of Agriculture to be affixed in Sacramento, California, this 29th day of December, 1921.

(Seal)

G. H. HECKE, Director of Agriculture.



We want you to know about

COAST TIRES

The new California product that has gained
a commanding position among the
leading makes in the
United States

**PERFORMANCE IS THE
PROOF OF A TIRE**

and Coast Tires have made good under
every test.

In the last Nevada Road Race
Coast Tires went the entire distance with but one puncture, THE ONLY TIRES THAT EVER went the distance in this gruelling race. Coast Tires made a record run on the Cotati Track of 1,000 miles in 899 minutes without a single stop for tire trouble of any kind.

Coast Tires were used on a test run from San Francisco to New York, making the distance in a trifle over 6 days, and arriving in New York City with the San Francisco air in ALL FOUR TIRES. Coast Tires carried the Essex Car to victory in the dealer's race on the new San Francisco speedway, Sunday, Dec. 11, 1921,

Remember These Facts the Next Time You Buy Tires

Millions of dollars are spent in the East annually by California for tires. This money going out of the State benefits only the Eastern concerns—pays Eastern taxes, gives employment to Eastern workmen.

The Coast Tire and Rubber Company is a California corporation; financed by California capital; employs California labor; pays taxes in California; keeps California money in the State.

and Coast Tires are daily proving their superiority in durability, service, non-skid qualities, on thousands of cars throughout the Coast.

COAST TIRES ARE A SUCCESS because we use only the very highest quality materials, combined with superior design and workmanship. ONE SET will convince you of the truth of our statement that:—

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CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

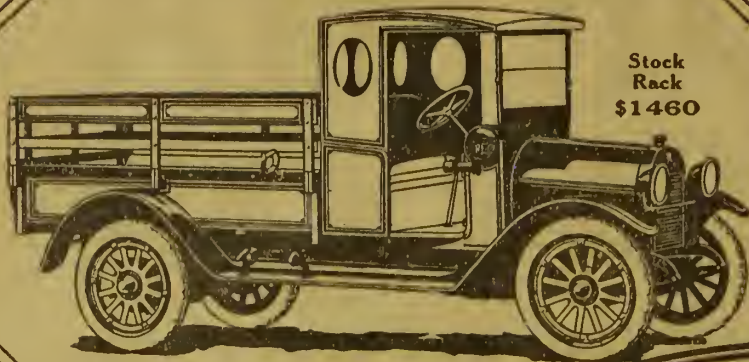
January 28, 1922

No. 4

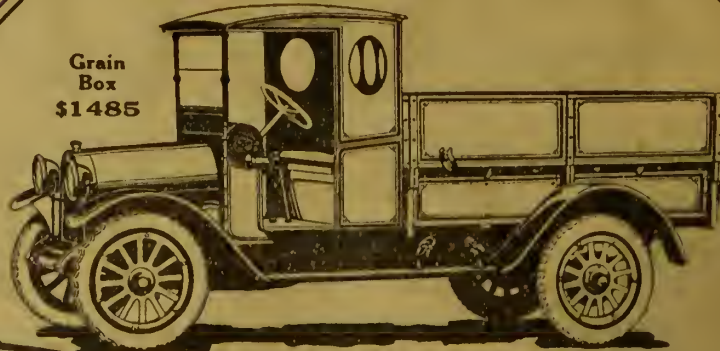
Preliminary Estimates California's Crops, 1921

LAST week's Cultivator gave some statements from Mr. Kauffman's report among which were statements in effect that the value of all California crops in 1921 was \$362,690,000 while that of 1920 crops was \$489,110,000, and the great war price production of 1919 was \$561,000,000. We did not then give all the facts available, so give on this page tables worth posting on the wall for future reference.

		—Farm Value, Dec. 1—		BARLEY—							
Production		Unit	Per Unit	Total	1921.....	1920.....	1919.....				
APPLES—					1,188,000	1,250,000	987,000	25.0	29,700,000	“	.56
1921.....	6,500,000	Bushels	\$ 1.35	\$ 8,775,000				23.0	28,750,000	“	1.00
1920.....	6,000,000	“	1.60	9,600,000				27.0	26,649,000	“	1.41
1919.....	8,200,000	“	1.45	11,890,000	WHEAT—						
PEACHES—					557,000	714,000	1,087,000	15.0	8,355,000	“	1.07
1921.....	320,000	Tons	42.00	13,440,000				14.0	9,996,000	“	1.80
1920.....	360,000	“	76.00	27,360,000				15.5	16,848,000	“	2.04
1919.....	430,000	“	60.00	25,800,000	POTATOES—						
PEARS—					74,000	70,000	66,000	136.0	10,064,000	“	1.30
1921.....	78,000	“	62.50	4,875,000				140.0	9,800,000	“	1.50
1920.....	102,000	“	90.00	9,180,000				130.0	8,580,000	“	1.71
1919.....	115,000	“	72.00	8,280,000	SWEET POTATOES—						
PRUNES—					8,000	8,000	8,000	120.0	960,000	“	1.25
1921.....	90,000	“	130.00	11,700,000				127.0	1,016,000	“	1.60
1920.....	97,250	“	130.00	12,643,000				130.0	1,040,000	“	1.79
1919.....	135,000	“	240.00	32,400,000	RICE—						
APRICOTS—					120,000	162,000	155,000	49.0	5,880,000	“	1.15
1921.....	105,000	“	50.00	5,250,000				51.0	8,262,000	“	1.21
1920.....	110,000	“	85.00	9,350,000				60.0	9,300,000	“	2.67
1919.....	175,000	“	80.00	14,000,000	HAY, TAME—						
ORANGES—					2,129,000	2,150,000	2,150,000	2.35	5,003,000	Tons	11.00
1921.....	22,500,000	Boxes	2.20	49,500,000				2.30	4,945,000	“	20.00
1920.....	21,600,000	“	2.18	47,088,000				2.25	4,838,000	“	17.20
1919.....	15,528,000	“	2.75	42,702,000	HAY, WILD—						
LEMONS—					167,000	170,000	178,000	1.10	184,000	“	7.00
1921.....	5,300,000	“	2.50	13,250,000				1.04	177,000	“	12.00
1920.....	4,955,000	“	2.92	14,469,000				1.04	185,000	“	12.00
1919.....	3,499,000	“	2.00	6,998,000	HOPS—						
RAISINS—					12,000	12,000	9,000	1,185	14,220,000	Pounds	.25
1921.....	130,000	Tons	190.00	24,700,000				1,575	18,900,000	“	.35
1920.....	177,000	“	235.00	41,595,000				1,550	13,950,000	“	.77
1919.....	182,500	“	210.00	38,325,000	BEANS—						
GRAPES (WINE)—					272,000	300,000	472,000	13.3	3,618,000	Bushels	2.80
1921.....	310,000	“	82.00	25,420,000				10.0	3,000,000	“	3.30
1920.....	375,000	“	75.00	28,125,000				13.9	6,561,000	“	4.35
1919.....	400,000	“	50.00	20,000,000	COTTON LINT—						
GRAPES (TABLE)—					140,000	275,000	185,000	252	35,280,000	Pounds	.18
1921.....	125,000	“	75.00	9,375,000				266	73,150,000	“	.18
1920.....	190,000	“	75.00	14,250,000				268	49,580,000	“	.43
1919.....	200,000	“	75.00	15,000,000	COTTON SEED—						
CHERRIES—					1921.....	1920.....	1919.....		41,000	Tons	13.00
1921.....	13,000	“	125.00	1,625,000					83,500	“	17.00
1920.....	17,500	“	200.00	3,500,000					53,000	“	65.00
1919.....	12,400	“	150.00	1,860,000	GRAIN SORGHUM—						
PLUMS—					1921.....	1920.....	1919.....		4,340,000	Bushels	.70
1921.....	40,000	“	53.00	2,120,000				31.0	4,050,000	“	1.05
1920.....	35,000	“	90.00	3,150,000				27.0	4,284,000	“	1.54
1919.....	42,000	“	60.00	2,520,000	SUGAR BEETS—						
OLIVES—					1921.....	1920.....	1919.....		1,025,000	Tons	7.82
1921.....	8,200	“	90.00	738,000				8.40	1,073,828	“	13.13
1920.....	8,000	“	95.00	760,000				8.74	815,896	“	14.17
1919.....	8,800	“	160.00	1,408,000	ONIONS—						
FIGS—					1921.....	1920.....	1919.....		2,098,500	Bushels	1.71
1921.....	8,000	“	145.00	1,160,000				229	3,713,500	“	.75
1920.....	12,300	“	90.00	1,107,000				317	2,405,500	“	1.90
1919.....	12,000	“	150.00	1,800,000	CANTALOUPEs—						
ALMONDS—					1921.....	1920.....	1919.....		13,163	Cars	.....
1921.....	5,500	“	320.00	1,760,000					13,147	“	.....
1920.....	5,500	“	360.00	1,980,000					12,010	“	.....
1919.....	7,250	“	440.00	3,190,000	VEGETABLE SHIPMENTS—						
WALNUTS—					1921.....	1920.....	1919.....		26,923	“	.....
1921.....	19,500	“	400.00	7,800,000					24,563	“	
1920.....	21,000	“	400.00	8,400,000					20,071	“	
1919.....	28,100	“	550.00	15,455,000							



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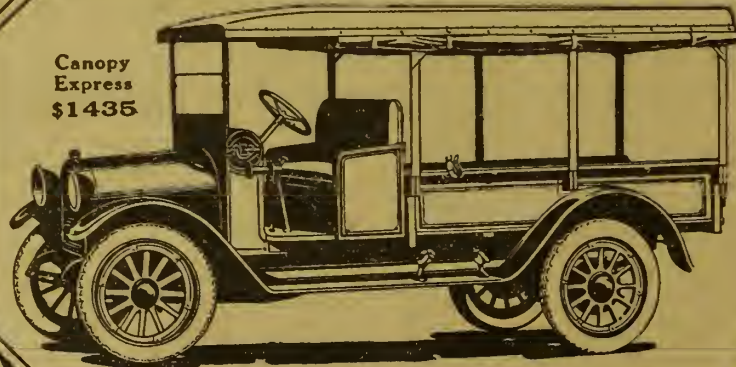
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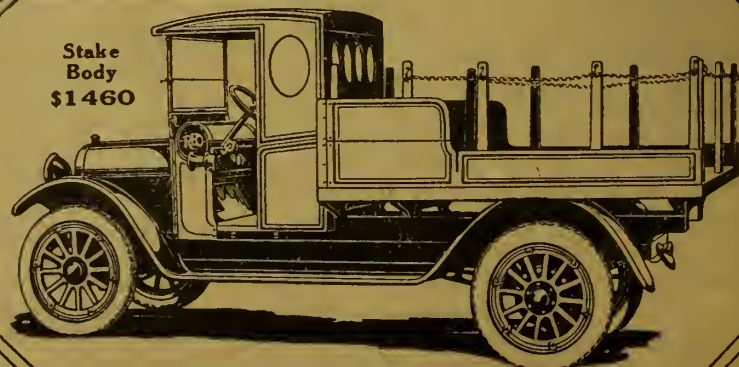
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California Cultivator

Vol. LVIII, No. 4

Los Angeles, January 28, 1922

One Dollar Yearly

The Weather Gave Us a Jolt, but We're Still on Top



WHEN Sunday night, January 15, had passed the farmers of California breathed easier. For years there had been a prevalent opinion that when we passed the middle of January we had passed the danger of freezing our crops. This year, however, we are given additional proof of California's versatility, for she has changed the date and given us a jolt with one of our most severe cold spells on January 19 and 20.

Temperatures are reported as low as 15 degrees above zero, and in the citrus sections as low as 20. And even the frostless section where mid-winter spinach, lettuce and other truck crops are grown reports serious injury. In the Imperial Valley matured lettuce is all seriously injured,

By C. B. Messenger

but the younger plants may yet come on with a fair return. Fortunately a large proportion of the regular mid-winter crop of lettuce has been shipped. Cauliflower is less seriously injured, but shipping will be slowed up for a few days. To cabbage the injury is practically nil. Practically all spinach which was not shipped at date of freeze is total loss. Imperial Valley cantaloupes which are already up and not protected will be total loss. The fields protected by the little paper caps are many of them in good condition. Of course all tomatoes and similar tender plants will call for resetting.

Citrus growers have taken hold of the situation with vigor and many

believe they will end the season with a return almost equal to what it would have been if they had shipped the entire crop. Meetings were called in Riverside, Redlands, San Bernardino, Santa Ana and Los Angeles on the third day of the cold spell. Excepting on the part of the few who live in the "frostless belt" the situation was squarely faced that the citrus fruit had been injured, and the question was discussed as to best method of preventing the shipping of injured citrus fruit.

At the Los Angeles meeting Commissioner Ryan stated that he had invited the growers to come together to discuss their own problems and to give instructions to the standardi-

zation officials. He expressed the belief that if care was used in handling the situation uninjured California oranges might yet be shipped to give almost as great return to the growers as if no freeze had occurred. He compared temperatures of cold spells of January 6, 1913, January 1, 1919, and January 20, 1922. The minimum temperatures of these years as gathered by Mr. Ryan are:

	1913	1919	1920
Pasadena	21	23	22
Pomona	21	24	23
Redlands	18	25	20
Riverside	21	22	23
San Bernardino	18	22	22
Santa Ana .....	.....	22	25
San Fernando .....	.....	23	22
Los Angeles	28	36	33

In general the larger citrus producing sections show temperatures this (Continued on Page 119.)

Suit Against Raisin Growers Ended



CALIFORNIA cooperators have never given very enthusiastic endorsement to the action of the government in making the packers fight on the raisin industry. However, the cooperators have proved true blue and have even cooperated in this suit which was begun some three years ago. A decision has been rendered and it is to be hoped that it is final. President Wylie M. Giffen says: "It is a matter of congratulation that so satisfactory a conclusion has been reached." President Giffen has issued a statement explaining the various conditions and it will be noted in the text of his statement that excepting for one paragraph, raisin growers have no fault to find.

"This decree was agreed to by the government and ourselves a number of days ago and will be approved as the final decree of the United States

court by the Hon. Benjamin F. Bledsoe, presiding judge of the southern district of California, and that there may be no misunderstanding about its meaning we desire to give the following interpretation of the decree as we understand it:

"Paragraph one provides that the growers' contract, under which we were operating at the time the suit was brought, should not be carried out by us, except as it affect the closing up of our 1920 accounts. This contract had long ago been cancelled by us and we now have an entirely new contract; therefore this paragraph works no hardship.

"Paragraph two provides for the annulment of the contract between ourselves and the California Packing Corporation. That contract automatically ceased when the growers' contract above referred to in paragraph one was cancelled.

Good Will and Success

"Paragraph three provides that no growers' contracts shall be taken by means of coercion, intimidation or

duress. We, of course, agree heartily with this paragraph. We do not believe now and never have believed that an organization built up by such methods could endure. In other words, the very life of an organization like this depends on the good will of the community in which it operates. Whenever this good will is lost to such an extent that the growers will not sign contracts because they believe in the organization we must close our doors. Therefore, this paragraph is not in the least objectionable to us, as we are only enjoined from doing what we have never done.

"Paragraph four provides that we have no right to secure any contract that does not, at the end of the first three years, or at the end of any two year period thereafter, give the right of cancellation to the grower who signed it. This clause was voluntarily put into the contract, under which we are now operating, by us, and of course, a decree which stamps the approval of the government upon it is not only unobjectionable, but is

particularly pleasing. And, so far as the writer is concerned, I believe absolutely in this clause in the contract because, as has just been said, an organization that depends on the contract rather than the good will of the growers is bound to fail, and this clause provides a simple method for growers who become dissatisfied to withdraw and whenever the time comes that the growers of raisins in California believe that as an industry we will be better off without an organization than we are with it, they will naturally exercise this right under this clause and the organization must cease to function as a cooperative institution. This, to me, is unthinkable, and I cannot believe that in the light of past experience the time will ever come when the growers of raisins will exercise this right in such large numbers as to jeopardize the life of the organization, but if in this I am mistaken and it does come I shall accept it as proof that the management is so inefficient that the organization has no place in the (Continued on Page 119.)

University Plans Great Livestock Meeting



THE University of California, through the college of agriculture, and more particularly the animal husbandry division, has announced plans for holding the third "Stockmen's Week" at the university farm, Davis, February 20-25. This event, inaugurated in 1920 for the purpose of carrying the message of better livestock to the producers of this state, has been constantly broadened in scope until at the present time it has become one of the most influential factors in the development of our livestock industry and it has grown in stature until the annual attendance reaches considerably over the thousand mark.

There has never been a time during the past ten years when the various livestock interests of this state needed more to meet together and discuss their individual and combined problems, and for that reason efforts have been made to provide a program calculated to touch all branches and all

phases of the industry. Beef cattle, dairy cattle, hogs, sheep, horses and milk goats all have a place in the activities of the week. Talks and addresses by men of national standing will feature each day's program and cover a range of subjects from production problems to marketing.

Monday, the opening day, will be given over to a meat cutting demonstration in which the relative weights and values of cuts from steer and heifer carcasses will be compared. This will constitute the first demonstration of the kind ever held in the West. During the same afternoon the operation of the cooperative packing plant of the El Dorado County farm bureau will be explained. This will be followed by a discussion of the fresh meat rings developed in Napa County. Under the latter plan it is possible for country folk to have fresh meat every day in the year at a nominal cost.

By R. P. Royce

Tuesday has been designated as "Hereford Day" and will be featured by a meeting of the Pacific Coast Hereford Cattle Breeders' Association. Following this meeting the cattlemen will be addressed by Dean Thos. F. Hunt of the college of agriculture and by Frank S. Hastings, manager of the great 400,000 acre S. M. S. ranch of Texas. Mr. Hastings is one of the most distinguished cattlemen of America. It is also expected that R. J. Kinzer, secretary of the American Cattle Breeders' Association, will be present. During the afternoon the annual spring sale will be held and will include around 80 head of bulls and females. This year an innovation has been introduced in connection with the sale in that the majority of the bulls will be sold in lots rather than as individuals. This departure was made to enable range buyers in need of a carload of bulls

to fill their orders. An evening program has been provided in which Dean Hunt will discuss the European agricultural situation. Dean Hunt recently returned from a year abroad and his observations should prove of great interest. President Barrows of the University will also address the meeting. Mr. Hastings will close the evening program with "Recollections of a Rancher." It was under that title that Mr. Hastings recently published one of the most interesting and delightful contributions to agricultural literature—a book that at once won for him a reputation as a writer quite as high as he enjoyed as a cattleman.

Wednesday is "Shorthorn Day" and promises to be one of the popular days of the week. In the morning session Professor C. E. Howell will make a report of the progress of the U. C. range cattle experiment. The university is now carrying on what is declared to be the most extensive cattle experiment ever attempted in this (Continued on Page 110.)

Agricultural News Notes of the Pacific Coast

Northern California

Santa Rosa is making plans for its rose carnival, May 4-6.

The Lassen County chamber of commerce is planning for a county fair next fall.

The Rice Growers Association is making three and five year contracts with growers.

The Sonoma County farm bureau will hold its annual meeting at Santa Rosa, February 22.

Commercial bodies of Scott Valley, Siskiyou County, are active in work-in for a cow testing association.

The Rice Growers Association of California made its first sale January 11, 20,000 sacks of No. 2 paddy at from \$2.75-\$2.80.

Officers of the Canning Peach Growers are: R. W. Skinner, Yuba City, president; E. R. Williams, San Jose, vice-president.

The California Canning Peach Growers will have its main office at San Francisco with branch offices at Fresno and Yuba City.

Several Sacramento Valley counties were represented at a meeting held at Marysville, January 11, to organize a hog auction sale association.

The farm bureau at Corning, Tehama County, is organizing a cooperative marketing movement among fruit and vegetable growers of that district.

The California Prune and Apricot Growers has opened a San Francisco office at 244 California Street in the Welch Building. The office is in charge of Harless Moser.

Stockmen's Week at university farm, Davis, February 20-25. Cooperative killing and meat packing will be discussed and home cured ham and bacon will be shown in competition.

Officers elected at annual meeting Placer County farm bureau: John A. Livingston, Auburn, president; Henry W. Ahart, Lincoln, vice-president; Maud Elkers, Auburn, secretary-treasurer; J. A. Teagarden, Auburn, state director.

Owing to the increased number of corn fed hogs being received at the Farmers' Exchange packing plant at El Dorado, Placer County, a number of new salting vats are being made and other enlargements are under way to properly care for the growing business of curing meats.

California's fruit pack for 1921 totals 8,511,851 cases all grades and sizes, compared with 11,382,863 cases in 1920 and 13,696,403 in 1919. About 1,679,330 cases were packed this year in Southern California as well as 46,824 cases of vegetables. State vegetable pack for 1921 is 2,615,947 cases, compared to 5,249,946 in 1920 and 7,051,519 in 1919. Stocks in canners' and jobbers' hands lighter than for many years.

At the recent annual meeting of the Fruit Growers of California the entire board of directors was reelected: R. P. Van Orden, Mountain View; I. O. Rhoades, Morgan Hill; H. N. Schroeder, Los Altos; W. E. Moore, Berryessa; E. K. Clendenning, Campbell; R. V. Garrod, Saratoga; L. E. Walter, Mountain View; H. L. Coates, Evergreen; H. A. Clark, Saratoga; W. L. Dunlap, Hollister; W. A. Johnson, Hollister; James Milne, Morgan Hill; E. B. Sellers, Oakley.

Central California

Engineers estimate cost of the Pine Flat project at \$20,000,000.

Tulake "lake" is filling up and much planted grain land has been flooded.

Nine hundred cows were tested by the Stanislaus County farm bureau during December.

The Stanislaus County Holstein Breeders' Association held a meeting and banquet at Modesto last week.

A meeting in the interest of cow testing was held at Riverdale, Fresno County, January 17. 150 dairymen attended.

It is planned to have representatives from civic bodies of every city in the San Joaquin Valley to form a permanent Raisin Day Festival Association.

The new name of the raisin growers association, Sun-Maid Raisin Growers, will soon be in use, technicalities having been practically all complied with.

Stanislaus County poultrymen who ship through the Northern California Egg Producers Association will soon have an up-to-date shipping station at Modesto.

Joint installation of the officers of the granges of Tulare, Visalia, Dinuba and Poplar, as well as the Tulare County Pomona Grange, was held at Tulare, January 11.

A two days institute for vineyardists was held at Fresno, January 26 and 27. The program was under direction of Fred K. Howard, chief of the growers service department of the Sun-Maid Growers.

The Monterey Tree Growing Club recently presented the state highway commission with 1,000 oak trees of several varieties. This club primarily is interested in use of trees as soldiers' memorials.

Sixty melon growers of Turlock have formed a marketing association. Directors selected are: H. A. Stammerjohan, Dr. Berry, W. Reedy, W. A. Mason, Harry Alexander, A. C. Rapp and M. L. Pope.

Applications for grazing permits in the Sequoia national forest will be received by the forest supervisor at Porterville up to February 1. 29,870 head of cattle and horses will be allowed, 6000 sheep and 600 swine.

The Farmers Mutual Fire Insurance Company of Stanislaus County held its annual meeting at Turlock January 9. W. M. Way of Modesto was elected president; Peter Erickson, vice-president. The new directors are: A. L. Rutherford, W. H. Brink, Charles Higbee, G. R. Larson and Claus Johnson.

The California Grape Growers' Exchange at its annual meeting January 10 elected directors to represent grape growing districts: E. G. Smith, Geyserville; H. J. Klein, Napa; Frank T. Swett, Martinez; Eugene Frye, Elk Grove; C. L. Crawford, Ukiah; E. M. Sheehan, San Francisco; E. M. Bowles, San Francisco, representing state market commission.

The Tulare County Cattlemen's Association at its annual meeting last week elected W. J. Fulgham of Visalia president and selected other officers as follows: Vice President, Walter Goins, of Visalia; secretary, C. A. Guthrie, of White River; directors, W. J. Fulgham, C. A. Guthrie, Walter Goins, E. B. Armstrong of Earlimart, and J. G. Brown of Porterville.

Southern California

Imperial Valley vegetable growers are finding profit from asparagus.

February 6-10 has been designated "Honey Week" by Governor Stephens.

A second walnut packing house is to be built at Garden Grove, Orange County.

Anaheim, Orange County, reports a seven foot raise in water level since the storm.

Pure bred livestock breeders will hold their next meeting at Riverside, April 8, Dairy Day.

The farm bureau of Imperial County is distributing cuttings of tamarisk trees for windbreaks.

Ranchers in the Perris Valley say the water table has already risen four to six feet since the big rains.

A branch office and warehouse of the California Prune & Apricot Growers has been opened in Los Angeles.

Farmers in the vicinity of Neighbors, Palo Verde Valley, will form a unit of the Riverside County farm bureau.

Eighty ranchers enrolled in the tractor course given at Covina last week by experts from the state university.

Apple growing sections of Southern California are trying to get together in a cooperative marketing organization.

Decreased shipments of lettuce from Imperial Valley have sent up prices at shipping points. Carlots were bringing last week \$1.85.

Property owners at Anaheim are subscribing to the fund for banding of permanent levees along the Santa Ana River east of the city of Anaheim.

A meeting of apple and pear growers of Southern California will be called at Yucaipa sometime in February. The object is to discuss plans for a marketing organization.

Horticultural Commissioner Waite of Imperial County has placed at the county line of all highways large signs warning truck drivers that all plants must be inspected before delivery.

The management of the National Orange Show to be held at San Bernardino, February 17-27, has banned sale on the grounds of synthetic fruit drinks. Nothing but pure fruit juices may be offered.

Horticultural Commissioner Waite of Imperial County is answering questions from many grape planters to the effect that all grape cuttings brought in from the San Joaquin Valley must be given hot water treatment.

The Associated Chambers of Commerce of Orange County recommends that an association of growers be formed for the purpose of taking immediate steps toward flood control in this county, with the probability that it will be merged into the larger organization when the tri-counties system begins to function.

The Town Dwelling Mutual Insurance Company, the major part of whose business is in insurance of farm homes and buildings in Los Angeles County, reelected at its second annual meeting C. B. Messenger, president; Carlyle Thorpe, vice-president, and Fred Cromer, secretary-treasurer. This company, not yet two years old, is carrying \$1,207,000 and has a very neat reserve fund.

The Coast and General

A number of Arizona cotton fields will not be picked owing to low prices.

A district sales office of the Sun-Maid Growers is being opened in Vancouver.

Meet of the North Pacific Fair Association at Spokane, Washington, February 2-3.

Washington's mid-winter poultry show at Seattle brought out more than 1000 exhibits.

Berry growers of Cowlitz County, Washington, have formed a cooperative marketing association.

Clarke County, Washington, last season put out 8180 bushels of certified seed potatoes, mostly Burbanks.

Potato growers on reservation lands at Yakima, Washington, have lost heavily from injury caused by wireworms.

Oregon's fruit pack last year was 1,304,457 cases; vegetable, 53,745. Washington fruit, 1,307,548; vegetable, 103,665.

Bills have been introduced into both senate and house to place the forest service under the department of agriculture.

General Goethals, builder of the Panama Canal, has been secured by the state of Oregon to make survey of the Columbia River basin project.

Sale of a million pounds of scoured wool is reported from Oregon at 70 to 80 cents a pound; another sale of a million pounds at 21½ to 30¼ cents per grease pound.

Figures to prove that 50 apple trees to the acre will produce more fruit than 85-100 trees are being collected by Professor O. M. Morris of Washington state college.

The twentieth annual convention of the Washington Wool Growers' Association was held in Yakima, January 13 and 14. A growers' finance association was formed to take advantage of federal loan funds.

The National Cannery Association held its annual meeting at Louisville, Kentucky, January 16. The Canning Machinery & Supplies Association and the National Food Brokers Association held their annuals in connection with the canners.

An unusually large quantity of grapefruit and oranges intended for local consumption remains on the trees in the Salt River Valley of Arizona and its quality has been greatly improved by the cool weather that has not been cold enough to damage the fruit.

Salt River Valley of Arizona reports: "Cold nights have continued and have been favorable for lettuce, the quality of which continues to be excellent. The absence of decidedly cold weather has encouraged the early planting of potatoes and the preparation of the soil and seeding for a larger crop than usual is in progress."

On protest of the Western Nut Growers' Association and by proclamation of Governor Olcott of Oregon, silver gray squirrels are to be banished from the capitol grounds at Salem. They are regarded by nut growers as too serious a pest to warrant their propagation under state authority, some asserting that squirrels take at least half of the nuts that mature.

EVERY few days at this season of the year one hears talk of a new system of pruning this or that variety of grapes, and at the present time there are so many systems advocated that it is confusing to a grower who wishes to practice the very best methods in his vineyard. Usually these so-called pruning systems are applicable only under the particular conditions under which they originated and, for the best success, should not be used under any and all conditions. Someone has said that pruning contributes more than any other single operation to the production of a good crop of grapes. This may or may not be literally true, but certainly many growers have learned by experience that pruning has a great deal to do with the success of their vineyards, where other conditions are at least conducive to the production of a normal crop. It has long been recognized that each vine must be treated as an individual, that is, it is not considered wise to lay down any definite rule for the amount of fruit wood to leave on vines. It has been the practice in the past for the owner to instruct his crew to leave a definite number of spurs on every vine, or in case of long pruned varieties, to leave four canes or six canes, depending on what he considered the proper amount.

The vigor of vines varies to such an extent that this practice is gradually changing to one which allows the pruner to use his judgment in the pruning of each vine. One vine may be vigorous enough to support more fruit spurs or canes than its neighbor and it has been found that this close attention to the individual characteristics of vines has had much to do with improving not only the quantity but the quality of fruit produced.

Every grower should carefully study the various methods of pruning and the different systems which are being advocated at the present time, attempting to pick out those parts of the method which seem to be best suited to his particular conditions. If

he is in a district subject to spring frost he would be wise in choosing a system which would keep most of his fruit growth as high as possible. Extremely windy locations would require another system, soil which produces excessive wood growth would require some modification of most systems. Table grape varieties must be so trained that the fruit will not come in contact with the soil. In some cases colored varieties must be pruned in such a way that the fruit is more or less exposed to the sun, promoting earlier and better coloring. Exactly the opposite treatment may be required on those same varieties in other districts.

Pruning, therefore, is really a very complicated matter and a subject which should be thoroughly studied by each grower to help him decide how best to handle his own vines, and when he has decided on the ideal type which will give him the best results he should stick to that system until it has been well demonstrated that some change in it will return a greater net profit per acre. It is unwise to attempt to follow one system one year, another system the next and so on.

Time of Pruning

Much has been said regarding the proper time to prune grapes. The accepted idea is that late pruning tends to prevent early growth and therefore lessens the danger from frost injury. This idea is so firmly in the minds of growers that very often pruning is left until very late in the season and requires on large places very large crews of pruners to get the job done before plowing must start. It is only the injury from very light frosts that can be prevented in this way. Extremely heavy frosts, such as were experienced throughout the San Joa-

quin Valley last season, would do as much damage on the late pruned vines as on the early pruned ones, consequently it would seem the part of wisdom, particularly in those districts where frosts are not usual, to start pruning earlier in the year with a smaller crew which could be given more careful supervision. The amount of fruit wood to be left on each vine, as we have stated before, depends on the vigor of the vine, bearing in mind always that the vine has two duties to perform during the season, first, the setting and maturing of a profitable crop of fruit, second, growing and maturing sufficient strong fruit wood to provide for good canes and well developed fruit buds for next year's production. Pruners should always have these two things in mind and regulate the amount of wood on each vine to conform to these principles.

Some varieties, such as the Thompsons and Sultanas, require the leaving of canes rather than spurs. This is due to the fact that the buds at the base of the canes are not as fruitful in these varieties as they are in the so-called short pruned varieties like the Muscat, Malaga, Cornichon, etc. In pruning as many canes are left as the vigor of the vine will justify, and these canes should be tied to a wire trellis, thus distributing the fruit and also distributing the prospective leaf surface that it may be well exposed to sunlight. The old system of tying canes to the stake has largely been discarded because of the practical impossibility of encouraging a new cane growth from the head of the vine where it is most desired, because of shading out. With the canes on trellises the crown or head of the vine is left more or less exposed and buds on the renewal spurs which are left for the purpose of growing strong

fruiting wood for the following year are given a chance to develop. The tendency is toward higher heads for all varieties than in the past. This tendency has been brought about by two factors: the first being that older vineyards with low heads and several trunks reaching up to a point approximately at the lower wire of the trellis have been found to gradually weaken after a few years of production to such an extent that drastic measures were necessary to get them in producing shape again. The present method of allowing a single trunk and high head when properly cared for, removes that serious objection. The second reason for the change has been that there is a general tendency toward more horse and power cultivation. The low spreading heads prevented plows or other implements from loosening the soil close to the vine, making it necessary for the vineyardist to resort to the use of shovels. This work is expensive and rather hard on the back.

Varieties which are usually pruned to spurs tend to spread so rapidly that the arms of the vine soon reach out to such a length that they are easily snagged off by implements and in time, unless the wood is very vigorous, reach a point where they are incapable of carrying the proper amount of fruit. This tendency can be overcome by pruners in a few years' time by rather severely pruning and leaving short spurs which may grow from points along the arm near the head. When buds from these spurs have grown to strong canes the whole arm may be shortened back to that spur. Consistent and careful attention to this matter has improved and increased the producing ability of a great many vineyards during the past few years.

It is just as important to make clean cuts which will heal over rapidly in vineyards as it is when pruning fruit trees, and the use of paint for covering large wounds should not be neglected if the grower wishes to keep his vineyard in the highest producing state.

The Irrigation of Oranges on the West Side of the Sacramento River

MORE and more orange growers from Southern California are coming to Northern California to investigate the orange growing on the floor of the valley and on the foothills on the western side. They all marvel at the growth the orange tree makes here; at the abundance of organic matter available; at the freedom from pests; but the abundance of irrigation water and the cost of the same seems to appeal to them more than any other factor entering into the production of the citrus. Many problems have arisen in connection with the irrigation of citrus in the North, however, due to the abundant supply and low cost of the water, and these problems are the only ones necessary for the successful grower of citrus to solve in the north insofar as irrigation is concerned.

Water is obtained from three sources:

From the Sacramento River, through the Glenn Colusa irrigation canal, from which it is delivered to the growers' pumping plants at \$4.50 per acre per year. Quantity unlimited.

From wells ranging in depth from 100 to 200 feet, from which water is delivered by electric pumps at an expense of from \$5 to \$7.50 per acre per year. There is an abundance of under-

ground water, 12 inch wells in almost every case delivering very close to 2,000 gallons per minute.

From the United States reclamation district canal system, fed by the

owners at a cost of \$4.20 per acre (last year) including the construction, operation and maintenance charges.

From the above you will note that there is an almost unlimited supply of

hills above the Glenn Colusa canal is pumped at a cost running from \$5 to \$15 per acre.

Up to the present the low cost of the water has been in most cases very detrimental to the citrus industry. The growers have in many cases endeavored to decrease the amount of cultivation and increase the water, with the result that on some of the heavier soil areas they have more or less waterlogged their soil, kept it in a very cold, dormant condition, and have retarded the growth of the trees. This is particularly true of the trees grown on the more retentive red soils of the Tehama-Corning series. In other localities where the trees are situated in the loose, open and well drained soils of the Elder series, too much water has been applied and it has kept the soil cold and has caused considerable leaching. At the present time, however, in almost every case the farmers have learned their lesson and a very careful system of irrigation is being practiced.

On the 800 acre orchards west of Maxwell, operated by the Mills Orchards Corporation, the water is put through booster pumps to elevations reaching as high as 275 feet, and from there it is distributed over the planting, through concrete pipes, the distri-

(Continued on Page 99.)



Irrigation System in Lemon Orchard of James Mills Orchards Corporation at Maxwell.

water impounded behind the large dam situated in the mountains behind Orland and on a branch of Stony Creek. This dam impounds a maximum of slightly better than 20,000 acre feet and delivers it to the land

water. This water is of splendid quality, running considerably less than 200 parts alkali to the 100,000 parts water. Best of all, it is available at all times, in any amount, and at very reasonable cost. Water delivered to the foot-

Established 1877

Forty-fourth Year

CALIFORNIA CULTIVATOR

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901,
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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Branton, Associate.
R. P. Royce, Livestock Editor.
Jack Kieln, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, Jan. 28, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETES

Kaufman of the California Cooperative Crop Reporting Service gives some enlightening figures on the cover. It will be observed there are some very satisfactory figures in the total production column, but some very unsatisfactory ones in the farm value column. Note that wheat, rice, hops, cotton and cotton seed, and many other staple products bring to the farmer only from one-half to one-seventh of the values of 1919. These figures are influenced largely by the reconstruction which we hope is being effected, but if there is any other interest which is bearing such a proportion of the burden of reconstruction as the producing interests we are unable to find it.

We have a 245 word night letter from a Chicago manufacturer and importer in which is given copy of a telegram to all senators and representatives with appeal "to you to throw your influence against the bill of such vicious consequences. We favor a tariff, but not the crippling, smothering, impossible tariff of the Fordney bill." Sure, protect me but

let the other fellow, especially the farmer, bear the burden.

* * *

Motor vehicle registrations for 1921 expire next Tuesday night. The division of motor vehicles of the state of California is sending out a little statement in which appears: "You MUST make application for a new license prior to February 1." Likewise, don't ever drive an automobile on the highway without an operator's license.

* * *

Humboldt County wins again. Peter Iversen of Grizzly Bluff wins the California Cultivator prize for five grade cows producing the largest amount of butter fat during the month of December of any five grade cows in the state of California.

* * *

Don't forget some of the lessons of the 1913 and 1919 freezes. The orchardist thoroughly equipped with frost fighting appliances covered the overhead and made many years' interest on his investment. Some frost fighters maintained a successful fight excepting for the last hour or two of the long night, and love's labor was lost because of one hour failure. Don't prune back too quickly. Many lemon trees were seriously injured by too severe pruning. Our desire to save the reputation of our own "frostless section" induced many to remove proofs of injury, but every possible leaf should be preserved during the reconstruction period. Don't paint over trunks of small trees with mineral oil. If young trees have been severely cut back do not fertilize. As soon as definitely determined that fruit is injured remove and plow under.

* * *

A bulletin of particular interest at this moment is "A Study of the Effect of Freezes on Citrus in California" by Webber, Milliken, Taylor, Bonns, Thomas, Young, Smith, Shamel, Scott, and Pomeroy. It is Bulletin 304 and may be had by writing the College of Agriculture, Berkeley, California.

* * *

Arnold H. Kruckman, secretary of the League of the Southwest, is at Washington attending the sessions of the Colorado River Commission which is presided over by Herbert Hoover. May the deliberations of the commission be characterized by thoroughgoing cooperative spirit, common sense and integrity and may the slogan be "Do it quick."

SAVE THE QUARANTINE

Insects and fungous pests which have been introduced to this country from other lands are levying a tribute of hundreds of millions annually on American agriculture. We awakened all too late and established state and later federal quarantines. State quarantine has so thoroughly shown its worth to fruit growing and agricultural interests that it will probably increase in efficiency and secure the fullest support of the people.

The federal quarantine, however, has been forced to fight more strenuously for its existence. Especially is this the case at this moment because of the cry for greater economy, and the department of agriculture is compelled to economize with all other departments. The pine blister rust which was introduced to this country because of lack of quarantine is so seriously threatening the lumber industry that the suggestion has been made that the all too small fund heretofore devoted to quarantine be used

in endeavor to control the advance of pine blister rust. This looks like locking the door after the horse is stolen and unlocking all other doors. Producers of the country must keep their eyes open and demand an increase rather than decrease of our effective federal quarantine.

AGRICULTURAL BLOC

The agricultural bloc has proved a serious stumbling block to interests which have heretofore had a less obstructed path to the gaining of their own ends. Further, the bloc has been affixed to the end of a big stick and wielded with vigorous arm so as to render a few sledge hammer blows to selfish measures in genuine Rooseveltian style. This is being seriously objected to. It is claimed the like never occurred before and it must be stopped. As a matter of fact the farmers are only doing and accomplishing what other interests have accomplished from time immemorial. The other interests have, however, been somewhat smoother in their methods and their work has not been so outstanding as that of one class. The farmers are now securing a measure of justice. We, say "a measure," for note that the truth in fabrics bill, Capper-Volstead bill granting to agricultural interests privilege of cooperation, and other measures of relief to livestock and farming interests still on the ways with bitterest opposition by manufacturers, importers and others. In other words, the manufacturers bloc, the importers bloc and numerous other blocs are seriously blocking wise and just legislation. The president feels hurt that one "dirt farmer" is desired on the federal reserve board. Perhaps the "dirt farmer" should not presume to advise in matters which are of vital concern to him and to his fellowmen, but it appeals to us that this request is entirely proper.

In any case, the work laid out for the bloc has not been entirely accomplished. We hope the farmers will continue to stand for their rights.

THE MONKEY WRENCH

For about the first time in the history of the world the farmer is getting some real lively attention. He has been the "horny handed son of toil," "the balance wheel of the Republic," "the stand-by of the nation" and several other pretty things, especially at election time, but after election was over has been permitted to be cuffed from left to right and exploited at all seasons. But now he has the bankers and manufacturers and the big interests getting real mad at him and saying quite uncomplicated things.

The farmer has a bloc and is using it effectively; consequently he is using the legislative methods of the corrupt classes. The business interests deny that they object to the farmer's methods because they come from the farmer, but because of "grave evil of factors or factions constituted on class lines which will menace the Republic."

A committee of American business men in New York is circulating a letter written by Otto H. Kahn. Mr. Kahn gave some sledge hammer blows for the freedom of the world at a time when the country of which he was a native was making attack even upon civilization. As an adopted American he was at that time entirely correct and doubtless secured for this country the support of a vast number of people who otherwise

might have been German sympathizers. At the present time he is endeavoring to secure the termination of the agricultural bloc. Amongst other things in his letter he says:

"Granted that it be true that business in the past has not been sufficiently considerate of, and interested in, the needs of agriculture, is that any reason why agriculture should now take the same regrettable and harmful attitude toward business? While 'turn about is fair play,' it is by no means always the wisest and most effective play. In the present stage of this nation's and the world's affairs, it is a kind of play which can be indulged in only to the grave detriment of all concerned."

All of which may be true, but why has it taken the big business interests so long to hear the appeal for justice? No respectful hearing was ever secured until the farmer took his club and pounded vigorously. Mr. Kahn closes with:

"So far from counselling an attitude of antagonism toward the farmers and their representatives, I would advise that your committee endeavor to get into touch with the leading farm organizations and representatives of agriculture, with a view to establishing opportunities for comparisons of views, leading, it may be hoped, to an endeavor to agree upon wise and effective lines of policy and action so as to promote the essential and legitimate interests of agriculture in the only way in which they can be promoted lastingly."

Very good, but here's hoping the agricultural bloc stands pat until some long needed reforms are secured.

THE CONFERENCE

The National Agricultural Conference called by President Harding began its sessions last Monday morning. The invitation of the president and Secretary Wallace resulted in nearly 300 delegates consisting of "dirt" farmers and others. Amongst the others were bankers, manufacturers, transportation people, in fact, all the greater industries of the country were represented. The question has been asked, "Why this keen interest on the part of those not agriculturists, and by some the feeling has been expressed that the farmer is abundantly able to solve his own problem if allowed a free hand without the interference of large commercial interests."

But we believe in this case that if selfishness brought the other interests into this agricultural conference that selfishness was more or less enlightened and able to appreciate the fact that the welfare of the nation is guaranteed by the welfare of agriculture. We hope the large interests which are watching these movements looking toward justice to the farmer will not endeavor to do as congress has done and raise the cry of "class favoritism."

In opening the conference President Harding said: "There should be developed a thorough code of law and business procedure, with the proper machinery of finance through some agency to insure that turnover capital shall be as generously supplied to the farmer and on as reasonable terms as to other industries. An industry, more vital than any other, in which nearly half the nation's wealth is invested, can be relied upon for good security and certain returns."

Later he added: "The selling price must be higher and the consumer's buying price must be lower."

The press dispatches announce: "Applause broke forth when the president made a slight digression to assert that present conditions in the agricultural industry 'are truly of na-

tional interest and not entitled to be regarded as primarily the concern of either a class or a section, or a bloc."

Committees have been appointed which will report during the last three days of the conference. Chairmen appointed are: Agricultural price relations—E. B. Cornwall, Vermont. Agricultural credit and insurance—S. F. Houston, Missouri. Transportation—H. J. Waters, Missouri. Foreign competition and demands—H. J. Sconce, Illinois. Cost, prices and readjustments—H. L. Russell, Wisconsin. Crop and market statistics—C. S. Barrett, Georgia. Marketing of farm products—G. H. Powell, California. Agricultural research and education—O. E. Bradfute, Ohio. National forest policy—Gifford Pinchot, Pennsylvania. National land policies—R. A. Pierson, Iowa. Farm population and farm homes—S. J. Lowell, New York. Coordination of state and federal legislation—E. S. Brigham, Vermont.

There is fear on part of some farmers that the purpose of the conference is to destroy the "Agricultural Bloc." One delegate from South Carolina said: "About all the farmers and farm leaders have to do is to shake hands with the president, meet some official dignitaries, partake of a little ice cream and cake and then go home."

The hope is general, however, that it is not a shrewd political move but an honest to goodness effort to benefit the country.

FARMERS' PROBLEMS

One of the largest banks on the Pacific Coast issues a monthly financial letter. The last one, bearing date of January 14, contains this statement: "Our Federal Farm Loan Banks are a glaring example of class legislation. For every dollar saved the borrower from these banks in interest the taxpayers of the country pay twelve dollars. When it comes to collecting

the loans made by these banks they will find themselves the owners of, and loaded down with, the finest assortment of worthless assets which ever came to the hands of an improvident lender."

It is very fortunate that the extremists of the ultra-capitalist class on one side and of the Bolshevik on the other are represented by an extremely small minority. A more representative view and, in this case, also an expression of

This being the case of an industry that contributes, in the raw material form alone, about one-third of the national annual wealth production and is the means of livelihood of about 49 per cent of the population, it is obvious that the subject is one of grave concern. Not only do the farmers make up one-half of the nation, but the well being of the other half depends upon them.

"So long as we have nations, a wise political economy will aim at a large degree of national self-sufficiency and self-containment. Rome fell when the

change and new deals. Because a thing always has been so no longer means that it is righteous, or always shall be so. More, perhaps, than ever before there is a widespread feeling that all human relations can be improved by taking thought, and that it is not becoming for the reasoning animal to leave his destiny largely to chance and natural incidence.

"Agriculture is the greatest and fundamentally the most important of our American industries. The cities are but the branches of the tree of national life, the roots of which go deeply into the land. We all flourish or decline with the farmer. So, when we of the cities read of the present universal distress of the farmers, of a slump of six billion dollars in the farm value of their crops in a single year, of their inability to meet mortgages or to pay current bills, and how, seeking relief from their ills, they are planning to form pools, inaugurate farmers' strikes, and demand legislation abolishing grain exchanges, private cattle markets, and the like, we ought not hastily to brand them as economic heretics and highwaymen and hurl at them the charge of being seekers of special privilege."

Yet some there be who are not even enlightened in their selfishness.

CHERRY GROWERS

The California Cherry Growers Association at a conference held this week in the office of the division of markets elected directors and officers for the coming season and planned an intensive drive for new members. The drive is now actively under way with officers of the association at work in Alameda and San Joaquin Counties.

The following directors by counties were named: Sonoma, L. A. Frei, F. W. Maddocks; Napa, L. F. Coombs; San Joaquin, A. B. Haslacher, C. Searle; Alameda, C. Long, Jr. The new officers are F. W. Maddocks, president; A. B. Haslacher, vice-president, and C. Long, Jr., secretary.

An ordinance to prohibit use of more than four acre feet of water per year is being considered by supervisors of Glenn County. Injury from seepage of rice lands has made some regulation imperative.

CALIFORNIA'S REPUTATION AND EASTERN CONSUMERS PROTECTED THROUGH STANDARDIZATION

California's fruit growers have always been jealous of the reputation of their fruit, and to the end that the reputation for high grade fruit might be upheld, they have fully supported the state department of agriculture in the enforcement of the standardization act. We have reported the action of citrus growers taken in practically all the citrus centers last Saturday afternoon. As we go to press horticultural commissioners and standardization officials from practically all citrus sections are in conference discussing the injured fruit situation. This conference was called by F. W. Read, in charge of the bureau of standardization, and after wire conference with Director Hecke now in Washington. Instructions have been given to all shippers and transportation companies that no fruit whatever is to be shipped without permit from standardization officials. This power is given to the department of agriculture by the fruit standardization act.

one of the country's greatest bankers, Bernard M. Baruch of New York, is:

"The whole rural world is in a ferment of unrest, and there is an unparalleled volume and intensity of determined, if not angry, protest; and an ominous swarming of occupational conferences, interest groupings, political movements and propaganda. Such a turmoil cannot but arrest our attention. Indeed, it demands our careful study and examination. It is not likely that six million aloof and ruggedly independent men have come together and banded themselves into active unions, societies, farm bureaus, and so forth, for no sufficient cause.

"Investigation of the subject conclusively proves that, while there is much overstatement of grievances and misconception of remedies, the farmers are right in complaining of wrongs long endured, and right in holding that it is feasible to relieve their ills with benefit to the rest of the community.

food supply was too far removed from the belly.

"They are truly common problems, and there should be no attempt to deal with them as if they were purely the selfish demands of a clear-cut group, antagonistic to the rest of the community. Rather should we consider agriculture in the light of broad national policy, just as we consider oil, coal, steel, dyestuffs, and so forth, as sinews of national strength. Our growing population and a higher standard of living demand increasing food supplies, and more wool, cotton, hides and the rest. With the disappearance of free or cheap fertile land, additional acreage and increased yields can come only from costly effort. This we need not expect from an impoverished or unhappy rural population.

"It will not do to take a narrow view of the rural discontent, or to appraise it from the standpoint of yesterday. This is peculiarly an age of flux and

Grow Raisin, Wine and Table Grapes

On this New Sub-Division—only 6 Hours by Auto from Los Angeles—In the Heart of California Raisin District.

VALLEY IRRIGATED FARMS

Surrounded by schools, markets, towns, good roads and Boulevards. Between two transcontinental Railway lines. No "Pioneering" to do—you live in comfort with all modern conveniences, where neighboring Vineyards are getting an average of

4½ Tons Per Acre Selling at \$250 Ton on Average

WATER RIGHTS A PERMANENT PART OF YOUR LAND! Not in a "Bonded Irrigation District" so your water rights are NOT assessable—and the extremely low water lift on Valley Irrigated Farms provides MORE WATER THAN YOU CAN POSSIBLY USE at the extremely low cost of \$7.50 to \$10 acre!

Only \$250 an Acre—25% Down—No Further Payment for 5 Years

Those of you who have read Fred K. Howard's series of articles on Selecting, Planting and caring for vineyards as they appeared in this publication are familiar with the real profit possibilities of grape growing.

THE U. S. CENSUS FIGURES show that in 1920 there were 180,000 tons of Raisin grapes grown in California with a value of NINETY TWO MILLION FIVE HUNDRED THOUSAND DOLLARS—or \$310 per Ton.

Many owners of Vineyards in this District are having them planted and cultivated practically FREE of COST by leasing to truck growers who plant between the vines. ASK US ABOUT THIS!

Statement of California Associated Raisin Co.—Dec. 1921.

Variety	Price Paid per Ton
Muscats	\$233.05
Thompsons	295.45
Sultanas	242.65
Bleached Thompsons	277.60
AVERAGE PRICE PAID	\$259.68

One man in this District (name on request) planted 80 acres to vines last spring and sold in the fall for \$65,000.00. He also sold a 160 acre piece for \$88,000.00.

Another man with 11 acres of 2 year old vines this year received a check for \$9,640.00 for his crop. Do you know any other equally profitable investment?

No Worry About Markets

The raisin grower has no worry about market conditions or prices. The Growers Associations have stabilized prices and they attend to all details of selling the crop.

Free Trip of Inspection

No matter where you live in California we will arrange a FREE trip of inspection to this property. But because we have a limited acreage we must ask you to Write or WIRE at our expense IMMEDIATELY.

There will probably never be a better time to invest for speculation or for actually planting a vineyard. Use the coupon or WIRE us today.

Because proper grape land with good water supply is eagerly sought in this district we have been able to secure but limited acreage to sell at this low price of \$250 acre. So we can accommodate but a few families with these desirable vineyard properties. We urge you to make arrangements to inspect this land AT ONCE. Don't delay.

Fill out and mail this coupon IMMEDIATELY.

Dunn & Greene, 812-14 Loew's State Bldg., Los Angeles, Calif.

Please send me your booklet, "Astonishing Profits Growing Wine and Table Grapes," FREE OF CHARGE. It is understood this puts me under no obligation.

Name

Street and Number.....

City and State.....

DUNN & GREENE, 812-14 Loew's State Bldg., 7th & Broadway, Los Angeles



"For Solid Comfort Give Me the Overland"

The Triplex Springs of the New Series Overland smooth out the jolts of country roads and give easy, restful riding everywhere.

Most farmer-owners get 25 miles to the gallon of gasoline, and high mileage for oil and tires.

Completely equipped when you buy it. A good investment!

TOURING

\$595

f. o. b. Toledo

Roadster - - \$595

Coupe - - \$850

Sedan - - \$895

WILLYS-OVERLAND, INC., Toledo, Ohio

Grape Pruning Demonstrations

By Ernest Brauntton



PROF. F. T. BIOLETTI, head of the division of viticulture, state college of agriculture, has been touring the state in a series of lectures and field demonstrations on pruning and trellising. While some of his remarks on trellising would apply quite generally to grapes, he usually confined his talks rather closely to the variety being handled. One of these was the Emperor.

"The Emperor is an extremely vigorous vine bearing large bunches of large grapes and needs the heaviest soil of all sorts grown. The best practice consists of growing the vines on stakes six to eight feet high, a single trunk with short arms beginning about a foot above the soil, leaving five or six buds on each spur. Short pruning will prevent cropping freely; vines must be long pruned. The longer the trunk the shorter the spurs may be.

"This method proves to be good practice for a few years, but it was observed that the strongest growth was always on top and that growths below were more feeble and cropped but lightly. For the past few years we have been practicing the cordon method and find it better. We train the trunk up to a wire 30 inches above the ground and along this to the next vine, no matter what the distance. The next year another wire 12 inches higher is put on posts and laterals trained to this. Except for the second or upper wire the vines may get top-heavy and turn upside down. This cordon system gives all parts of the long trunk the same light and chance. This method involves considerable work and expense for the first few years but it pays. Cultivation can be in but one direction. The better distances are for rows seven feet apart and vines in rows 14 feet, growing trunks about 12 feet long.

"In all kinds of pruning we start in same way, doing no special work the first year beyond simply cutting back. Get as much growth the first year as possible as the more leaves grown the larger the root system. The second year throw the entire growth into one cane or cordon. If growth is very strong the full length of trunk may come the first year. Prune away back to roots all canes but one and this one to a stub of two or three buds. From the strongest of these buds will come the trunk, or if all are equal choose the one growing in the direction you wish the trunk to grow. The rows must run in the direction you have to irrigate and trunks either with or against current of water, but have rows run north and south, if possible."

Prof. Bioletti here began setting up a trellis. This vineyard was planted in squares ten by ten feet. At each end of a 60 vine row four by four redwood posts seven feet long were set three feet in the soil, leaning two or three inches "backward" or away from vineyard. Then a midway post was set 30 vines from each end. No more of this size were used and Prof. Bioletti stated posts were at least six inches longer than needed as but 42 inches above soil is needed for wires, the latter being 30 and 42 inches from ground. A two by two inch stake was next driven at every other vine and should be used about every 20 feet, no matter what the planting distance. Then at each remaining vine was placed a stake one inch square, temporary guides on which to train the trunk or cordon, from which trunk should be trained on to wire in as near an abrupt quarter circle as is convenient. These are called pilot stakes and are not permanent as the trunks are self supporting later, the wiring being needed for crop support and to keep rows straight. Special emphasis was laid on having all stakes conform to a straight line so cultivation may be done close to row. Do not cut away lower canes the first year as foliage is needed to start a vigorous vine with extensive root system, but cut away closely when leaves are gone as next year the trunk will have its leaved laterals.

The Malaga

"The Malaga needs an entirely different system of pruning from that given the Emperor, known as head or short pruning. The aim is to leave the proper number of fruit buds or we may get no crops. The secondary aim is to keep proper shape of vine. The best shape or form is a single stem about 15 inches high, with well distributed arms radiating at an upward angle of about 30 degrees. On the ends of these arms are the fruit spurs. The general rule, if vines are in good health, is to leave about the same number of spurs and buds as last year. The vine I am now pruning had eight and we will try to leave eight for this year, of two or three buds each, or about 20 fruit buds. This will give us 20 to 30 bunches of grapes.

"Canes from last year's growth should give us fruit, but canes from old wood may not, so do not leave any of the latter unless needed to complete the required number. Keep all canes on same level if possible so all will get an equal exposure to the sun. If any are shaded they will make poor growth and poor crop. Keep this top in shape of a cup, cutting out central canes and those crossing over the cup-shaped center. Aim to keep head lifted each year and cut away all drooping canes hanging below, but do not encourage spreading or you will have no space for cultivation or harvesting.

Tokay

"The Tokay should be half-long pruned, a little longer than the Malaga, and the vines should be headed higher. It also needs a heavier soil than the Malaga.

Cornichon

"The Cornichon should be high pruned, or trellised, and is no doubt best on the cordon system. If pruned even as short as we pruned the Tokay no crop will result. It must have long spurs of three to five buds. If on wire trellis with long trunk, but two buds to each spur should be left, or, the longer the trunk the shorter the spurs may be, down to two buds on each. Train all head pruned vines to fruit spurs on outside, and if vine needs shaping, to a few renewal or replacing spurs on inside, the latter to keep head from spreading."

Grape Cuttings

Several asked about making and rooting cuttings. Prof. Bioletti said well ripened, heavy wood should be chosen as light weight wood lacks proper substance. Leave cuttings about six buds long and put four buds below and two above the soil. If work is on large scale he would advise first developing calluses by burying cuttings. Cut each just below a bud and tie in bundles of 100, with the butts very evenly placed. Never mind about the tops.

Dig a pit in dry, well drained place, about four to six feet wide and as long as needed, deep enough so when bundles are stood in, butts up, they will be about four inches above soil. Keep all bundles even and level. Shake in dry soil to hold all as firmly as possible, though it is not necessary to have solid filling if it entails too much labor. Then cover over until the butts are four inches under the soil and make all smooth and level, allowing soil to spread to a foot on each side of bundles and have soil mass highest in middle or center so it will shed water. Cover with weeds or straw, or, still better, with a tarpaulin, to keep dry. The best time to plant is March, early March, in sandy soil, later in heavy soil. Three weeks before planting take off canvas or straw cover and water gently with garden sprinkler, until soil is wet down about four inches. Avoid wetting lower, if possible, for we wish the butts, now above, to be warm and moist, while the tops, now below, are cool and dry. At end of three weeks of constant moisture plant all cuttings showing calluses, whether having roots or not; but throw away those showing no callus. A cutting kept dry will retain

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2 to 3 ft. per 1, 25c per 10, \$2.50 per 100, \$20.00
3 to 4 ft. per 1, 35c per 10, \$3.50 per 100, \$30.00
Other sizes proportionately low.

(40)

vitality for a long time, but after watering starts cuttings should never be allowed to become dry. Asked to pick out a good cutting, Prof. Bioletti chose a vigorous cane of five-eighths diameter and said the basal wood containing six buds was ideal.

THE FIG INSTITUTE

By Cultivator Staff Writer

 OMING as a fitting climax to the Sixth Annual Fig Institute, which incidentally was the best meeting of its kind ever held in the San Joaquin Valley, the fig growers and others interested in cooperative marketing gathered around the banquet table Friday evening, January 19, and enjoyed a feast of roast turkey with trimmings and some of the best talks on cooperative marketing ever heard in the district. The speakers were Wylie M. Giffen, president of the California Associated Raisin Company; Dr. C. M. Haring, director of the agricultural experiment station; Senator M. B. Harris, author of the present California cooperative law and attorney for the California Peach and Fig Growers and the California Associated Raisin Company.

The main talk of the evening was that of G. Harold Powell, general manager of the California Fruit Growers Exchange. Mr. Powell's talk was a rare treat in that he has such an intimate and practical knowledge of his subject and an outstanding ability to present his facts in a clear, logical and understandable manner. While scheduled to speak on the fundamental principles of cooperation in agriculture, Mr. Powell really dwelt almost exclusively on those points which make cooperative marketing associations economic necessities in food distribution, paying tribute to the California marketing organizations as being the only groups of agricultural producers that have been able to withstand the disastrous season of 1921 when the buying power of consumers in the United States was below par and the population of foreign countries able to make only approximately 30 per cent of normal purchases.

The banquet was held under the auspices of the California Peach and Fig Growers, Inc., and followed a most successful day from the standpoint of attendance and interest in the discussions of the institute.

Declaring that it was only through organization that new products, which would successfully market the fig crop, could be placed on the market and the only medium by which the product could be improved in quality and standardized, J. F. Niswander, vice-president and general manager, California Peach and Fig Growers, opened the institute. Mr. Niswander described in detail the accomplishments of the organization in marketing the fig crop, during the past year, or since fig growers had become associated with the peach company, stating that at the present time only approximately 1000 tons of figs were unsold and less than 800 tons of peaches.

Mr. Niswander also outlined the activities planned by the association for the coming year. The balance of the forenoon was given over to the discussion by growers and others of the problem of shipping fresh figs to Eastern markets. This discussion was very interesting because of the success of this departure in fig marketing methods during the past year.

Following up this discussion, Prof. J. J. Condit, horticulturist for the company, outlined the methods to be employed in pruning fig trees if the fruit was to be used for fresh shipping purposes. He also explained in detail the most successful methods of pruning fig trees of different varieties and ages.

Always interesting and instructive and usually found at gatherings of fig growers, Dr. G. P. Rixford of the United States department of agriculture and the grandfather of the fig industry in California, told of the methods of propagating and pollinating figs used by the Armenians of Smyrna and went into detail regarding diseases and pests affecting figs in the Southern states, sounding a note of warning to fig growers regarding the importation of stock from other states.

This, together with talks by Dr. J. J. Whitten on pruning and by officials and experts in the employ of the fig

association on the outlook for fig jam, preserves and canned figs and the new confection, Fig Brownies, contributed to make the meeting stand out as the best agricultural gathering of the year in the San Joaquin valley.

During the day the institute accepted an invitation of Merced to hold the next institute in that city. Reports of the judges of the dried fig contest which has been conducted by the Peach and Fig Growers, Inc., was made to the chairman who awarded the prizes to the winners: Adriatic—1, Charles Dewhurst, Sultana; 2, H. C. Osborn, Reedley; 3, H. P. Osborn, Reedley.

Calimyrna—1, H. D. Tallman, Merced; 2, L. B. Pearson, Kingsburg; 3, W. R. Davis, Atwater.

Mission—1, E. G. Munier, Fresno; 2, H. P. Nielson, Selma; 3, R. L. Dewhurst, Dinuba. The judges were—G. P. Rixford, San Francisco; Lester Eastin, Fresno, and Ralph E. Smith, Berkeley. On Saturday the institute was given over to field meetings with demonstrations of practices of pruning fig trees and general fig culture.

Peter Tumbledown says he'd rather cut his wood with an axe, as the noise of a power saw hurts his head.

CANNING PEACH GROWERS

That the California Canning Peach Growers, Inc., the recently organized statewide association of canning peach orchardists, will attain before next harvest a place in the business world reached by other associations only after from two to three years of effort, is the belief expressed by officials at local headquarters. The reason for this unprecedented growth is believed to be the fact that the peach men have the experience of the other associations to start with, and also the fact that the very men who successfully engineered the other organizations are on the board of directors of the peach growing body.

A NEW PERSIMMON

A Los Angeles firm is this year offering a new Japanese persimmon, named Fuyugaki, a non-astringent which it is claimed may be peeled and eaten when quite hard, as apples are used. It is of light color in the flesh but a deep red on the outside and tree is very prolific. If this variety is all that the introducers claim a valuable addition has been made to our planting list.

CANKER STAMPED OUT

The work of stamping out citrus canker in Florida seems to have been done very thoroughly. The work started in May, 1914. The greatest number of cases discovered in any one month were 1,345, in August, 1915. In September, 1917, the fight seemed to have been won, only six cases being found in that month, and only in one month since that time have more than six cases been discovered. In July, 1920, the citrus world was startled to know that 539 cases were discovered. These trees were destroyed. The next month one case was found, perhaps the last cankered tree in Florida. I hope so. For 16 months now not a single case has been reported. In all 14,267 grove trees were found infected, but a total of 235,590 grove trees were destroyed, either because infected or by permission of owners, and 2,645,514 nursery trees were burned. In all 486 properties were infected, five of these properties still being watched and under quarantine. A most magnificent fight made under a splendid leader, the Marshal Foch of the citrus forces of Florida.



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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sore Ears and Cause

What is the cause of Flemish Giant rabbits having sore ears and what can be done for it?—Subscriber, Watsonville.

A mite bearing the name of dermatocoptes which works in the wax of the ear similarly to the mite that causes scaly leg in chickens. This disease must not be neglected, as it works back into the head, inflammation sets in and misery and death follow. One tablespoon of sulphur in a vaseline jar of olive oil makes a good and effective medicine. Use twice a week till cured.

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STAWBERRY PLANTS

That Please the California Fruit Grower. G. J. Streicher, Napa Co., Cal., writes: Jan. 7-22. Received strawberry plants today in fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.

Our New 1922 Catalogue describing more than 25 varieties and containing other information now ready. get your FREE copy quick.

V. R. ALLEN, Seaford, Delaware

Once or twice is sufficient. Use brush or medicine dropper for applying medicine. Neglected colds, dirty hutches causing dirty feet are often the cause. Dirt falling down from hutch above will often cause it. Clean hutches thoroughly where animals are, as disease is contagious.—W. D. W.

Ashes on Alkali Soil

Will putting wood ashes from our stoves on soil inclined to be alkaline injure or benefit orchard?—Subscriber, Durham.

Dr. R. R. Snowden answers: "The effect of adding wood ashes to a soil inclined to be alkaline would be to increase the alkali; but if gypsum (one-fifth the amount of the ashes) be added at the same time it would be equivalent to adding sulphate of potash and carbonate of lime, both beneficial to most soils."

Homestead

What is the usual period of residence upon the federal homestead land. I was at one time informed that it was three years?—Subscriber, San Marcos.

We are informed by the federal land office that required residence on homestead is seven months per year for three years.

Worms in Pot Soil

Will you kindly tell me what I can put on my house plants to kill the worms in the ground? At first little black flies appear on the top of the ground and then little white worms infest the ground and the flowers wilt and die. Some of the worms are pretty good size. Have put sulphur on them.—Subscriber, Napa.

Plants in such soil are best repotted and all old soil washed from the roots and the pots washed and dried before repotting. If short of pots for changing place them in oven as soon as washed, for immediate drying. After repotting keep in cool close shady place for a few days and at the end of a week at most move to a warmer shady place. If one fears to do this work or lack of time prevents, lime water is often effective. Use as much quick lime in the water as you choose but allow it to settle until water is clear before using. Weak tobacco water, frequently applied, will not harm the plants but will destroy the insects.

Bloomless Blackberries

I have some thornless blackberries three years old that do not bloom. They are just a mat of small vines. Should they be divided and reset, or how should they be pruned?—A Reader, Selma.

The condition of these suggests their growing in heavy soil with an insufficient supply of water. With such a feeble growth they should not need division. Cut all tops off down at roots, loosen up soil well, dig in some good fertilizer, leave a mulch of same on top and water freely. When tops start and are a few inches high, break off at root all but four strongest canes to each vine. If this does not overcome trouble it is best to get new vines.

Grapes for Palo Verde

What grape will thrive best in the Palo Verde Valley?—D. M. B., Los Angeles.

This question was put to Prof. Bioletti in person and he answered that of the standards Malaga was the best. Of the new varieties Molineri is proving a winner wherever planted in hot dry sections and bids fair to become

the leader. Prof. Bioletti says that any grape growing in the Imperial Valley should do equally well in the Palo Verde Valley.

Grafting Walnuts

I have a black walnut that I wish to work over to an English walnut. Should it be budded or grafted, and how and when?—F. V. V., Selma.

Walnuts are grafted in February or March, according to season. Full directions are given on another page of this issue.

White Fly

Last summer we had a row of pole beans and they looked fine and healthy until after we started picking. All at once the beans seemed sticky and the leaves started to thicken and when we picked the beans it seemed millions of little white insects or flies flew in the air just like gnats. What were they and what can we do to get rid of them? They were also on sweet peas and other flowers.—Subscriber, Lone.

The insects were one of several species of alyrodes or white fly. Best means of eradication is by a weak solution of nicotine in a spray or resin or whale oil soap spray. The insects are easy to destroy, but that will not help present crop as spray will damage beans or peas for marketing as much as the white fly. The visits of this pest are but seasonal and this year you may have none. It is doubtful if it is advisable to do more than observe clean culture, which is one of the best control measures. Keep down the weeds.

Eastern Holly

Will Eastern holly grow here and bear berries, and can one start the plants from berries?—Subscriber, Rivera.

All hollies will grow here but not so rapidly or so well "furnished" as in damper climates. Select cold damp situation, if possible, as opposed to a hot dry one. The hollies will grow from berries but are slow to start and need a constant good moisture supply without lots of watering. Therefore leaf mold and sand in equal quantities, or this and one-half good humous soil, makes a fine medium for starting seeds. Do not allow to get dry, and keep cool though it is not necessary to put in full shade.

Blower's Blackberry

What can you tell me of Blower's blackberry? Can you recommend it as a commercial berry?—Subscriber, Aromas.

We do not find Blower's blackberry listed in either California or Eastern catalogs. The best commercial berries for this state are those advertised in the Cultivator.

Fruit Pits and Seeds

Will you please give me the address of some one from whom I can obtain Myrobalan pits for seedling purposes, and also apple and pear seeds for the same purpose?—Subscriber, Chowchilla.

Fruit pits and seeds are handled by seed stores and fruit tree nurseries, and as you ask about standard varieties, we would advise writing one or more firms advertising in the Cultivator.

Distance Apart

What is best distance to plant peach trees apart? Twenty feet is the usual distance but have been told trees would do better if planted 24 by 24 feet.—Subscriber, Livingston.

Here is a practical question for which we would like an answer from practical growers. Peach growers, what is your opinion? Twenty feet apart gives 108 trees to the acre while

22 feet apart permits of setting 90 and 24 feet apart will give 75. We believe as a rule planters do not exceed 22 feet, most of them preferring 20 feet for the peach, and in case of very strong growing trees, pruning severely to allow entrance of light and air. Of course greater care has to be exercised in planting stronger growing varieties too close together. Likewise in good rich soil the stronger growth calls for the greater distance. "Obviously in laying off the land by any system, the first decision must be in regard to spacing the trees. Common distances are 18 by 18, 18 by 20, or 20 by 20 feet, requiring respectively 134, 121, and 108 trees to the acre. Closer planting is sometimes practiced, but it is rarely advisable, while under some conditions 24 by 24 feet probably does not allow the trees more space than they need. The latter distances are perhaps used in California more often than in other parts of the country. Authorities in that state advise never to plant closer than 24 feet apart each way unless on sandy soil. Moreover, the topography of the land, the fertility of the soil, the varietal characteristics of the trees, and the preferences and convictions of individual growers, are all factors to be considered."

Capacity of Silo

To settle an argument will you kindly let me know how much corn silage a 10 by 20 foot "inside diameter" concrete silo would hold if properly packed.—Subscriber, Escondido.

We take it that by 10 by 20 our subscriber means a silo 20 feet high with 10 feet inside diameter. A silo 10 feet in diameter and 20 feet deep will contain 26 tons of corn silage two days after filling. After several days the silage will settle and possibly as much as five feet more can be filled in which will somewhat increase the weight.

Squabs

Are there squab breeding farms in California? Please give addresses.—Subscriber, Dinuba.

There are probably thousands of squab breeders in this state. At one time there was an extremely large "farm" near the city of Los Angeles. The flood of the Los Angeles River some six or eight years ago washed it out, however, and since then the industry has been left to smaller breeders. These are too numerous to give addresses but the liners or classified ad columns of the Cultivator have at times addresses of breeders.

Sudan for Pasture

A subscriber writes regarding alfalfa field badly fouled and of little value as pasture and asks as to Sudan seeded on the alfalfa, using field as a pasture. The question was referred to H. L. Müsser, who writes:

"Let us suggest that you sow Sudan grass on your wornout alfalfa field. That will give you an abundant pasture and some hay, and we would advise that you sow not earlier than the first of May. On your alfalfa field that had been freshly cut, disk the field and irrigate it, and you will be sure to get a good stand of Sudan grass and will be well rewarded. With regard to sowing Sudan grass and sweet clover, they do not work very well together. Sweet clover a winter growing plant, and if you sow it in the fall the Sudan will probably decay before spring. If you sow it in the spring the sweet clover would not be established before the hot weather. If you try that mixture at all it would be best to sow the clover in the fall, and if you have

a good stand that is well enough, but if there is a poor stand of clover, then we recommend that you sow the Sudan grass. If you want to sow a mixture of grasses, together with a legume, we recommend that you sow barley and vetch for fall planting and for spring planting Sudan grass and whippoorwill cow peas. Our firm advice, however, is to go over your old alfalfa sod about the middle of April with a disk and sow a quantity of Sudan grass, harrow it in and give it a good irrigation. That would be the quickest and most economical process to attain the results you are after."

THE IRRIGATION OF ORANGES ON THE WEST SIDE OF THE SACRAMENTO VALLEY

(Continued from Page 93.)

bution being effected by the well known overflow system. At Orland and at Corning the water is delivered in open ditches to the plantings, and is applied by the regular furrow system. At Hamilton again the Mills Orchards Corporation uses the concrete distribution system throughout, pumping directly from the wells into 18 inch carrying lines and then distributing to the furrows through lateral pipe lines and standard orchard standpipes such as are in common use throughout Southern California.

Records taken for the past few years have shown that it is absolutely imperative that the irrigation of the citrus be delayed in the spring as late as possible. The water is very cold, running normally about 17 degrees Centigrade, and when this is applied to the cold ground early in the season, particularly during or shortly after the blossoming season, a fruit drop invariably occurs. This is particularly true on the cold red soils which easily become waterlogged.

The best cultivation practices, which consist of very heavy subsoiling and the use of increasing amounts of manure, grain straw, rice straw and other organic materials which are available in the North in unlimited quantities at almost cost of hauling, are rapidly putting all of the orchards into such shape that with the heavy winter rains it is possible to carry them well past the normal June drop period. Growers are also finding that it is necessary to do their plowing in the fall and to do away with all fall and winter cover crops, carrying the orchards clean throughout the winter so that they can work up their early mulch, pack their soil, and cause it to warm up in the spring as early as possible. The normal irrigation season then commences immediately following the June drop period, and from then on water is applied by the furrow system, at least once a month, or when summer cover crops are carried, as is becoming the practice more and more every year, every three weeks to a month.

Due to the depth of the soil practically all over the valley, the water penetrates the soil a great deal more rapidly than it percolates laterally. The water seems to sink straight down from the furrow with very little lateral movement. It is therefore necessary to run from six to eight furrows in order to thoroughly wet all of the surface soil without running the water from 72 to 96 hours. The soil auger is being used more and more by all of the growers to enable them to determine the penetration of the irrigation water. With water in unlimited amounts it is very easy for the irrigators to continually pour it on if they do not have some such tool as the soil auger to advise them when the soil is thoroughly irrigated to depths running from four to six feet. In fact, we have found that the best results can be obtained when a heavy flow of water is run through the furrows for the first 12 to 24 hours, and the flow then cut down to a smaller stream running for another 24 hours. Penetration to about six feet is thus obtained.

We use a great deal more water on our citrus than is used in Southern California. We believe the trees require more water, due to the continued warm, dry days which we have throughout the entire summer. We have water ever in abundance and are able to grow tremendous summer

cover crops which are putting our soils into wonderful shape, some analyzing as high as 2.5 per cent organic matter. For the most part growers are using from 1 to 1 1/4 second feet continuous flow throughout the irrigation season, to the 100 acres, but with the excellent drainage throughout the district, and with the ability of the soil to carry heavy cover crops, this amount of water is not proving to be too much.

Summing it all up, the problem of the grower in Northern California is to delay his irrigation as long as possible in the spring, without allowing the trees to suffer in any way for water, and then to apply only enough water to carry the trees along in the best possible condition. His whole problem is not in using too little water but in using too much too frequently. To demonstrate what good soil, abundance of organic matter, and careful, systematic irrigation practice can do for orange growing in the Sacramento Valley, the following record of sizes shipped by the James Mills Orchard Corporation, at Hamilton City, is conclusive evidence:

Sizes	Percentage of Total Crop
64s.....	.16
80s.....	7.38
96s.....	.03
100s.....	30.89
126s.....	30.94
150s.....	17.62
176s.....	6.74
200s and up.....	6.21

JUDGING CORN

Corn shows pay too much attention to fancy or show points, say crop specialists of the Ohio state university who have drawn up for use at the coming State Corn and Grain Show a new card of points, based on the probable value of ears as seed.

Uniformity of size and appearance, trueness to variety type, straight rows, well filled tips and butts, and other requirements of the old corn score card are still considered, but are placed in importance below seed condition. More than half of the new point card deals with maturity, dryness, freedom from disease and other condition factors. Under this head are included two points which are just beginning to receive consideration from corn judges. It is stated that unless ears show that the shank attachments which connect the ear with the stalk have broken off smoothly without leaving shreds and discolorations, the ears will be thrown out.

EDIBLE AUSTRALIAN NIGHT-SHADE

In California gardens there is sometimes grown a half woody, leafy, spineless, blue flowered nightshade four to six feet high, as an ornamental hailing from Australia, by name Solanum aviculare. The flowers are followed by an ovoid orange yellow berry or fruit an inch long, and edible only when fully ripe.

Dr. Maiden, colonial botanist of New South Wales, in "The Native Useful Plants of Australia," says: "The fruit, when perfectly ripe, which is indicated by the outer skin bursting, may be eaten in its natural state, or boiled or baked. It has a mealy, subacid taste and may be eaten in any quantity with impunity, but until the skin bursts, although the fruit may otherwise appear ripe, it has an acrid taste and causes an unpleasant burning sensation in the throat."

LITCHI NUTS

A fine tree of the genuine "litchi" is growing on the Spinks ranch at Duarte, together with some of the nearly related but inferior "longans." The litchi nut is the loosely shelled "li-chee nut" sold at Chinese stores and by Chinese street peddlers, though not properly a nut. It is said by those who have eaten them in China that they are most delicious when fresh and never improve with age. The writer was given a box of these nuts lately received by an Angeleno who formerly lived for several years in China. They were much fresher than any heretofore eaten and very much superior in flavor and texture. The meats were not dried down to a tough leathery pulp and little of the "burned prune" taste was noticeable. The tree has always been hard to grow when away from China, soil conditions seeming the most important factor, for they have been planted in all sorts of climate.



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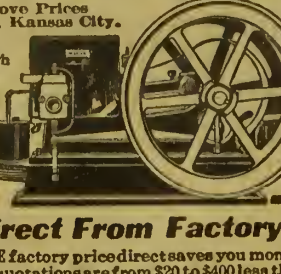
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CAPACITY OF PIPE

The following table gives quick determination as to carrying capacity of various sized pipes under different "heads." As an example in the use of the table, find "6" in first column indicating a six foot "fall" or "head" to 1,000 feet. Then read to the right and in ninth column under "12 inch pipe" and it will be noted that the number of miner's inches carried by a 12 inch pipe having the six foot "fall" or "head" is 129.5.

Head In Ft.	6 In. Pipe		8 In. Pipe		10 In. Pipe		12 In. Pipe		14 In. Pipe		18 In. Pipe		24 In. Pipe		36 In. Pipe	
per 1,000	Running	Full	Running	Full	Running	Full	Running	Full	Running	Full	Running	Full	Running	Full	Running	Full
Friction	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'	Cu. Ft.	Miners'
per Sec.	In.	In.	per Sec.	In.	per Sec.	In.	per Sec.	In.	per Sec.	In.	per Sec.	In.	per Sec.	In.	per Sec.	In.
.5	.1076	5.38	.241	12.05	.448	22.4	.746	37.3	1.15	57.5	2.28	114.	5.01	250.	15.	750.
.6	.118	5.90	.264	13.20	.493	24.6	.820	41.0	1.261	63.0	2.50	125.	5.51	275.	16.5	825.
.7	.127	6.35	.285	14.25	.531	26.5	.885	44.2	1.308	65.4	2.70	135.	5.94	297.	17.8	890.
.8	.136	6.80	.306	15.30	.569	28.4	.948	47.4	1.456	72.8	2.89	144.	6.36	318.	19.08	954.
.9	.144	7.20	.324	16.20	.603	30.1	1.005	50.2	1.545	77.2	3.07	153.	6.74	337.	20.2	1010.
1.0	.152	7.60	.341	17.06	.635	31.7	1.058	52.9	1.628	81.4	3.23	161.	7.10	355.	21.3	1065.
1.5	.186	9.30	.418	20.90	.777	38.8	1.296	64.8	1.992	99.6	3.98	199.	8.70	435.	26.09	1304.
2.0	.215	10.75	.482	24.10	.900	45.0	1.495	74.7	2.300	115.0	4.57	228.	10.04	502.	30.16	1508.
3.0	.264	13.20	.590	29.50	1.100	55.0	1.830	91.5	2.813	140.6	5.60	280.	12.30	615.	36.8	1840.
4.0	.304	15.20	.683	34.15	1.270	63.5	2.118	105.9	3.250	162.5	6.46	323.	14.20	710.	42.6	2130.
5.0	.340	17.00	.764	38.20	1.420	71.0	2.36	118.0	3.630	181.5	7.21	360.	15.85	792.	47.6	2380.
6.0	.374	18.70	.837	41.85	1.557	77.8	2.59	129.5	3.995	199.7	7.93	396.	17.41	870.	52.3	2615.
7.0	.404	20.20	.904	45.20	1.680	84.0	2.80	140.0	4.300	215.0	8.55	427.	18.80	940.	56.4	2820.
8.0	.432	21.60	.966	48.30	1.798	89.9	3.00	150.0	4.610	230.5	9.15	457.	19.88	994.	59.6	2980.
9.0	.457	22.85	1.025	51.25	1.907	95.3	3.18	159.0	4.880	244.0	9.70	485.	21.30	1065.	63.9	3195.
10.0	.482	24.10	1.100	55.00	2.010	100.5	3.35	167.5	5.150	257.5	10.21	510.	22.46	1123.	67.4	3370.
12.0	.528	26.40	1.182	59.10	2.200	110.0	3.67	183.5	5.640	282.0	11.21	560.	24.60	1230.	73.8	3690.
14.0	.568	28.40	1.280	64.00	2.380	119.0	3.96	198.0	6.100	305.0	12.10	605.	26.60	1330.	79.6	3980.
16.0	.610	30.50	1.365	68.25	2.540	127.0	4.24	212.0	6.510	325.5	12.94	647.	28.40	1420.	85.2	4260.
18.0	.646	32.30	1.450	72.50	2.700	135.0	4.48	224.0	6.900	345.0	13.72	686.	30.20	1510.	90.5	4525.
20.0	.682	34.10	1.522	76.10	2.837	141.8	4.74	237.0	7.260	363.0	14.42	721.	31.70	1585.	95.0	4760.
22.0	.722	36.10	1.60	80.10	3.030	151.5	4.81	240.5	7.30	385.0	15.28	764.	33.68	1684.	100.9	5045.
24.0	.762	38.40	1.68	84.00	3.200	161.0	5.07	253.5	8.14	407.0	16.14	807.	35.58	1779.	106.8	5340.
26.0	.810	40.40	1.76	88.25	3.420	171.0	5.32	266.0	8.58	429.0	17.00	850.	37.48	1874.	112.3	5635.
28.0	.850	42.50	1.85	92.50	3.620	181.0	5.58	279.0	9.20	451.0	17.86	893.	39.38	1969.	118.6	5930.
30.0	.882	44.10	1.92	96.10	3.836	191.8	5.84	292.0	9.46	473.0	18.72	936.	41.28	2064.	122.5	6325.

GARDEN SLUGS

E. M. Ehrhorn, chief plant inspector for Hawaii, says: "Slugs are serious pests of the flower and vegetable gardens. Feeding at night, few people have observed them and only those who actually work among the plants have found them resting under fallen leaves, stones or other rubbish during the day. They multiply very rapidly, laying their eggs in clusters in the soft earth. All varieties of plants are attacked, but they prefer tender seedlings. Control measures are of little use as the pest wanders about considerably. Collecting them in the evening will materially reduce them in the ordinary garden. The use of a sharp pointed stick, or better, an ice pick, has been found useful. Usually after a good rain they become more active and crawl over the lawn in the evening. As many as 150 have been collected in half an hour by piercing them with an ice pick or sharp pointed stick. Piercing the body kills them and they soon shrivel up or the bodies are devoured by ants.

"Having the habit of hiding under rubbish, stones or leaves, artificial hiding places or traps can be made by using large leaves such as cabbage, taro, banana and canna, and placing these on the ground near tender leaves after wetting the soil. A few thin boards or shingles can be used instead of large leaves. After feeding during the night the slugs will crawl under these leaves and can be killed the next morning. Now that the rainy season is at hand it would be a good time to reduce this pest by the above method."

POTATO WART DISEASE CONTROL

Extensive surveys conducted during the last fiscal year have pretty well eliminated the chance of countrywide infestation at this time by the potato wart disease, according to the United States department of agriculture. It seems to be pretty clearly established that the disease is now limited to comparatively small areas in Pennsylvania, West Virginia and Maryland.

The only new infestations are those determined in three villages near Frostburg in western Maryland, which lie practically between the western Pennsylvania and the West Virginia infested districts, and are, similarly, mining sections. Some 1,000 individual garden plats in these three states have been determined as infested, but the total areas of these plats aggregate less than 100 acres. The three invaded states are enforcing effective quarantine measures, it is said, and, as these seem adequate for the protection of surrounding states, no domestic federal quarantine on account of the disease has been promulgated by the department.

Very important results have been obtained from the department's studies, notably the immunity to the disease determined for certain important classes of potatoes and the possibilities of local control by limiting plant-

ings to such immune varieties and by direct corrective work. This outcome has largely eliminated the fear that the wart disease might follow the same destructive course in this country that it has in parts of Europe.

FEDERAL HIGHWAY MONEY

The total of federal aid funds for road building apportioned among the various states up to the present time by the bureau of public roads, United States department of agriculture, aggregates \$339,875,000, according to a tabulation prepared by the department and just made public. Of this sum \$73,125,000 is apportioned under the federal highway act, approved by President Harding November 9, last, and \$266,750,000 represents the total apportionment under the old acts.

Under the terms of the new act the federal aid money will be available to the states for two years after the close of the fiscal year for which the money is appropriated. This provision is made to apply to the money appropriated under the previous act and its amendment as well as to the new appropriation. Accordingly, the new appropriation must be expended by June 30, 1924, and the time allowed for the expenditure of the balance of the previous appropriation which remains in some status is extended to June 30, 1923. The forest road appropriation is available until expended.

The new appropriation is to be expended upon a definite, connected system of highways in each state, of not to exceed 7 per cent of the total mileage of highways already existing in the state. This system is to be divided into two parts; the first to include the more important roads, which are to be known as the primary or interstate highways; the second to include the secondary or inter-county highways. The primary roads, it is provided, shall not be more than three-sevenths of the mileage in the system. The second part will make up the balance of the system.

ALKALI SALTS

Greaves, Carter and Goldthorpe of the Utah experiment station carried out an investigation to determine the relative toxicity of various substances found in or applied to a soil, as measured in terms of bacterial activities of the soil, as well as to determine the stimulating influence of various substances upon bacterial activity, and the manner in which it is exerted. The soil used was of a sedimentary nature (sand and silt) in which all the elements of plant food were present in abundance with the exception of nitrogen, of which the amount did not exceed .15 per cent.

The commonest soil alkalis are very toxic to the nitrifying organisms and greatly reduce the nitric nitrogen accumulation. In the concentrations tested, however, most of the salts acted as stimulants. The only salts which did not act thus were sulphate of sodium, carbonate of sodium,

carbonate of calcium, sulphate of potassium, carbonate of potassium and iron nitrate. Chloride and sulphate of calcium increased the nitric-nitrogen accumulation of the soil 67 and 97 per cent respectively. On the other hand, the nitrates in some concentrations caused loss of nitrogen, and in others, the fixation of nitrogen. Nitrate of manganese proved the strongest stimulant.

The ammonifying powers of a soil containing alkalis are a better index to its crop producing capacity than the nitrifying powers; but those compounds which are the strongest plant stimulants are also the most active in increasing the nitric-nitrogen in the soil, and it is very likely that the effect upon the plant is due mainly to the action of the chemical compound upon the bacteria which in turn render available more plant food. It should also be noted, that, though many of the nitrates caused large losses of nitric-nitrogen, this was due to their stimulation of species of bacteria which transform nitric-nitrogen into protein nitrogen, and was not the result of denitrification.

BEAUTIFY HOMES

Make the grounds immediately surrounding the farm home at least as attractive as the average city lot. The owner of the latter may be a laborer, a bank clerk, or of any trade or profession, but the chances are strongly in favor of the farmer and his family knowing more about growing plants than the lot owner and having just as much time to care for them.

Have plenty of trees for shade and shelter, as well as for ornament. Plant flowering shrubs about the house foundations and around the garden boundaries, especially in the front yard. Put in some herbaceous perennials. Once or more each year broadcast seeds of annuals in all bare spots in the garden, so that a constant change may be had. Native flower seeds of both annuals and perennials may be sown now, in mixed lots, and provide a succession of flowers until rains come again, and some of them will remain with you for all time if you so wish. By planting largely of native California material little care will be exacted and then when farm cares will allow you may give the garden the "once over" and clean it up a bit. From any standpoint such planting pays.

AUSTRALIAN ORANGES

From a South African farm journal we clip the following:

"A trial shipment of 3000 cases of oranges from South Australia was sold at Covent Garden at the rate of 31s 6d. per case (about \$6.50). It is said that the appearance and flavor of the fruit impressed the experts, some of whom are of the opinion that with improved attention to export conditions further shipments of these oranges will command a higher price than the best South African fruit."

Legal Queries

Louis B. Stanton, attorney, 343 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Payment on Check

I had a checking account at the bank upon which I gave a check to a merchant. Later I drew out the balance. The check was not deducted and the bank now notifies me that they honored the check and request me to pay them the money. Can I be required to do same?—Subscriber, Inglewood.

A check is a promise to pay much the same as a promissory note. Either you would be liable to pay the party to whom you executed the check or an endorsee or assignee of that party. The bank is undoubtedly an assignee of the payee and could bring action against you upon the check.

Investment Company

I wish to organize an investment company to finance various projects. Would it be better to organize this under a declaration of trust or incorporate under the California laws, or elsewhere?—Subscriber, San Diego.

It depends very largely upon the particular operations of any business as to whether the trusteeship plan would be at all applicable. Where it is applicable it is undoubtedly one of the best methods of handling trust property, but it is particularly adaptable to the close or family corporation rather than to a plan where stock or interests are sold broadcast. The California laws are sufficiently broad so that it is usually better to incorporate here under them. If a corporation is made under the laws of another state it is subject to taxation in such state as well as in California. It is generally only the larger or holding companies which do comparatively little actual business to which the foreign corporation is specially adaptable.

Road on Section Line

I have a relinquishment for a section of land which is the central 160 acres of four different sections. Can I require a road to be brought through my land on any of the section lines?—Subscriber, Seal Beach.

There can be no objection to your putting a road through your own land in any way you see fit. You could probably not make a valid dedication of the road until patented title had been obtained from the government. So far as forcing a road to be driven along section lines of your neighbors, the writer has never been able to find an authority to justify the idea which seems to be prevalent that a road is reserved along section lines under the patent given by the government. It is true that it is customary in new countries to open roads along these section lines and in many instances no objection is made. But on the other hand the government patent runs up to the full boundaries of the 640 acres and contains no reservations, so it would seem that it is necessary to call upon the county authorities in the usual way to open a road if any is desired and there are any objections made by the owners of surrounding lands to anyone passing over their lines.

Separate and Community Property

A widower with children owns 20 acres of land and water stock. After marriage he plants the land to trees. Has his second wife a share in his property if he chooses to will it to his children? If he should die without will what would be the legal distribution of the property?—Subscriber, Covina.

These questions involving property

which is in part separate and in part community property are some of the most difficult which arise in the law. It would be necessary to make a careful investigation of the particular case in order to give a definite opinion. In so far as the separate property is concerned and considering the matter as separate property, in case the husband should die without will one-third of the property would go to the surviving wife and the other two-thirds be divided equally between the children. If the wife can establish that a part of the property is community property, that is to say, a usufruct over and above the living expenses of the community, which has been invested in the property; as to such portion she would be entitled to one-half. The other one-half, as all the separate property, would be absolutely subject to the disposition of the husband by will.

Marriage of Divorced Persons

Can a divorced couple who were resident in Oregon marry in California before the six months is up which under Oregon decree they are required to wait before marrying again? If they should marry in California, what would happen to them if they went to Oregon?—Subscriber, Earlimart.

It is difficult to determine whether the question refers to a remarriage of the divorced parties or to a marriage of each of the divorced parties to someone else. It would undoubtedly be true that if the divorced parties remarried each other such marriage would be entirely valid, although it would be well for them to have the Oregon decree set aside. Under the Oregon statutes it probably is true that neither of the parties would be free to contract marriage with a third party as the Oregon statute declares that neither party would be capable of contracting marriage with a third person and if he or she does so contract will be liable therefor as if such decree had not been given until the suit has been heard and determined on appeal. This statute has been considered in Oregon to mean that a marriage of a third person within the period of the six months would constitute bigamy in Oregon.

Appraisal Fee

I made application for a loan, paid the appraiser fee which he required, of \$20, with the understanding that if the loan was rejected fee would be returned. It has not as yet been returned nor has the application as yet been approved. Can this fee be kept?—Subscriber, Wasco.

If the fee was paid to a private loan company it would be difficult to state whether there was an obligation to return. If your question refers to applications under the federal farm loan act, the law prescribes that loan bank appraisers should receive such compensation as the board may fix and will be paid by the federal loan banks and the joint stock loan banks, which he serves, in such proportion and in such manner as the loan board should order. It would be best for you, therefore, to take the matter up through the local loan association, or, if necessary, directly with the federal bank at Berkeley as the appraiser is paid by the government.

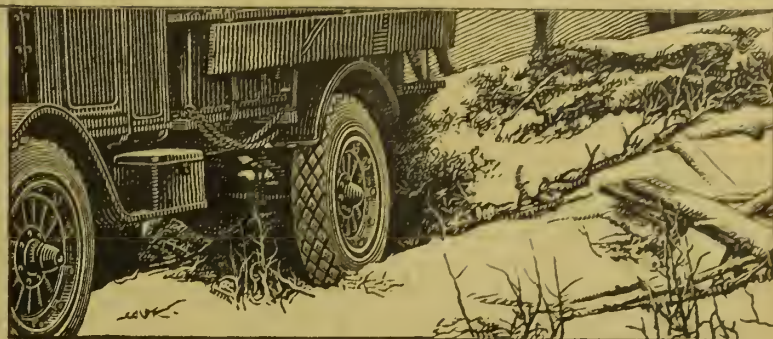
Irrigation District Taxes

I have been irrigating land with an electric pump and am about to be included in an irrigation district. There is no ditch nearer than a mile. Must a district put in a ditch to my land before they can collect taxes?—Subscriber, Fresno.

The irrigation act expressly provides that all waters distributed for irrigation purposes should be appor-



ON THE ROAD EVERY DAY THIS WINTER



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"We get snow a-plenty in this section every winter, but our truck on Goodyear Cord Tires averages two capacity trips a day regardless of road and weather, cutting our wagon-haul time to South St. Paul Stockyards with livestock from more than three hours down to forty-five minutes."
—E. L. YETZER, Yetzer Bros., Farmers, Richfield, Minn.

Their sure-footed traction on snow-filled roads, maintaining regular deliveries throughout the months that once were closed to all farm hauling, is one of the most valuable advantages of Goodyear Cord Truck Tires.

Their All-Weather Tread, with its wide surface of sharp, gripping edges, gives them a firm hold on slippery surfaces and in thick, slushy going.

Their buoyant resilience favors the truck mechanism, cushions the driver

and the load, and protects improved roads.

The durable qualities incorporated in these tires by their exclusive Goodyear design and construction prolong their all-season, all-weather usefulness through thousands on thousands of miles.

Actual experiences of farmers hauling on Goodyear Cord Truck Tires are reported to those interested by The Goodyear Tire & Rubber Company, Akron, Ohio, or Los Angeles, California.

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Write for New

FRUIT TREE CATALOG (65 Pages)

Fully Illustrated. Contains much information of value to planters
Sent FREE on request

In preparing our 1922 catalogue, it has been our desire to make it not only a descriptive book telling the kind of stock we grow, when and how to plant and care for it, the prices at which it sells, and the effects it will produce, but also to give our many customers information showing how the stock itself is produced, the care that has been exercised in its building, together with lots of little helps heretofore not found in any nursery catalogue.

GEO. C. ROEDING, President

Fancher Creek Nurseries

Fresno, California

\$39.50 Buys Kirstin ONE MAN Stump Puller

World's lowest priced One-Man Stump Puller—light, fast, powerful. Weighs only 100 pounds—manufactured by makers of the famous **KIRSTIN STUMP PULLERS**. Price includes Tool Steel Ratchet Bar—Carbon Steel Dogs—All Steel Long Lashed Chain—Extension Bar—Hook and Steel Anchor Cable.

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Read These Letters
Cleared one and one-half acres in two days. Also pulled 18 inch Maple Stump in five minutes. A. Johnson, B-47, Chatham, Mich.
I pulled 800 stumps in five days—up to 24 inches through. C. Noss, Big Falls, Minn.

TRY IT 90 Days

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4207 First St. Escanaba, Mich.

tioned rotably to each owner upon the basis of a ratio which the last assessment of such owner for district purposes within the district bears to the whole sum assessed upon the district, and it is also made the duty of the directors to furnish to each land owner in the district sufficient water for irrigation and domestic purposes. The irrigation district is, however, organized for the purpose of making the land within that district subject to the payment of the bonds which are issued unto purchaser in order to acquire the water rights and construct ditches so that water may be conveyed throughout the district. These bonds are sold broadcast to parties who perhaps know nothing of the conditions in the district. The interest and principal of the bonds must be paid by taxation on the lands of the district. If it is true that any one could resist a district tax because he does not have water, then it is easily seen that the bonds would be worthless as they would be dependent in each case on the fact that all the district was covered with water. Therefore, although a party has his remedy within the district, if he does obtain the water he cannot resist taxation on that ground.

Right of Way

In the case of two adjoining lands one bordered on the public highway but the other did not and was given the privilege of driving across the bordering tract. A public highway now borders both tracts. Can the other owner be required to seek outlet on his own property?—Subscriber, National City.

Unless a right of way across the easterly tract was granted or has been acquired either by prescription or in some other manner the owner of that tract may be required to cease crossing in the accustomed way. It is probably the case that he has acquired no right and that the gates may be shut against him and no great harm would be done by doing so.

Barley on Another's Land

I rented a piece of land but before I put it in seed another party sowed barley. I notified him that I had leased the land but he seemed to disregard this. At a later date I found him disking. Have I the right to har-

vest the crop?—Subscriber, Torrance.

If you have a lease on the land, at the time of the lease as to the occupation of the land, you stand in the shoes of the owner, and you are entitled to receive the use of the land and of all that is sowed therein. The other party having been fully notified could have no possible ground for claiming the crop and you would be, therefore, entitled to harvest the crop, unless perhaps he had a lease from the owner, in which case your action will be against the owner of the property for breach of his contract to lease.

Deed to Avoid Probate

In the event of death I wish to leave all real estate to my wife. Can I avoid the expense of probate by making deed to my wife to be delivered after death, or can I deed this property to a third party then have it deeded back in joint tenancy? Which plan is better?—Subscriber, Riverside.

Either plan, if properly done, will suffice to convey the property. In the case of the direct deed it is essential that the deed be actually delivered prior to death so that the entire dominion over the property passes from the grantor from the time of delivery. This arrangement has led to a great amount of litigation over the question of delivery. The creation of the joint tenancy is probably the safer method. Care should be exercised, however, that when the property is in the possession of the third party it does not become encumbered by reason of a judgment issued against such party.

Run-Off

Two farms adjoin; the slope over each is to the east. The owner of the east tract wishes to avoid overflow of waters. In such event who is required to make the ditch to collect the overflow water and on which side of the division line is the ditch to be maintained?—Subscriber, National City.

As to the ordinary flow of rain water entirely falling and running over the easterly tract the owner of the easterly tract would be obliged to protect himself. This is a comparatively rare event. As to all irrigation waters developed upon the higher land or brought thereon by irrigation ditches, the owner of the land on

which the water is brought must at his peril keep the water thereon, and if he forces overflow on the lower land he may be enjoined and made subject to an action in damages. Therefore, it would be necessary for him to, at his own cost, keep such waters from overrunning his neighbor.

Other Property Liabe

Where property under a trust deed does not sell for enough to pay the notes can other property not under deed be sold to make up the balance?—Subscriber, Wasco.

In such a case the amount for which the property is actually sold is credited upon the note and the holder of the note can thereafter bring suit to collect any balance remaining unpaid. In such suit he is entitled to levy attachment and execution upon other personal or real property, just as in the case of any other action upon a note.

Gophers and Dead Trees

A neighbor plies hay along our orange grove. Gophers make their home in this. Has she a right to do this? She also has a line of dead cypress trees standing close to the property line. Many have fallen and damaged our oranges. Can we make her take out these dead trees and the branches which overhang our land? Can we obtain damages for the loss caused by the falling trees?—Subscriber, Riverside.

If it could be proven that the nest of gophers was a nuisance she might be restrained from maintaining it, but your best remedy would undoubtedly be to make a complaint to your county horticultural commissioner, who is empowered to take measures to abate gophers. You probably would not be able to force your neighbor to take out the dead trees, but you are entitled to cut off any branches overhanging your land and would undoubtedly be entitled to damages for actual loss caused through the falling of these trees.

Joint Tenants

Property is deeded to husband and wife as joint tenants. There are three children. In case of the death of either parent what share goes to the surviving parent and what share to the children? Would a will make any difference?—Subscriber, Los Angeles.

The tenure or right under which the husband and wife each hold property is to the effect that upon the death of either the whole of the property will vest in the survivor. Such being the case, upon the decease of either of the parties his interest in the property immediately passes to the survivor and he has no interest which could pass to any child or which he could devise by will.

Condemning Roadway

I have property in a suburban community. It is proposed to run a street through which will cut off several feet and materially damage the property. Can I be forced to vacate?—Subscriber, Bell.

The state, county or city is invested with the right of eminent domain under which, when the governing body determines it is for the best interests of the public, a right of way may be condemned through property. Compensation for the damage caused and property taken must of course be paid.

Ditch Right

I purchased land some two years ago. The deed shows no ditch right. A neighbor who has not irrigated his land for six years now claims he is entitled to a right of way for a ditch. Can I prevent him?—Subscriber, Fresno.

Nothing is stated as to the ground

upon which the neighbor bases his claim for a right of way. If it is under some grant, then in order to be prior to your deed the claim must have been recorded before your deed. In such case you would undoubtedly have a right of action for any damage caused against the party who sold you your land. It would seem that if he has a claim by user such claim would have been abandoned if he has not used it for six years. But it will be necessary to know the grounds upon which his claim is based in order to determine whether it is a valid claim or not. The best way would be to refuse him entrance and then he would be obliged to show his claim in some action for trespass.

Inheritance Tax

A man owns real estate prior to marriage. After marriage, in a Torrens title it is set forth that the land is possessed in joint tenancy with right of survivorship. In case of the death of either husband or wife will the estate be subject to inheritance tax?—Subscriber, Whittier.

The present inheritance tax law provides that whenever property is held in the joint tenancy of two or more persons the right of the surviving joint tenant is determined by a transfer made under the provisions of the act in the same manner as though the whole property belonged absolutely to the deceased and had been devised to the survivor, except such part as the survivor may prove to have originally belonged to him and not to the decedent. It therefore appears that in case of the wife's death, the property never having belonged to the wife, it would not be subject to the inheritance tax. But in the case of the husband's death the whole of the property would be subject to the tax.

Sanitarium Bills

If a father who has property and money is taken seriously sick and wants to go to a sanitarium, and his sons, who also have property, take him there; when the father's money is gone can the sanitarium attach the money of the sons?—Subscriber, Valley Center.

If the sons contract with the sanitarium for the care of the father such care would be a good consideration for their agreement to pay and they could be rendered liable on such contract. It would turn entirely upon the question of the contract. If they did not contract then the sanitarium would of course be required to exhaust the property of the father and very probably would have no action against the adult children.

Natural Drainage

My land drains its storm waters over my neighbor's land. There is no other outlet. Is he entitled to build a dyke and back these natural storm waters on my land?—Subscriber, Riverside.

Insofar as naturally falling storm waters are concerned the owner of the land is entitled to have them flow along their accustomed channels. Your neighbor is not entitled to back these waters onto your land and you could recover for any damage thereby caused. This rule does not apply, however, as to irrigation waters which are brought upon your land, as to which the rule is the reverse.

Damage From Straying Horse

My horse has broken away and gone on a neighbor's premises a few times. The neighbor threatens to collect a bill of damages. What are his rights?—Subscriber, Redlands.

His rights would depend entirely upon whether or not his land was entirely enclosed by a substantial fence

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or otherwise enclosed, and in such case if planted with growing crops, vines, fruit trees or vegetables, he would be entitled to recover from you actual damages sustained by trespass, together with costs. Otherwise, under the laws of this state he would probably be unable to recover anything.

Ditch Right of Way

For the last two years I have been running water from a ditch through my neighbor's land. Can he stop me at any time? Must I pay him for right of way? If so, how would price be fixed?—Subscriber, Gridley.

Unquestionably this right of way has been used as a mere license and can be revoked at any time. If you desire to acquire a right of way you would be obliged to pay your neighbor whatever price he wishes to ask.

Fulfilling Contract

I purchased land on contract, afterwards sold one-half of it. The buyer paid part cash, received a deed and gave back a mortgage to my vendor, who made a new contract with me for the remaining property. The man who purchased from me is now unable to make his payments and the owner intends to foreclose. In the new contract which I made it was understood that I would not be released until an additional amount had been paid. Must I pay this additional amount and also lose the land?—Subscriber.

You will certainly be entitled to redeem from the mortgage foreclosure. In the absence of the exact terms of the contract it would be difficult to state whether there was any obligation to pay the \$1,000, but it would seem that any amounts which your vendee had paid would be credited upon your gross payment. In such case it is necessary to see the contract, as it is, in order to give any statement.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Orphan Lambs

Is it advisable to feed "bummer" lambs calf meal if they have first been started on cow's milk? Please advise what to give baby lambs for bowel trouble (dysentery). As lambs get older can they be fed dry or wet mash?—Subscriber, Orland.

Calf meal should be all right for lambs. Add a little of the calf meal and a little water to the milk you are giving. Decrease the milk and increase the meal gradually. They should have some alfalfa hay where they can nibble at it. Dry mash is better than wet and would be better if mixed with a little cut alfalfa. Wet mash is likely to cause dysentery and bran in any mash is irritating to the bowels and likely to cause dysentery.

Udder Trouble

I have a six year old, pure bred Jersey cow that has been in perfect condition. In drying her off the right front quarter shrank in size and gave less than half as much milk as the others and the teat is still smaller than the others. There was no inflammation in the udder. It is time for her to calve again. What treatment shall I give her to prevent losing the quarter?—Subscriber, Winton.

Hand rubbing (massage) is the best remedy we know of. As often as you milk her spend some time rubbing that quarter and rolling it between the hands. Do not use too much force in handling the udder. Gentle and frequent rubbing will increase the flow of blood to the parts and good

fresh blood is the greatest remedy for nearly all diseases.

White Scours

What is wrong with our calves and what is best to do for them? They come from healthy cows that are well kept and well fed. The calves receive the mothers' fresh milk and are fed regularly, but when one or two weeks old they run off at the bowels and on the second day lose their appetite. We have had ten calves affected in the same way. Three of the younger ones have died. They are kept in a clean, dry pen with plenty of straw. We reduced the milk and scalded it and in some gave cholera remedy and in some half a teaspoon of nutmeg and one tablespoon of browned flour. The older calves got better while the calves one week old died on the third day. Some of the neighbors have had the same trouble with their calves.—Subscriber, Pleasanton.

This is probably the white scours that has caused so much trouble in the eastern states. It is due to a germ that is in the dust about the stable. It gets onto the cow's udder and some gets into the milk. The stable, sides, ceiling and floor, should be swept clean and, whitewashed. A little carbolic acid or zenoleum should be added to the whitewash. The cows should be thoroughly groomed and the udders washed. It does not seem to affect the cows nor the milk for other use. When a calf first shows signs of the trouble something should be done at once. Some good internal antiseptic should be given. Five grains of tannic acid and ten grains of powdered gentian mixed in half a cup of boiled milk twice a day will usually cure them quickly. Do not give the milk hot. Or five drops of zenoleum in half a cup of boiled milk twice a day has given good results. Do not delay the treatment, as the disease is very exhausting and the young calves cannot endure it long. Of course they must be fed a reasonable amount of milk besides what is with the medicine.

Sick Goat

I have a milk goat that gave after her second kidding a gallon of milk a day. After giving milk about six weeks she got sick. She had a stoppage of the bowels, a high fever, and came near dying. One side of the udder swelled up so it was hard and had no circulation of blood in it, as it was cold. I called a veterinarian. He gave her some medicine and told me to put antiphlogistine plasters on the udder. I did, but nothing had any effect until I washed the udder with saltpeter water. It softened up rapidly then and a month later a large bunch formed in the front part of the udder. When we opened it a thick yellow pus came out. It soon healed but two months later another smaller bunch came and broke as the first. She seems well now and is about dry. What can we do to prevent the bunches forming again?—Subscriber, Long Beach.

Goats and cows that are large milkers must be great eaters to supply the flow of milk. They have a ravenous appetite and will often pick up an old rag or something that will upset the digestion and cause just such trouble as you have been having with your goat. In the future be careful what she gets to eat. Regarding the udder; if it gathers and breaks again make the opening in the skin larger and do not let it close until it heals solid from the bottom. Wash out the cavity once a day with a solution of permanganate of potash, using a dram to the pint of water. Internal remedies would do no good. Be sure she gets plenty of clean water to drink and feed her green feed that will keep the bowels regular.

A hog auction sale at Meridian is being arranged by the Sutter County farm bureau for the middle of February.



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A SONG OF PRUNES

Throughout the drift of centuries, since first the world was young, The bards have tuned their lyres up and cleared their throats and sung Glad songs of fruits and flowers, of the orchard and the field, And puffed up nearly everything the soil has deigned to yield. And so I crave attention while your humble servant tunes His lyre to the topmost pitch and sings a song of Prunes.

O Prunes! Though thou art fit to grace the banquets of a king, Yet dost thou to the lowly board of humble peasants bring Thy pulpy fatness full of joy and flavors rich and deep.— O, is there aught on earth so rare and yet so good and—cheap! And could I twang a thousand harps through centuries of Junes My one and all triumphant theme would be a song of Prunes.

But O! the hide bound, sorry Prune, with visage pinched and lean, We meet in boarding house resorts, is not the sort I mean. Give me, instead, the puffy Prune, inflated with its juice, That makes strawberries and the like to me of little use. For did I own a thousand mouths and twice as many spoons I'd still employ them, every one, to get my fill of Prunes.

—Nixon Waterman.

LOVE AND HONEY

(Continued from last week.)

"You certainly have done a day's work," she smiled, "and I appreciate it very much, but what are your wages?"

A dark crimson mounted from his tanned throat to his brow and he stammered, "If you please, Miss, it was just a little neighborly help and your appreciation is quite compensation enough."

Alla could be very haughty when she chose and she chose now.

"I am in the habit of paying those who work for me but perhaps you would prefer settling with my uncle."

"Yes, I think that would be much the better way," he answered, and lifting his hat again dashed up the hill and out of sight.

Alla was vexed without knowing just why and when her Uncle came she ran out to the corral to greet him.

"Hello, Puss," he called. "Come to give me a call down for not sending your gardener?"

"Oh, but he did come," she said, "and he worked like a good one all day. You should see all that we have accomplished. But really, Uncle, he isn't at all the kind of a man you gave me to understand that he was."

Amazement was written large on Monroe's face as he exclaimed:

"Thunder only knows who's been digging for you today, Honey, but it sure wasn't Jeff Barnes 'cause he's off in town on a drunk; been gone a week and likely be gone another one."

She told of the day's experience as they walked to the house.

"Wore a broad brimmed Stetson and high boots and rode a fine bay horse."

"Well, you've been entertaining angels unawares that's all. That there was Ralph Manly, the forest ranger, and bless me if I know who the joke is on."

Alla above all things disliked to appear ridiculous and that was the light in which she saw herself whenever she recalled the incident, and she inconsistently resolved that someone should pay for her wounded vanity.

So it was that when some few days later Ralph Manly rode up and lightly dismounted beside the new hive her Uncle was constructing she paid no heed unless it were to put a little more energy into the sponge cake she was beating. Later when the two men came in for lunch, the ranger was greeted with the coolest of nods. By tacit consent the affair of the mistaken identity was left entirely alone by all.

"I rode this way, Mr. Monroe," said Manly, as they left the table, "to tell you that I have located one of those swarms that you lost last summer and I believe they have been doing well for themselves since they left, for there's a lot of them there. They located themselves in that old oak just beyond that big pine that the wind split last winter by the hill trail."

"Glad to hear it," answered his host. "I'm after all the runaways. I've got a swarm out here now that I surely would hate to lose. The prettiest little Italian queen you ever saw and they're all sure workers."

As Ralph was leaving he turned to Alla.

"I brought some maidenhair that I picked up along the way, I thought it would be just the thing to run over some of your rocks. It's young now and ought to take root easily."

"Thank you, but I don't believe I have room for it," she returned.

"Oh, yes, I found plenty of room," he responded lightly. "You see I have it already set out, and it looks as if it had always belonged there."

The next time he rode in he bore a wigglesome bundle, which proved to be a curly, roly-polly collie pup. As soon as he was released, he looked about in search of a kindred spirit. The fussy old red hen was busy by the wood pile unearthing choice tidbits for her family, and she seemed to strike his fancy. Straightway he went to investigate. The rebuff he met swept his puppyship entirely off his short fat legs, and sent him flying with loud cries for help straight into the lap of the young woman who was shelling peas on the step.

"With the donor's regards," called a laughing voice as Ralph turned the corner. Alla hardened her heart and hid a tiny smile by stooping to pick up the scattered pea pods.

"You really should chain your pets if you must insist on carrying them with you and not have them frightening other people's poultry and being a nuisance generally." Then she stalked into the house with what dignity she could considering the pup was tugging hard at her skirt and showing his courage by his vicious growls.

Imagine her surprise then when a short time later she emerged to find horse and rider gone and a very chastened puppy tied to the clothes post with a tag on its collar, reading "His name is Wags and he adores biscuits." What could one do with a man who ignored snubs and when his offerings were refused simply left them anyway and rode off?

Then other complications set in. The stage one evening deposited a smartly attired young man and certain hunting and fishing paraphernalia at the mail box, all of which finally found its way to Monroe Price's front door. Alla greeted him as "Perry" and introduced him to her Uncle as "Mr. Newton," an old acquaintance. Perry explained that he was on a vacation and in search of a place to camp. Whereupon Uncle Price with true Western hospitality invited him to camp right there, which he straightway proceeded to do.

That night Alla found herself wondering if Perry would be as easy to manage out here alone as he was back there where he was only one of a dozen boy admirers. The fact of his following her certainly spoke well for his persistency.

If Perry Newton brought his gun along to hunt he merely neglected it for it continued to lean in the corner by the fireplace while its owner spent blissful hours in the tame pursuit of green peas, new potatoes and hens that stole their nests. As for Ralph Manly he still dropped in at unexpected intervals, now bringing a string of trout or a root of some wild plant or vine, always some woodland treat. Perry let it be known at once that he personally did not take kindly to the ranger's visits but his contempt rolled away quite unremarked by its victim.

One day when Manly and Alla were on their knees together in the little rockery by the spring transplanting a clump of fern he had just brought in, Perry appeared bearing a bundle of trailing vines in his arms. His face was red and perspiring but he had the air of one who through striving has conquered.

"There, Alla," he announced, as he deposited his load at her feet, "I've

dug up enough of this vine to cover the whole thing. It seems to run well and we won't have to bother Mr. Manly about bringing any more stuff."

He glared upon his kneeling rival very fiercely but Ralph merely rose and with his foot gave the vines a shove away from Alla before she could touch them.

"Poison oak," he announced laconically, "and you'd better go and bathe in alcohol," turning to the crestfallen Newton.

Whether he failed to take the advice offered or whether the remedy failed will never be known, but within a couple of days his manly countenance was swollen beyond recognition and he gazed upon a world grown suddenly

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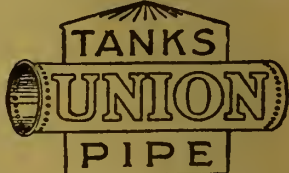


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Quick-to-use energy comes to you from their rich fruit sugar. Body tone comes to you from their tonic iron

and other mineral and "vitamine" elements. Nor should you forget that prunes provide a laxative from Nature's own pharmacy.

Here, in California, we should be doubly appreciative of the prune and what it means—not only to the agricultural prosperity of the State but to our own *health-prosperity*. For, aside from its work in putting the prune and apricot industry on a sound and stable footing, the California Prune and Apricot Growers Association has opened up new avenues of taste and health to the American public.

Living so close to the heart of this pruneland as they do, many Californians have discovered for themselves the flavor-and-health possibilities of prunes. Those who haven't [and even those who have] will find our Recipe Packet a revelation. It is full of flavor-and-economy surprises. It belongs in every farm kitchen. We'll see that it gets in yours—if you say so. Send for it today—it's free!

Don't forget—National Prune Week February 27th to March 4th

California

PRUNE & APRICOT GROWERS-*Inc.*

PACKERS OF
**SUNSWET
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Brands

64 Market Street, San Jose,
California. A State-wide, cooperative
association of 11,000 growers.

The Cultivator Patterns



3851. Ladies' Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 4 3/4 yards of 40 inch material. The width at the foot is 2 1/2 yards. Price 10 cents.

3856. Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. A 10 year size requires 3 1/2 yards of 32 inch material. Price 10 cents.

3834. Ladies' Under Garment.—Cut in 4 sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size requires 2 1/4 yards of 36 inch material. Price 10 cents.

3100. Set of Infants' Clothes.—Cut in one size. It will require 2 3/4 yards of 36 inch material for the dress, 2 1/4 yards of 27 inch material for the petticoat and 2 yards of embroidery for the ruffle. The slippers require 3/4 yard of 18 inch material and the Barrie coat 3/4 yard of 27 inch material for band and 1 yard 40 inches wide for skirt. Price 10 cents.

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3858. Juniors' Dress.—Cut in 3 sizes: 12, 14 and 16 years. A 14 year size will require 3 yards of 38 inch material. Price 10 cents.

3622. House or Porch Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 7 yards of 27 inch material. The width of the skirt at the foot is 2 1/2 yards. Price 10 cents.

3862. Child's Romper.—Cut in 4 sizes: 1, 2, 3 and 4 years. A 2 year size requires 3 1/2 yards of 27 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cts. a coin or (1 or 2 cents) stamps for each numb. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Do not expect patterns under Two Weeks from date of order.

CATALOGUE NOTICE

Send 12c in silver or stamps for our Up To Date Spring and Summer 1922 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker. Also colored plates.

PATTERN DEPARTMENT

California Cultivator Los Angeles

black through mere slits of eyes.

All things even poison oak end in time though, and the day came when he once more went forth to bask in the light of his lady's eyes. But he noted uncomfortably that that light too often suggested a highly amused smile.

So the days slipped past with the situation seemingly unchanged. Then nature with unbounded lavishness sent a succession of days each more beautiful than the succeeding. The earth seemed to pulsate and radiate with the very gladness of spring. By day the meadow larks poured forth their trills till one wondered that their little bodies could contain so much sheer joy. And by night the chorus of frogs from the willow lined stream drifted through the open windows.

Alla, digging among her new rose slips, rose as a series of barks sounded from behind the shed.

"Wags, you vagabond," she scolded, "what have you rounded up now?" If it's another skunk like the one you brought in last week I shall surely disown you."

As she turned the corner a low hum fell upon her ears. It was not a new sound to her for several times in the last week she had heard it and each time it was the signal for considerable activity on her Uncle's part. She looked toward the line of low white hives and there above and around the third from the end rose a whirling humming cloud.

"It's Uncle's pet Italian queen," she said half aloud, "and he won't be back here for hours. If I could only trail them," she mused and watched the swarm anxiously. A line of them, steadily growing thicker were flying to the north and following with her eye she found their destination. It was a dead limb of an old tree some five hundred feet distant. It ran out from the trunk about eight feet above the ground and near its end a clump of bees as large as her two fists had already collected.

Alla hesitated only a minute; she had seen her Uncle hive several and she believed she understood the method, besides she knew how disappointed he would be if his favorites escaped him.

Perry Newton had left an hour before in search of small game and Alla felt instinctively that he would have been of little use anyway as he seemed to have an aversion to making friends with her Uncle's winged pets.

The empty hives were in the shed, already prepared for her new occupants she knew. Hastily she exchanged her dress for her hiking suit and leggins, she drew her riding gauntlets over her hands and then from its nail in the shed took down her Uncle's hat and bee veil. The empty hive proved heavy and awkward to carry but she finally placed it on the newspapers she had spread directly beneath the swarm which by now were nearly settled. Then she filled a bucket from the spring and with a small spray pump took her stand to one side of the tree. Her hat developed a habit of falling over one eye but after a little trouble she succeeded in directing her spray aright and the movers with spirits very damp indeed signified their willingness to remain and get dry.

Now her Uncle would have simply grasped the limb and shaken its burden upon the papers where after a wild scrambling they would have made their way through the narrow opening of their new quarters and been content to start housekeeping. But the limb was too high for Alla so after some experiments she ran for a small box by the shed.

What happened followed so quickly that she never was quite sure how it came about. She had just mounted the box which she had hastily placed on the uneven ground when it tipped giddily and fell. As it fell she grasped the limb above and her weight suddenly thrown upon the already decayed wood sent it with a crash to the ground. The fall did not hurt her so much but the limb was across her shoulders and held her pinned fast face downward. An angry din arose on all sides of her. Everywhere she could see a seething mass of bees crawled. They covered her gloves, her veil and her blouse. Swarming bees are proverbially good natured but one is not supposed to trust in that enough to lie down upon them. Above the din came a shout that Alla recognized as coming from Perry.

"I'm coming," he called.

A sharp stab followed by two or three more on the back of her neck warned her that her bee outfit was far from bee proof. Then came steps running and Perry appeared on the scene. By twisting her head she could watch him and when within a few yards he hesitated and brushed feverishly at some tiny winged specks in the air.

"Oh, hurry, Perry," she called, "they are stinging me so."

More specks appeared about his head and waving his arms and hat wildly he turned and fled. Over his shoulder drifted back the words: "Just wait, I'm going for help."

A wave of sickness swept over her and the next she knew a mighty tug had lifted the heavy branch from her shoulders. Arms gathered her up and great strides hurried her out and away. The humming was growing fainter though she knew hundreds of the insects still covered her clothes. Then she was unceremoniously dumped into the brook and splashed and shaken. Finally regaining her feet and shaking the water from her hair end eyes she saw Ralph Manly rolling in the water, which seemed full of bees trying vainly to find something to cling to.

An hour later with dry clothes they were taking stock of damages. Almost miraculously it seemed Alla had escaped with a few stings upon her neck and shoulders, but the forest ranger seemed to have doubled in size. Alla had his face and hands wrapped in cloths wrung from cooling lotions and he was lying back in the rocker.

Despite the evidences of the strug-

TRY A SUN-SWEET SUNDAY

Doesn't it sound good?

It tastes better!

What is it? A generous serving of vanilla ice cream, entirely surrounded by rich, fruity Sun-Sweet prune syrup. It's as rich as chocolate with fruity flavor added.

Try it at home.

Ask the soda fountain man for a Sun-Sweet sundae.

gle he seemed a very happy young man for Alla was seated upon one arm of that chair and a hand very frequently carressed certain growing bumps among his crisp dark hair.

The front door opened and a voice from the kitchen begged:

"Alla, could you bandage these stings for me, they hurt deucedly and my eye's near shut?"

"Try a little mud on them, Perry," she advised, "they say it's very effective. There's a lot by the spring, just help yourself."

And continuing an interrupted conversation:

"We could build a little rockery at the ranger station, couldn't we?"

"Uh huh," blissfully, "and let's have a couple of swarms of bees."

HINTS FROM HOUSEKEEPERS

Cakes and Cookies from Washington

In the January 7 issue of the Cultivator I see someone wants a 7 egg recipe for sunshine cake. Here is one:

Sunshine Cake.—Whites of 7 eggs, yolks of 5 eggs, 1 cup granulated sugar, sifted well, 1/2 teaspoon cream of tartar, pinch salt, 3/4 cup flour sifted twice, 1 teaspoon orange extract. Beat whites very stiff, adding salt at first and cream of tartar when the whites begin to foam. Beat the yolks until very thick, add one-half the sugar and continue beating with the egg-beater. Fold rest of sugar into whites without beating and add the yolks in same way, then the flour, then extract. Bake in a large tube pan, ungreased, from 45 to 55 minutes in a moderate oven. The batter should rise to top of pan, brown, then sink slightly, wrinkling. Test by pressing on the top. When done no depression is left. Invert the pan on standard so it will cool evenly, and remove when cool by running a knife and then your hand around the cake. Frost with 2 yolks beaten with pulverized sugar, 1 tablespoon orange juice and a little grated rind, using enough sugar to make proper consistency.

I will also send two other recipes that never fail for me:

Mock Angel Food.—Set 1 cup milk into a basin of boiling water and heat to boiling point. Into a sifter put 1 level cup flour (no more), 1 cup sugar,

3 teaspoons baking powder (rounded), pinch salt and sift 4 times. Into this pour the cup of boiling milk and stir smooth, then add the well beaten whites of 2 eggs. Do not stir but fold them in carefully. Do not grease the pan. I use an individual loaf pan. Bake in moderate oven. Flavor icing with lemon.

Cookies with Raisin Filling

Beat to a cream 1 cup sugar and 1/2 cup shortening. Add 1/2 cup sweet milk, 1 beaten egg, 3 1/2 cups flour, 3 teaspoons baking powder.

Filling.—3/4 cup sugar, 1 tablespoon flour, 1 cup boiling water, 1 cup chopped raisins; cook until thick. Roll cookie dough very thin, cut, place in pan; put 1 teaspoon of filling on each, placing another cookie on top of each one; then bake. Delicious. I often use prunes instead of raisins. I cut these cookies with a "Baker's Cocoa" can.—M. B. G., Wellpinit, Wash.

Doughnuts

In answer to Subscriber, Livermore, I am sending my recipe for doughnuts that have been called good and inexpensive by many.

One egg, one cup white sugar, one cup sour milk, one-half teaspoon soda, a little salt, flour to make stiff enough to roll. I find so many good things in the household department and am glad to pass along anything I can to help others.—Mrs. H. E. B., Galt.

A HALF DOZEN TESTED RECIPES

Mrs. K. G., Ceres

I have long enjoyed the household department and "Hints from Housekeepers," and have learned many new conveniences through it. I have several good recipes I would like to share with the other readers. Among them is a good recipe for sunshine cake, which has never failed me. It calls for only 8 egg whites and 6 yolks, and makes a good sized cake.

Sunshine Cake.—Beat whites of 8 eggs till stiff and dry, add 1 1/2 cups sugar (common white granulated), and continue beating, then add yolks of 6 eggs beaten until thick and lemon colored, and one teaspoon lemon or orange extract. Cut and fold in 1 cup flour mixed and sifted with 1 teaspoon cream of tartar. Bake 50 minutes in moderate oven in angel cake pan.

Devil's Food Cake.—Cream one heaping tablespoon shortening with 1 cup sugar, add 2 eggs well beaten, add cocoa or chocolate, 3 tablespoons dissolved in 1/2 cup boiling water, and beat thoroughly. Add baking powder 1 teaspoon mixed and sifted in 1 cup flour. Dissolve 1/2 teaspoon soda in scant 1/2 cup boiling water, add pinch salt and 1 teaspoon vanilla and mix all thoroughly. The mixture will appear thin, but will be all right. Bake in layers. Fudge frosting is nice for this cake.

Cinnamon Apple.—Wash apples and cut in two, remove core (pare if desired), and place in baking pan with cut side up. For each apple of medium size use: 3 tablespoons sugar, 1 tablespoon flour, 1/4 teaspoon cinnamon, speck salt. Mix all well and sprinkle over the apples. Put bits of butter on apples also. Pour boiling hot water over all until it reaches half way on the apples, and bake in hot oven until tender. Serve with sauce left in pan after baking and whipped cream if desired.

Blushing Apple.—To each bright red apple, 1 teaspoon orange juice, 1 tablespoon sugar, 1/2 cup water. Scrub apples and remove cores, place in the boiling hot water to which sugar has been added and cook carefully (so they will not break or fall apart). Remove from liquid and carefully remove skin so the color remains on apple. Cook syrup in which apple was cooked, medium thick, add orange juice, and pour over apple. Serve with whipped cream.

Rabbit Stew.—Two tablespoons Crisco or fat for frying, 2 tablespoon flour, 1 rabbit, 2 tablespoons chopped onion, 1 teaspoon salt, 1/2 teaspoon pepper, pinch allspice and 1 tablespoon salt to soak. Skin and dress rabbit, if dark and bloodshot soak in strong salted water for an hour or longer to draw out blood. Cut 1 pieces for frying, roll each piece in flour, fry to a golden brown on both sides, sprinkle over seasonings and onions, cover with water and simmer for two hours.

Salmon Pudding.—One can salmon

flaked or boned, or the same quantity of fresh fish, 1 cup light bread crumbs, 2 eggs, well beaten, 2½ cups sweet milk, salt and pepper to taste; mix all and bake in hot oven 30 minutes.

HOUSEHOLD QUERIES
Value of Hand Knitting Machines

In answer to Subscriber, Visalia, in regard to hand knitting machine, I wish to say a neighbor of mine sent for one last October and so far has not been able to make it work. She has had advice and help from the neighbors, but in spite of trying very hard has not been able to knit the heel or toe of a sock. It certainly seems complicated to us, and I would advise anyone to get in touch with someone who actually has made it work before investing in one.—Regular Reader, Orange.

To Subscriber, Visalia, who inquires in regard to the hand knitting machine I would say "Don't!" So many disappointed buyers have written in to the Los Angeles Evening Express that Estelle Lawton Lindsay recently replied: "For the eleven dozenth time I reply that I do not know of anyone owning an auto-knitter who could demonstrate it to you." A neighbor of mine has one which, after many days and weeks of study and experimenting I believe she has learned to run successfully, but only because she was exceptionally plucky and felt she could not lose the \$100 she had paid for the machine and the wool. I should call it a very complicated machine and the earnings very small if the socks must be sold to the makers of the machine. This neighbor can now make a pair in 36 minutes. The machine does do first class work if one will spend the time and nerve force to conquer it. Hoping this may be of service.—Reader, Van Nuys.

STATE BULLETINS

The state printer has been busy with a series of very valuable bulletins now being sent out by the agricultural experiment station staff at Berkeley. One of the most timely is a revision of Bulletins 240 and 246, "Vine Pruning in California," by Bioletti. This is a 112 page bulletin, profusely illustrated, which, in addition to Professor Bioletti's clear way of giving his information, makes this bulletin of greatest value and it is especially timely.

Another needed line of information is given in "Walnut Culture in California" by L. D. Batchelor. It is Bulletin 332. This bulletin gives general review of the walnut industry, climatic requirements, soil requirements, water supply, then proceeds with description of varieties and cultural considerations. In fact, the bulletin is not closed until harvesting, bleaching, grading, packing and selling are fully treated.

Another bulletin of interest to grape growers is 331: "Phylloxera-Resistant Stocks" by Bioletti, Flossfeder and Way. This bulletin takes up history of phylloxera resistant stocks in general and especially in California. An outline is given of the experiment work and tables showing yields of cuttings of various stocks, also the relative bearing and sugar content of various combinations.

Another publication on grapes, Circular 229, "Cordon Pruning," by Bioletti. Professor Bioletti merely refers to the "head" system of pruning and then devotes practically all of the 16 pages of the circular to discussing varieties and conditions suited to cordon pruning.

Still another grape publication is Circular 231, "The Home Vineyard," by L. O. Bonnet. Professor Bonnet discusses uses of grapes, culture in California and then gives lists with qualifications for home vineyard. Preparation of ground for small vineyard and discussion of arbors is followed by treatment of young vines and full bearing vines.

Soil building in California is aided by two circulars, 110 and 111. Circular 110, "Green Manuring in California," by J. W. Nelson, has a fund of general information packed within its four pages. The other, Circular 111, "The Use of Lime and Gypsum on California Soils," also by Nelson, has eight pages.

A more pretentious circular is one of 72 pages, 227, "Plant Disease and Pest Control" by Horne and Essig.

The greater portion is given to discussion of host plants and fungus or insect pests, with description, and later enters into discussion of the various pests with recommended control measures, and the third section of the book is given entirely to formulas and materials.

Bulletin 336, "The Preparation of

ship of 1075, and markets a crop amounting annually to more than \$1,000,000. To this end, it has spent more than \$100,000 in setting up its sales force and in making the necessary arrangements to supply its markets.

The 1920 crop was particularly heavy, and came just at the time when

fornia give assurance of a particularly heavy crop next summer, with the result that, unless the exchange is put on a firm financial basis, independent selling will ruin the eastern market and, with it, the honey producers of California themselves.

Facing this fact, the exchange appealed to The First National Bank of



Irrigating Young Orange Grove in Casa Grande Valley, Arizona.
Note use of improved metal gates for distribution of water. Other gates permit of division of the stream into two or more furrows. Engraving used through courtesy of Standard Oil Bulletin.

Nicotine Dust as an Insecticide" is by Professor Ralph E. Smith. Prof. Smith has given most thorough study to nicotine dust during the past few years, and his publication is prepared and printed in order to make known the methods and results of the work to this date.

Bulletin 337 is "Some Factors of Dehydrator Efficiency." It is written by W. V. Cruess and Arthur W. Christie. It discusses investment required, cost of operation, fuel efficiency, air flow, air distribution, fans, trays, etc. An idea of the approach of the subject is given by the first of the summary and conclusion. "The cost of a dehydrator erected by the average fruit grower for operation during a season of only one or two months must be as low as is compatible with reasonable efficiency if it is to be profitable.

Bulletin 334, "Preliminary Volume Tables for Second Growth Redwood," by Donald Bruce, has brought within three pages a fund of information for the forester.

Circular 230 discusses "Testing Milk, Cream and Skimmilk for Butterfat," of value to every dairymen.

COOPERATIVE HONEY PRODUCERS

The honey producers of California are preparing to reorganize their cooperative exchange system and to put up a fight against certain middlemen and jobbers who are attempting to wreck the cooperative movement in California in so far as the production and sale of honey are concerned.

To bring this reorganization about ten meetings will be held within the next few weeks. These meetings will be at Modesto, Bishop, Selma, El Centro, Santa Ana, Ventura, Sacramento, Riverside, San Diego and Los Angeles. At these meetings consolidation of the reorganized locals, which constitute the exchange, is to be completed.

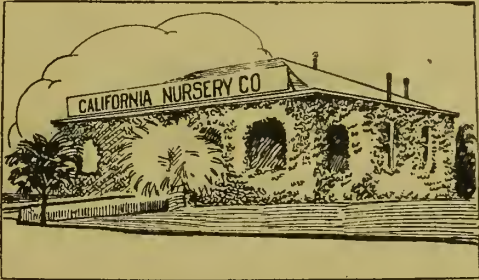
The importance of this reorganization lies in the fact that the California honey producers produce 80 per cent of the California crop and 55 per cent of all honey made in the United States. Within the last 20 months the exchange has shipped 210 cars of California honey (36,000 pounds to a car), or a total of 7,560,000 pounds.

The exchange has created sales organizations in every important market in the United States. It has only approximately 20 cars of honey left to move before the new crop begins to come in, and in the meantime it has created supply depots throughout the United States to supply the market as this honey can be absorbed. The exchange has a total member-

there was an over-supply of sugar in the world. The large crop of 1920 was followed by a small (40 car) crop in 1921, with the result that through exchange methods the 1920 crop was held over and is now being disposed of.

The necessity for reorganization lies in the fact that early rains in Cali-

Los Angeles for financial assistance, and that bank has agreed to do for the honey producers what it already is in the habit of doing for other cooperative producers and for the cotton growers of Imperial Valley, Arizona and New Mexico, this by advancing necessary credit to carry the crop (Continued on Page 119.)



Beautify
Your Home
with
Climbing Plants

MANY beautiful houses and public buildings have large bare walls that detract from the general beauty of the building itself and will not blend or harmonize with the general appearance of the grounds. There are many different varieties of the climbing plants, both evergreen and deciduous, that will cover these bare walls.

Some varieties of these deciduous climbing sorts are remarkable for their beautiful spring foliage and their brilliant fall covering, such as the Ampelopsis; while the Ivy in turn has its beautiful green foliage the year round. The Bigonias, Passion Vines, Jessamines are in general favor for their beautiful flowers. And nothing is more desirable than the Wistaria and Honeysuckle for both their scent and flowers.

Complete Stock of Fruit and Ornamental
Shade Trees, Plants, Vines and Roses

Illustrated Catalogue Sent FREE

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NEW PRICES ON DOUBLE CATCH GOPHER TRAPS
The demand for this trap has been the result of having satisfied users. With these traps you can rid your place of gophers. Catches rodents, old, young, big, little, wise or otherwise. Increased production enables us to make a lower price. For sale at hardware and seed stores. Price 50c. If you cannot secure the trap at home we will send one to you postpaid upon receipt of price. Two traps \$1.00. Illustrated circulars free.

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731 Market Street, San Francisco, California

Sir Aaggie DeKol Mead



Bred in the richest Aaggie Acme-De Kol of Valley Mead cross, he should be one of the greatest young sires of the breed.

Five of his seven nearest dams average:

Butter	2 Years.....	2,040.97 Pounds
Milk	2 Years.....	41,547.20 Pounds
Butter	1 Year.....	1,130.66 Pounds
Milk	1 Year.....	23,096.60 Pounds

His seven nearest dams average:

Butter	7 Days.....	30.47 Pounds
Milk	7 Days.....	627.60 Pounds

His calves are just what we could expect from a long succession of great sires and dams, and in their present state of development fulfill every promise in the pedigree of their great sire.

Good business judgment will eventually prompt you to place at the head of your herd a bull of Aaggie Acme-De Kol of Valley Mead breeding.

OWNED JOINTLY BY
Fred Hartsook and **A.W. Morris & Sons Corporation**
LANKERSHIM, CALIF. WOODLAND, CALIF.

The Shorthorn Opportunity of the Year

Annual Spring Sale California Shorthorn Breeders Assn.

University Farm, Davis, Calif.
Wednesday, Feb. 22, Stockmen's Week
100 BULLS 100

In selecting the 100 bulls the committee has kept in mind the type of bull most sought after by range operators. They are outstanding in size, quality, constitution, fleshing and bone. Furthermore a lot of them will be sold in lots of five to a full carload, thus making it possible for buyers to fill their needs at their own price. A few bulls are included that can fill the bill as herd headers. Some are straight Scotch, others are Scotch topped.

Remember: The Better the Bull—the Better the Steers

20 Choice Females 20

The farmer or breeder in search for foundation females will find among the 20 head, cows and heifers of correct breeding and type. Why not start a small herd now?

The consignments have been drawn from the best herds in California. Every animal guaranteed a breeder.

For Catalog and Particulars, Address
Howard Vaughn, Sales Manager, Dixon, Calif.

Use Shorthorns to Increase Cattle Profits

HOLSTEIN *Fred Hartsook* **CATTLE**
RANCH

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

What Kind of Cows Do You Own?



IN the promotion of the pure bred dairy cow campaign now being waged in Humboldt County, several facts have been brought to light that go far toward making clear some of the reasons why many of our dairymen are not overly enthusiastic about their business.

In a preliminary survey made in that county—one of the leading dairy counties in the United States—it was found that about 28,000 dairy cows, so our information has it, were maintained.

By checking over the disbursements of the creameries, condensaries and cheese factories it was developed that the best 14,000 cows returned their owners \$700,000 more than the other 14,000 cows—\$50 more per cow.

Further inquiry disclosed that the reason for the difference was directly due to the top half better bred cows along with better management.

With such conditions prevailing in progressive Humboldt County it is not too much to expect that similar conditions obtain in other California communities. Now if it is true that one half of our cows produce \$50 worth of products more than the other half some idea of the economic loss chargeable to inferior cows can be obtained by multiplying 250,000, half the producing dairy cows in California according to the 1920 census, by \$50. The result is \$12,500,000. Twelve and a half millions is quite a sum and if available would go far toward making dairying more attractive.

But is it possible for California dairymen to add \$12,500,000 to their yearly incomes? It is—and more too. But in the end it is a problem for individual dairymen and dairy communities to solve. Legislation can not turn the trick; the various farm organizations can do little; the different producers associations can not go very far. First of all, cow owners somehow must learn that the business of dairying in the main, is not essentially different from production in other lines; that net profits bear a direct relation to the ability displayed by the manager and that the place to begin making dairy profits is at the producing end and not at the selling end. The selling end is important enough but efficient marketing is dependent on efficient production. Efficient production is dependent upon efficient cows and efficient cows can only come from well

bred bulls. There has been rather too much stress laid on selling dairy products and too little on economical production; too much railing at the middleman and not enough support given cow testing associations; too many meetings given over to relating mutual hard luck stories and not enough meetings to urging better bulls. As a consequence many dairymen have been led to expect that their business is about to be made profitable through the payment of some membership fee. That is a false notion that needs to be laid aside. The business of dairying is not going to be universally profitable until there is a cow testing association organized in every dairy community and the unprofitable cows eliminated from the herds of this state and well bred bulls placed at the head of such herds. Once a herd or dairy community gets organized on such a basis a point is reached from which definite progress can be made.

Some men waste enough time milking scrub cows that they are lucky to be outside of the poorhouse, according to E. M. Harmon, dairy extension specialist for the Missouri college of agriculture. Few of us realize the tremendous amount of time and effort lost in feeding and milking the scrub cow. Missouri cow testing associations are throwing some interesting side lights on this subject.

For instance they found last year that the cow that averaged 100 pounds of fat per year produced only 0.38 pounds of butter fat and 9 pounds of milk for each milking day. The cows that averaged 200 pounds of fat per year averaged 0.68 pounds of butterfat and 15 pounds of milk for each milking day. Those that averaged 400 pounds of fat per year produced 1.33 pounds of butter fat and 25.1 pounds of milk per milking day. In other words one man got 38 pounds of butterfat and 900 pounds of milk per cow for each 100 days milking while his neighbor got 133 pounds of butter fat and 2,500 pounds of milk for the same number of days' work. This does not take into account the fact that the feed cost of producing butterfat in the low producing cow was 37.3 cents per pound while the good cow produced it at 17.3 cents per pound.

Is it any wonder that some men can own cars and build modern homes while others cannot? The cow testing associations are building up production and profits. They constitute a powerful factor for benefiting the dairy farmer.

Everything Bettering

By A. L. Spellmeyer



CONFIDENCE is returning. The first people to be hurt in this nation by hard times, the producers, are the first to receive a little relief. Indications abound that we are either emerging from depression or else riding a wave of temporary revival. Its permanence will be decided by the sincerity of the financial and governmental relief policies now started. The country has been rich, is rich, and there has been no reason for the past depression, forced entirely upon production, other than greed of middle marketers, the attitude of finance, and the general state of mental chaos that it all brought about, making the soundest of staples sell for a song.

Better conditions are indicated in many ways. Prices on beef to California men bettered a cent. Seven cents strong rules for good steers, possibly eight cents soon. Lambs took a raise. Carcass meat prices of beef steers and cows advanced a cent and may be up another cent by the time this is out. Lamb carcass advanced. Hogs advanced a half a cent live weight. Steers, dressed, are now 13½ and may go to 16 cents.

At the same time there is no raise in the retail trade in bulk instances. They have plenty of margin in the 96 per cent gross they are making retail in some shops.

Hides are stronger, tallow is better than its lowest price, wool is better

than its lowest, but best of all is the better attitude in men's minds.

Money is cheaper, banks are no foreclosing, the year has brought rain and grass to the Southwest, the national government is taking steps to safeguard basic agriculture, the ranges have advanced holding price for steers and stock cattle until yearling steer is worth \$25. Feeder steers have advanced a strong cent in two weeks per pound; 5.50 cents California is offered freely for big steers with a possible six cents for something extra good. This alone means \$10 a head on steers.

Best of all, the attitude of a mutual plan seems to have developed in national livestock circles, with meat councils and a cooperation between packers and producers that has heretofore been impossible. There is a lot ahead to do and we are not yet the clover nor out of the rough, but everything seems to show we are on our way to normal rather than stagnating down.

Building material on a pre-war basis has been 90 per cent up, retail meat has been 42 per cent up, and cattle producers two per cent down. If the country is resuming a normal view there is every indication that things are going to settle around 30 per cent over 1913. If this should come would mean a decline in building materials, a decline in retail meat and considerable advance to producers. would mean cheaper rents and housing and more for one's money.

Other indications of better times are activity in copper and metals, probable resumption of work in mines, and a healthier demand for country property than has been seen for two years in California. Ranches and country property show activity, as they have gone to rock bottom valuations in the hard stress period.

WAR WITH CATTLE TICKS

In Georgia, where cattle ticks are fighting a losing battle with federal, state and local government authorities, there are 3,291 dipping vats in which cattle are immersed every 14 days. Dipping began early in the spring, the time when the most effective results in tick eradication are obtained. During March approximately half a million cattle splashed through the dipping vats in the state. The April reports show that 833,434 cattle were dipped under federal, state and county supervision.

Now all cattle that have been dipped in Georgia are marked with paint, and this plan has given very satisfactory results in getting to the dipping vats animals pastured on the open range that might otherwise miss regular dipping. The use of range riders, whose duty it is to search for and dip cattle that are not marked, was considerably increased during the spring.

In Georgia, as in all other Southern states where the fight against cattle tick has been waged, there has been more or less opposition to the tick eradication movement, but there are also many who fully appreciate the present campaign and who throw all their weight into the scale in its favor, and one farmer actually wrote to the department quite lately as follows: "In our part of the state, no man, no matter how unreasoning and bitter his opposition to tick eradication when we needed his moral support, can now be found who does not fully approve the work. No argument should carry more weight than the full indorsement and approval of opponents when they see the whole truth and change from opposition to advocacy."

SLAUGHTERING ONLY ONE HOG

The old fashioned scalding barrel is still recommended as being efficient if only one hog is to be slaughtered on the farm, according to animal husbandry specialists at South Dakota state college. A galvanized iron watering tank is better when a number of hogs are to be slaughtered. A fire pit can be dug under the tank, bringing the top of the tank level with the scraping board. The water should be heated to 140 to 150 degrees Fahrenheit. Cautic soda, wood ashes or lime help remove the scurf. The hogs should not be killed until the water is ready.

The carcass should be placed in the scalding tank as soon as the hog is dead, being sure to keep head and feet under water. The hog should be rolled frequently in the tank or turned in case a barrel is used. This insures a uniform scald. When the hair slips from head and feet the carcass can be removed from the water. The scraping must be done rapidly and the head and feet should be cleaned first. Scraping disks, blunt knives, corn knives or hoes may be used.

TOOLS USED IN BUTCHERING

The season is now at hand when many ranchers will take advantage of the cool weather and cut down the cost of meat for the household by butchering some of their own animals.

In order to do a satisfactory job of butchering, the California department of agriculture suggests the following simple tools in order that the work may be done efficiently: One sticking knife about six inches long, one curved six inch skinning knife, a steel, an ax, a pritch, a meat saw and a candlestick scraper. These are all the tools required in butchering, but for slicing steaks after the carcass is cut into the various pieces it is convenient to have a steak knife about 14 inches long and a cleaver.

When the animal has been slaughtered and the carcass dressed, cut up and the pieces stored away, there is one more step which should never be overlooked, viz.: clean and dry your tools and put them away where they will not rust. By so doing preparations for butchering another animal some time in the future can be made quite readily.—Dr. S. O'Toole.

HOW TESTING COWS PAYS

Two years ago a small Jersey breeder became interested in cow testing during the Missouri state fair cow race. He decided to see what his cows would do if placed on test. He went home and started to prepare his cows for R. of M. test. "As a result," says A. C. Ragsdale of the Missouri college of agriculture, "Edgar Hart of Ulrich not only discovered that he had some mighty fine cows, but one of them, Celeste's Golden Glee, a senior yearling, has broken the state record in her class by almost 30 pounds of fat, producing 8,096.8 pounds of milk and 473.67 pounds of fat."

It is a great achievement for a breeder to break a state record in Missouri, but it is even greater to do it the first year of testing, especially when the cows are milked only twice a day. The excuse about needing expensive buildings and equipment before a breeder starts testing has again been shown up. It doesn't hold water. One only needs well bred cows coupled with intelligent feeding and milking.

Did it pay Edgar Hart to test? He has only a small herd and ran only five cows on test. The total amount paid for testing was \$185.15 for 14 months' supervision. There are incidental expenses in addition, such as board and room for tester for about 35 days and time required in transporting him. In return for this Hart was enabled to break one state record with a heifer that has her productive life before her, increasing her value and that of her future offspring. Another cow, Grace Popular Girl, will produce over 650 pounds of fat as a senior three year old, winning second place in her class. Another, Susie's Golden Rosette, at three years produced approximately 530 pounds of fat. Then two aged cows, Coomassie's Golden Celeste and Rosalpa Eminence will each make considerably over 400 pounds of fat.

Mr. Hart did not know what he had in his herd until he went prospecting among his cows. Give your cows a trial and the results will be equally gratifying.

SHORT COURSES IN DAIRY MANUFACTURES

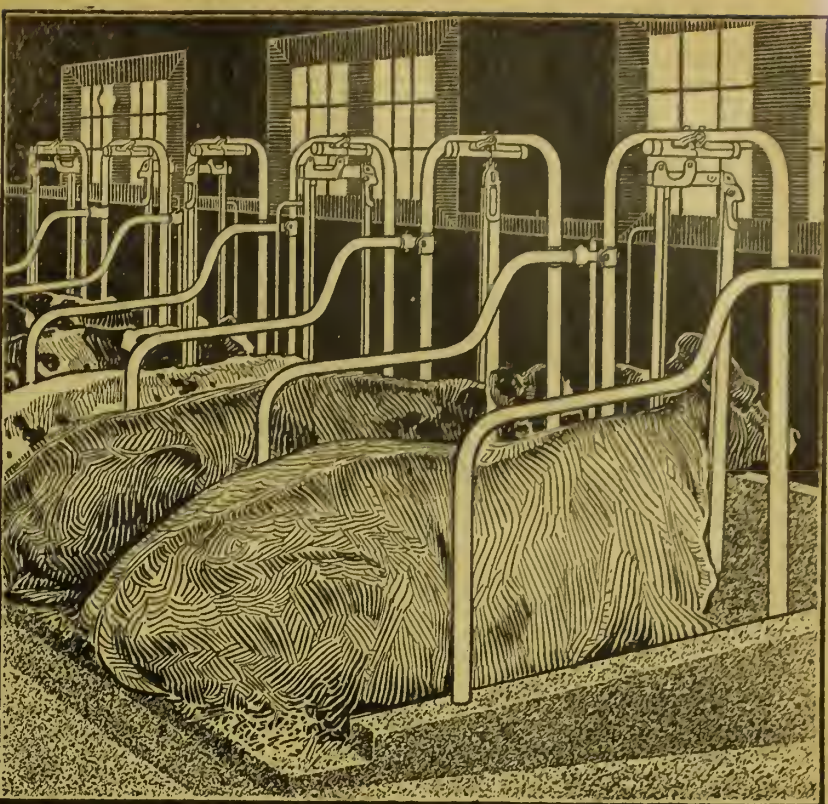
The college of agriculture of the University of California is offering a new form of instruction this year for experienced butter makers, cheese makers, and milk plant operators, for ten days beginning February 6. The instruction will include three lectures each day by members of the dairy industry division, three hours' practice work in the commercial plant under the direction of an instructor, and two hours devoted to discussions of commercial manufacturing problems. Outside speakers, men connected with commercial manufacturing work, will be secured to lead the discussions.

These courses are planned to meet the needs of men now employed in dairy manufacturing plants to study some of the later developments in dairy manufacturing and milk plant operations and to meet with men engaged in the same line of work for their mutual benefit.

Detailed information may be secured from the short course announcement or by writing Dairy Industry Division, University Farm, Davis. Applications should be mailed in advance to the dean's office, University Farm, Davis.

SUNFLOWERS FOR SILAGE

The developments of the last three years have brought the sunflower to the front as one of the most satisfactory crops that can be grown for silage purposes, says Prof. G. H. Hut-ton in the Agricultural Gazette of Canada. "From the experience I have had with the crop, I am satisfied that it will be developed until it is one of the main forage crops in the West, and because of its adaptability to a wide variety of conditions, such as drouth, its suitability for irrigation, its resistance to frost, and its high feed value, it will mean millions of dollars of increased wealth to the stock growers of this country."



Cow Comfort Means Milk Dollars

Have you ever stopped to consider that every penny you invest in making your cows more comfortable brings you back dollars in extra profits on account of increased milk yield?

And cow comfort is only one of the advantages Star Barn Equipment offers. Every day you delay modernizing your barn by installing Star conveniences is costing you money—no matter how few or how many cows you own.

United States patents protect the exclusive features that put Star Barn Equipment in a class by itself—you will find these advantages in no other brand. For instance, the Unit System which enables you to add stalls as your herd grows—the Star Alignment Device which keeps

bedding and stalls clean and lessens labor—the Star Curb Clamp which cuts down installation cost—these and many other features you wouldn't be without are exclusive with Star.

In the Star Line, you'll find more than merely Steel Stalls and Stanchions—everything for the barn, inside and out, is there: Water Bowls, Pens, Ventilation Systems, Litter and Feed Carriers as well as Harvester Hay Tools, Cannon Ball Door Hangers, Hoghouse Equipment, Garage Door Fixtures and a world of other farm specialties.

Our 348-page bound catalog, profusely illustrated in colors, is free if you'll write for it and tell us when you're going to build a new barn or remodel your old one. Our Plan Department is at your service, free. Use the coupon for plans. Write for the catalog.

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Gentlemen:—Please send me free a set of barn plans. BUILDING? a barn I am thinking of REMODELING?

about..... feet by feet.

I have..... cows..... horses.

Name.....

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Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

DIAMOND G HEREFORDS

I now offer 10 extra good open registered heifers, at real bargain price, sired by a son of an International Champion. Start your herd with these.

H. H. Gable

Esparto, Cal.

Mission Herefords

One of the good herds of the State. Headed by The Peer, a son of Beau Blanchard. Young stock for sale from time to time. Visitors welcome and correspondence invited. JOHN A. BUNTING
Mission San Jose Calif.

HEREFORD BULLS

IN CARLOAD LOTS

AT PUBLIC AUCTION

Tuesday, February 21, at 1 P.M.
University Farm, Davis, Calif.

This sale affords the first opportunity in California for buyers of range bulls to buy them in groups suitable for the carload buyer.

There will also be at least 20 bulls sold individually, to take care of the buyer who wants only one or a few head. There will also be about 25 cows and heifers of good breeding for the man who wants to increase his she stuff.

Every Animal Registered,
Transferred Free of Charge,
Guaranteed a Breeder, and Tuberculin Tested.

These choice registered Herefords are consigned by fifteen leading Pacific Coast breeders under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nev.
J. A. Bunting, Sec.
Mission San Jose, Calif.

For catalog of sale write to
sale managers

California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

Straloch Farm

Davis, Cal.

(2½ Miles West on Highway)

Shorthorns

Herd Sires:

California Model 635776

Imp. Braywood Collynie 951409

California's latest triumph, the winning of Grand Championship over all breeds in the fat classes at the Chicago International by Lulu Mayflower, sired by Sultan Mayflower, the sire of our senior herd bull, California Model, maintains the reputation won in 1916 by California Favorite, the Grand Champion steer at the same show, whose dam, Glenbrook's Marvel, is the dam of our California Model. Such honors prove the worth of the breeding of California Model.

Visit the farm at any time.

J. I. Thompson C. Harold Hopkins
Manager Owner

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SALES OF
REG. DAIRY CATTLE
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O in all parts of
A Calif. and ad-
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E Satisfaction
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Write for dates
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Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Guernseys

March 2, C. S. Rasmussen, Hynes.

Herefords

February 21, Pacific Coast Hereford Breeders' Association, University Farm, Davis.

Shorthorns

February 22, California Shorthorn Breeders' Association, University Farm, Davis.

Durocs

January 26, Greenwood Farm, Live Oak.

February 8, California Duroc-Jersey Breeders' Association, University Farm, Davis.

February 9, June Acres Stock Farm, Davis.

February 16, Sierra Vista Stock Ranch, Perris.

Poland Chinas

February 24, California Poland China Breeders' Association, University Farm, Davis.

At the annual meeting of the American National Livestock Association held at Colorado Springs, January 12-14, Fred Bixby of Long Beach, one of the largest range operators in California and past president of the California Cattlemen's Association, was elected president of the national association. Mr. Bixby is the second Californian to be honored with that high place, H. A. Jastro of Bakersfield having served several years ago.

At the Ogden Livestock Show held early this month J. I. Cazier & Sons of Wells, Nevada, had the grand champion Hereford female in their junior yearling heifer Standard Eyes 4th. This heifer was junior champion at the 1921 California state fair. The same herd furnished the junior champion bull in Beau Blanchard 4th and won first on senior heifer calf, and on their calf herd. Practically their entire showing was the get of their herd sire, Beau Blanchard 76th.

Twenty-two Jersey bulls were sold January 11 to dairymen of Humboldt County as a result of the pure bred bull campaign initiated by Farm Adviser Dr. J. W. Logan, California Dairy Council and the California Jersey Breeders' Association. Most of the bulls came from herds in the San Joaquin Valley. They sold at prices ranging from \$120 to \$300.

Eighty head of Herefords, consisting of 55 bulls and 23 females, have been entered with C. L. Hughes, sales manager for the Pacific Coast Hereford Cattle Breeders' Association sale during Stockmen's Week at the university farm. The cattle have been selected from 12 herds in California, Oregon and Nevada and represent the following breeders: H. A. Baldwin, Pleasanton; H. M. Barngrover, Stockton; Roland Bass, Standish; H. H. Gable, Esparto; W. J. Bemmerly, Woodland; John A. Bunting, Mission San Jose; G. W. Harwood & Sons, Milford; University of California; William Briggs & Son, Dixon. Oregon breeders are: J. B. McNeerney, Carlton, and A. H. Barnum, Moro. Ed T. Morgan, Northam, is the only contributor from the Silver state.

The opening Hereford sale of the year was held in Nebraska by Mousel Bros. and indicated a strong demand for cattle of quality. Fifty-five head made a general average of \$533. The top of the sale was \$1,425.

Aralia De Kol Mead 2d, that made 36.53 pounds butter in seven days after she calved last December, has now increased her record in the A. W. Morris & Sons Corporation herd at Woodland. Her December record was made in her first seven days and she was taken off official but continued on semi-official. When her January semi-official test was made she was going so strong that she was again continued on official test and up to the present has 37.12 pounds butter from 563.7 pounds milk for her best seven days. Another good young cow in the Morris herd, Flossie De Kol of Nevada, has 32.57 pounds butter from 625.2 pounds milk to her credit in seven days and shows promise of increase.

The largest herd of registered Holsteins in California at present is the one owned by Frank M. Helm, Fresno,

with over 400 head of registered females. More remarkable than its size, however, are the facts that there are practically no old cows in the herd, and that outside of about 25 daughters of the noted sire, Sir Veeman Korn-dyke Pontiac, practically all the females are granddaughters of King Mead of Riverside and Prince Gelsche Walker, presenting a uniformity of popular breeding seldom found even in a smaller herd. As official testing progresses some very substantial records are being made. The latest three heifers to go on test are Helm Bessie Walker, a junior four year old granddaughter of Prince Gelsche Walker, that made 27.42 pounds butter from 540.9 pounds milk in seven days; Helm Lady Korndyke Walker, a first calf junior three year old granddaughter of Prince Gelsche Walker, that made 22.46 pounds butter from 490.8 pounds milk in seven days; and Rosina Creamcup Mead, a senior two year old granddaughter of King Mead of Riverside, that made 19.42 pounds butter from 428.6 pounds milk in seven days.

UNIVERSITY PLANS GREAT LIVESTOCK MEETING

(Continued from Page 95.)

The institution controls more than 3,500 acres of deeded land and 20,000 acres of forest reserve. Several hundred head of breeding cows are maintained under practical range methods and through the use of well bred bulls the possibilities of working cattle improvement is being demonstrated. This work is of fundamental and far reaching importance to the cattle industry of this state and is being closely followed by all progressive cattlemen. A. E. Lawson, western representative of the American Shorthorn Association, will tell of the progress the breed is making in the West. The afternoon is set aside for the association's annual spring sale, which, as with the Herefords, will feature bulls for the range men and which will be offered in lots instead of individually.

The annual banquet for all livestock interests will occur Wednesday evening. Nearly every item on the menu will be contributed from the fields, herds and flocks of the university. It is planned to serve cuts from the steer and heifer used in the cutting demonstration. In this connection it will be of interest to know that the heifer to be slaughtered is a half sister to Lulu Mayflower, the heifer that won grand championship honors at the recent International Livestock Show and is probably the most aristocratic beef ever served in California.

In point of varied activities Thursday is the big day. On this day the swine interests, the dairy interests and the sheep interests will hold forth. The California Swine Breeders' Association will meet at nine o'clock, and President J. I. Thompson, formerly in charge of the swine work at the university farm, will offer a development plan for the association. Roy M. Filcher will outline a program for extending the farm bureau auction plan of selling. E. C. Good, manager of one of the large packing plants, will give an analysis of the market situation in this state. It is reasonably certain that E. Z. Russell of the United States department of agriculture and one of the best known swine men of this country will be present and address the hogmen. Professor E. H. Hughes will make public the results from a series of feeding tests carried on to determine the feeding value of rice and rice products. The California Poland China Breeders' sale will be held during the afternoon.

The California Wool Growers' Association will meet Thursday forenoon in business session after which A. T. Spencer will lead a discussion relating to the development of the spring lamb trade in this state. Fred A. Ellenwood, president of the association, will report the recent meeting of the National Wool Growers' Association and will outline a plan for the reorganization of the local body along the lines of the cattlemen's association. Professors Miller and Wilson are preparing several additional features.

The dairy session on Thursday opens with a discussion of sunflower silage. The university has been conducting extensive feeding trials with this new silage crop and the results to be reported promise to be of wide

interest. The afternoon will be occupied with business meetings of the state associations of Jersey, Guernsey and Ayrshire breeders. The feature of the Thursday meeting will be the announcement of the closing of the state dairy cow competition which has been in operation for the past 14 months. The results will be given at the evening meeting and will be followed by addresses by B. H. Rawl, formerly chief of the dairy division of the United States bureau of animal industry; Sam H. Greene of the California Dairy Council and Professor F. W. Woll, who has been in charge of the competition. Professor Gordon H. True will present the numerous prizes to the winners.

The dairy session will be extended over Friday. The owners of the winning herds will tell how their cows were fed and handled. Noel Negley, formerly with the United States department of agriculture, will explain the practical results of cow testing association work and offer suggestions as to how dairymen should use such associations. J. W. Coppini of Fernald, one of the most successful dairymen in California, will show the practical value of well bred bulls in increasing herd production. Professor Woll will tell of the state register of production for grade cows. This is a new project in this state and provides the machinery for owners of grade cows to secure state certification of production. Dr. G. H. Hart will address the dairymen on the important problem of contagious abortion. Following luncheon there will be held a sale of dairy bulls of the different breeds that have been selected from high producing dams. This sale will provide a splendid opportunity for dairymen to select bulls to improve their herds.

In addition to the above program special consideration will be extended the horse interests and present plans include an endurance contest for horses of suitable type for army remounts. A program for breeders of milk goats is also being arranged.

Every California farmer and livestock man is invited to attend Stockmen's Week. Men who have attended in former years testify to the value of this event and men who have never attended should make a special point to be present and become acquainted with what the university is trying to do for the promotion of better livestock in this state. No man can fail to be impressed. The university has done its part and the success of the approaching meeting will be measured entirely by the support of the men and women it seeks to serve.

PETER IVERSEN OF HUMBOLDT COUNTY WINS CULTIVATOR PRIZE

By Prof. F. W. Woll

Five grade cows owned by Peter Iversen of Grizzly Bluff had the highest average production of butter fat of similar groups in herds entered in the state dairy cow competition during the month of December, viz., 48.62 pounds, and the California Cultivator prize for that month was accordingly awarded to him. The productions of the individual grades for the month were as follows:

	Days			Butter	
	Age in	Milk		—Fat—	
	Yrs.	Milk.	Lbs.	%	Lbs.
Holst'n hfr., gr. H..	3	191	784	6.9	54.10
Poor, gr. J.....	4	241	698	7.1	49.56
Holstein, gr. H.....	4	271	698	7.0	48.86
Old Jersey, gr. J.....	M	275	679	7.0	47.53
Red, gr. Sh.....	M	270	673	6.4	43.07
Averages.....		250	706.4	6.88	48.62

It will be noted that three of the prize winning grades were young cows and that all were far advanced in their lactation, viz., 191-275 days from freshening at the beginning of the month. Their production of butter fat ranged from 43.27 to 54.10 pounds, their average production of milk being 706.4 pounds, with an average fat content of 6.88 per cent. These cows stood first among similar groups of five grades in 13 dairy herds in different parts of the state, that competed for the Cultivator prize in the past

Tosantos Herd

Bulls for Breeders and Dairymen. All our milking females have A. R. O. records. Every calf is out of an A. R. C. dam. All our milking females are on long time test. Only one bull of service left.

E. D. Barry, Jr. Covina, Calif.
Workman and Azusa Ave.

month. The average production of only one other group came above 40 pounds butter fat, viz., that owned by M. L. Pontoni, Arcata (45.64 pounds). The production for the other grades ranged between 15.6 and 48.62 pounds fat.

As previously announced the competition will close on the 31st instant, after having been in progress since September 1, 1920, a period of 16 months. The awards of the prizes offered will be announced and the presentation of cash prizes and silver trophies, etc., will take place at the evening session, February 23, of the Dairy Farmers' Conference, during Stockmen's Week held at the university farm, Davis. Farmers and breeders who have participated in the competition, as well as donors of prizes in the competition and the general public, are cordially invited to be present at this and other sessions of the conference. An excellent program with addresses and discussions



First Dairy Cattle Judging Team to Represent U. C.

This team entered the judging contest at the Pacific International Livestock Exposition, Portland, Oregon, in November, winning second place in the contest, and was high team in Jersey cattle contest, also furnishing the highest man. Front row, left to right, B. H. Thomas, L. A. Pellissier and N. D. Hudson. Standing, W. E. Tomson, coach.

by leading dairy authorities will be offered at the conference, insuring all dairy farmers who attend a highly interesting and profitable meeting. The same also holds true as regards all who attend the meetings of the stockmen during the entire week. University farm, Davis, will be the Mecca of California livestock men and dairy farmers during the last week of February.

The December report of the competition is the last monthly that will be issued. The compilation of records made in the competition is not likely to be completed before the Davis meeting and the list of prize winners will be made public through the press at that time. It is planned to give the history, main results and teachings of the competition in a bulletin of the college of agriculture to be published as promptly as practicable on the completion of the competition.

EXCESSIVE FILLING BEFORE SHIPPING

Reports to the effect that excessive shrinkage on livestock at central markets is frequently experienced are sometimes received from members and managers of cooperative livestock shipping associations by the United States department of agriculture. In some cases these reports take the form of complaints, and at times the shrinkage feature is pointed to as a weakness in the whole system of cooperative shipping.

While many things can, and frequently do, result in excessive shrinkage in livestock, investigations have shown that at times it is at least partly due to a disposition on the part of some shippers to overfill their stock before loading. This custom seems to be a relic from the days before cooperative shipping came into vogue and when most small producers sold their stock to country buyers. Under the system of marketing wherein livestock

was usually sold on the basis of home weights or shipping point weights, it was usually to the producer's advantage to obtain a generous "fill" on his stock before turning it over to the country drover.

The cooperative system of shipping livestock, however, practically eliminates the incentive to excessive home or shipping point fills. Stock that is fed heavily just before loading is not only quite likely to sicken and sometimes die while in transit, but seldom takes a good fill when it arrives at market. Furthermore, where cooperative shipments are graded at the shipping point the man whose stock has been given a heavy fill receives more than his just proportion of the net returns. Home grading of cooperative shipments is, in most instances, highly desirable, but it can be successful only where the individual members "play fair" with each other or, in other words, where they really cooperate.

NEARLY DOUBLED PROFITS

The opportunity that awaits the average dairyman in establishing a high class dairy herd is well illustrated in St. Louis County, Missouri, according to E. M. Harmon of the agricultural extension service. The first man to signify his willingness to join the proposed cow testing association in 1919 was Jno. L. Boland of Webster Groves. He not only joined but spent a great deal of time and effort in putting the association across.

After the association got started he found that his herd ranked uncomfortably close to the bottom in actual production. The feeds used and methods practiced were the best so Mr. Boland knew there was no hope of making those cows profitable. His next move was to begin to buy a herd of high class young purebred Holstein cows and to eliminate the grades and inferior cows which he had on hand. The following figures best tell the story of the improvement accomplished:

During the first year of the association's work, Boland's herd produced 3293 pounds of milk and 161.6 pounds of fat per cow, and made a profit of \$67.48 per cow above cost of feed. In the second year Boland increased his herd averages to 7528 pounds of milk and 265.7 pounds of fat, and had increased his profit above feed cost to \$112.21 per cow. He had increased his production of milk 128 per cent, of fat 64 per cent and his profits 65 per cent.

These figures speak for themselves and are worth thinking about. If all of the dairymen in Missouri were as eager to build up their herds, dairying would soon become far more profitable than it is at present.

Third Annual Consignment Sale of the

California Duroc-Jersey Breeders Association

University Farm, Davis, Feb. 8

Again the California Duroc Breeders offer to the farmers and the new breeders this great opportunity to buy at public sale sows and gilts selected from among the tops of the leading herds of California and bred to the greatest boars on the Coast.

Durocs Are the Leading Breed of Hogs in America

because

1. The sows raise larger litters and are remarkable mothers.
2. They are hardy and great rustlers.
3. They are unsurpassed as economical feeders.
4. They have a gentle disposition.
5. They have a carcass that fills the modern demand of the butcher.
6. They thrive under ordinary farm conditions.

Their superiority is proven by the fact that there are more Durocs than any other breed, and half of the hogs marketed in the United States have a preponderance of Duroc blood. They are the farmers' favorite because they produce the profits.

This sale offers sows sired by and bred to such boars as Choice Wonder 3rd, Ace of Pathfinders, Lord's Orion Cherry King, California Orion King, June Acres Pathfinder, Western Chief, High Pathfinder, Mammoth Sensation, Jr., Key of Giant, Dreadnaught Sensation, Experimental Defender, Falfadale's Sensation, Johnson's Defender Jr., King Orion Cherry, Western Pathfinder, California Golden Orion King. State Fair prize winners are included in the offering.

This is a breed promotion sale, designed to give an opportunity to farmers and breeders to select from the best that the leading herds have to offer. If you want to make pork production more profitable you will find sows in this sale that will fill your needs and fit your purse. If you want to improve a good breeding herd here is where you will find sows that will do it. DON'T MISS THIS SALE.

The Time---1 P.M. Wed. Feb. 8

The Place---University Farm, Davis

Ord L. Leachman, Sacramento, Auctioneer

For Catalog write E. H. Hughes, University Farm, Davis, or
H. C. Witherow, Live Oak, Cal.

MARKET YOUR CROPS THROUGH HOGS

You can get more money for your crops through good hogs than any other way. Hog prices are strong and there is a real shortage in the state. There never has been a better time to make a start with one or more good bred sows or gilts. The offspring from one sow will soon grow to a herd.

June Acres Stock Farm Annual Sale 35 Duroc-Jersey Bred Sows and Gilts Davis, Calif., Thursday, Feb. 9

This is one of the oldest herds in the state. During the past five years June Acres Durocs have been among the heaviest winners at the state fair—including the grand champion boar 1920, Choice Wonder 3d. Most of the offering will be sired by him or bred to him. The balance will be bred to a son of the mighty Pathfinder. Farmers and breeders can look to this offering to secure reliable, dependable stock of modern type and correct breeding. Every lot guaranteed a breeder.

SALE WILL OPEN AT 1:30 P.M.

For further information and catalog address,

V. F. DOLCINI

June Acres Stock Farm, Davis, Calif.

Look for Rosebud Shorthorns

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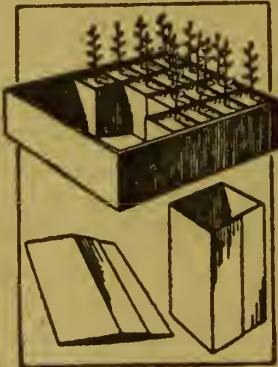
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Pumps for Small Plants

Where the source of water supply is a stream or surface body of water, the choice is usually between a power pump and a centrifugal pump and will depend largely on the lift and capacity. Power pumps are best adapted to high heads above 75 feet and to small or moderate volumes of water, usually under 200 gallons per minute. For these conditions the efficiency of a power pump is usually greater than that of a centrifugal pump. For greater volumes the plunger pumps are comparatively expensive and centrifugal pumps are usually preferable unless the lift is excessive. The centrifugal pump has the advantage that it is simple in construction, with no parts to get out of order, and that it is cheaper than a power pump.

Where the source of water supply is ground water with the water table in the well at a depth below the surface not much greater or less than the limit of suction lift, so that a deep pit is not necessary, then the choice is between a centrifugal pump, a power pump and an air lift pump. The selection between the centrifugal and power pump will depend on a consideration of lift and capacity as explained above. Air lift plants have low efficiency, require a depth of well below the water table equal to about twice the lift measured from the water table and are hardly to be considered

in connection with separate small pumping plants. They are best adapted to a large number of wells (at least six or preferably more) placed close together. An air lift pump can be used advantageously for a well which is too crooked for the other types of pumps.

Where the source of water is ground water developed by deep wells with the water table at a large depth below the surface (50 to 200 feet or more) the choice is between a vertical centrifugal pump in a pit and a deep well pump which eliminates the pit. Deep well pumps are best adapted where the lift is in excess of 100 or 150 feet and for wells that do not yield more than about 400 gallons per minute. Their efficiency is greater than that of centrifugal pumps, but the cost of repairs and depreciation is greater.

The selection should be made only after careful consideration of the first cost of the pump and the annual cost of fuel, operation and maintenance. Where the lift is high, the fuel cost will be considerable and it is good economy not to select the cheapest pump obtainable, but one that is guaranteed for its efficiency. On the other hand, if the pump is to be operated only during a very small portion of the season, it would be poor economy to invest a large capital in a high grade pumping plant to save in fuel cost.

Importing Peanuts

The quantity of peanuts imported to this country has increased year by year until in 1920, the largest import year, there were 132,412,423 pounds of peanuts received, mostly grown in China. In 1910 the total was about 29,000,000 pounds. The 1920 import was principally of shelled peanuts, 120,000,000 pounds being imported that year. These nuts are practically the same as those grown in Virginia. A bushel of Virginia peanuts weighs 22 pounds, which shells out 13 2/3 pounds, or 66 2/3 per cent of the unshelled weight.

Shantung is the leading peanut producing region in China as its soil is particularly adapted to the growing of peanuts. The nut grown in that province is said to be larger than that grown in any other part of China and contains more oil. The provinces of Honan and Chihli rank next to Shantung in the production of peanuts. Peanut "farms" in Shantung are small plots of ground, often not over two acres in area, yet from the produce of small plots like this a Chinese farmer secures a living not only for himself and family but occasionally gives his sons a college education. This is all the more remarkable in that most Chinese farmers use only primitive methods of cultivation.

The peanut business in Shantung has largely been taken over by the Japanese as the successors of the Germans. Japanese traders at Tsingtau annually export large quantities of peanuts and peanut oil to the United States by way of Kobe and other Japanese ports. Kobe has consequently come to be considered one of the leading peanut and peanut oil markets of the Far East. Japan exports some peanuts, but the greater portion of the nuts tabulated by the United States customs officials as coming from Japan are actually produced in China.

Until the emergency tariff bill was enacted imported peanuts were taxed only 3/4 cent a pound and unshelled nuts 3/8 cent a pound. The present act, effective until November 27, prescribes a duty of 3 cents a pound on the importation of all foreign peanuts. The imports of peanuts have already shown a decline since the imposition of this duty, and its effect on receipts during the remaining period of its enforcement will be studied with much interest.

The exports of peanuts from the

United States have recently been only a fraction of the stock imported. Canada has received the great bulk of the peanuts going out of the country, both Virginia and Spanish varieties being shipped in volume to the larger eastern Canadian cities. Smaller quantities have been exported to Great Britain and the Latin American countries.

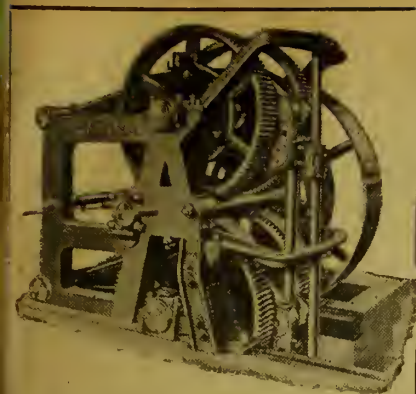
GOT MUCH GREATER YIELDS

Fertilizer demonstrations with tomatoes in Missouri have shown very favorable returns during 1921, according to E. M. Page, extension specialist in truck crops at the Missouri college of agriculture. Four tomato growers in each of the two counties participating, St. Louis and Jasper, carried on the demonstrations in cooperation with the county farm bureaus and the agricultural extension service. In Jasper County the growers were members of the new Jasper County Fruit and Truck Growers' Association and the product largely shipped through this organization. Records were kept by the growers, three from each county being completed.

These records show that in St. Louis County the average increase in yield per acre resulting from an application of 250 pounds of high grade fertilizer was 2,845 pounds of tomatoes, which, at the actual wholesale price on the days they were sold, were worth \$85.55. The cost of fertilizer and the labor involved in applying averaged about \$5, leaving the net gain from fertilizer around \$80. On these plots acid phosphate gave better returns than an equal weight of high grade mixed fertilizer such as 2-12-2. This, however, is not surprising because most of the plots were on rich soil, heavily manured, and phosphorus was the element most needed.

In Jasper County, however, the tomatoes were on poorer land and the mixed fertilizers gave slightly better results than the acid phosphate. Here the average increase was 4,175 pounds of tomatoes from the 250 pound applications of fertilizer, but the total yields were somewhat lower than in St. Louis County. The value of these tomatoes, based on the average price received by the association, less the cost of crates, etc., and shrinkage in grading, was about 2 cents per pound or \$83.50 gross increase per acre. Deducting \$5.55, the average cost of fertilizer and labor of applying, the records show a net increase at the rate of \$77.95 per acre for the Jasper County plots.

These returns may or may not be above the average but they illustrate forcibly the value of proper fertilization and the relatively large return



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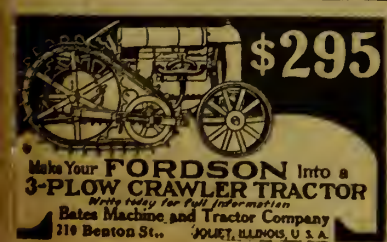
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from a small investment in commercial fertilizer properly used. No attempt should be made to maintain yields entirely by commercial fertilizers, but the most permanent good will result when these are used in connection with proper crop rotation and the use of available manures.

BLACK SEED BEADS

In a recent issue of the Hawaiian Forester: "The large round black seeds of the native manele or soapberry tree (*Sapindus saponaria*) are

much in demand for necklaces. A quantity of this seed was recently secured by the superintendent of forestry from near the Volcano House on Hawaii and planted at the government nursery. These have germinated well and will soon be planted out on forest reserves."

This tree is native to the American tropics but is sparingly grown in California gardens as an ornamental and is not harmed, when of some size, by light frosts.

Los Angeles County Farm Sets New State Record

Another California state record was broken last month by a Holstein heifer in the herd of the Los Angeles County farm, when Whittier Pontiac Netherland 4th made 1,137.2 pounds butter in her yearly semi-official test. This gives her a lead of 29 pounds butter over the highest previous four year old production ever made in California. During the year she was observed by 19 different test supervisors from the state university and her milk has been officially weighed and tested by them. By reason of her excessive production the Holstein Friesian Association of America sent men to make verification tests during six of the 12 months.

The remarkable thing about this record is that she was not carried on the usual four time daily milking schedule after the first 14 days of the test and at no time thereafter did she have the benefit of box stall and forced feeding, all of which are invariably given to any cow running for a record. "Netherland" was handled during 351 days of the year just the same as each of the other 120 milking cows in the county farm herd with no special favors. Her total milk production for the year was 22,412 pounds, showing an average test of 4.06 per cent butterfat. This unusually high test is one of the outstanding characteristics of the strain from which she is bred. A great many closely related cows have returned yearly test records of better than four per cent average together with extraordinary quantities of milk. In her seven day official test made at the beginning of her four year old lactation she made a record of 28.75 pounds butter. During the entire year she averaged over 21.8 pounds butter for each of the 52 consecutive weeks.

The consistent production of the new record holder and her paternal sisters add more laurels to the famous De Kol of Valley Mead strain. Her sire, King Segis De Kol Mead, is still in active service in the Los Angeles county farm herd at the age of eight years. He is a son of King Segis Pontiac Emperor and De Kol of Valley Mead, the founder of one of the most famous producing families of the Holstein breed. She now has eighteen direct descendants that have made yearly records, the average production being 920 pounds butter and 19,159 pounds milk, with an average test of 3.84 per cent fat, 13 of the records being made under full age. This group contains the makers of five world records, the subject of this sketch being the third highest producer and the highest under full age.

The new record holder and her sire were both purchased by the present superintendent of the county farm, William R. Harriman, within the last three and one-half years. Other good records made by sisters of this famous heifer include a four year record of 824 pounds butter in a year, and seven day records of as high as 27 pounds butter for four year olds and 26 pounds for three year old heifers. None of this bull's daughters have yet been tested at full age, so that further sensational records may be expected. The herd at the county farm which has for three years borne the title of "World Champion Herd of 100 Cows," is building its future around these lines of breeding. Three of the present herd sires are direct descendants of De Kol of Valley Mead, being respectively a son, a grandson through her highest record daughter, and a great grandson through her latest state record grand daughter. This is

line breeding to intensify the influence of this wonderful producing strain.

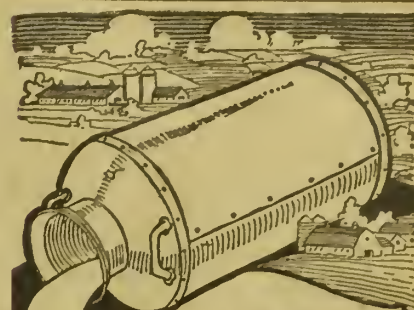
The champion is now in calf to the county farm's junior herd sire, King Korndyke Pontiac Mead, whose dam is De Kol of Valley Mead 2d, a 1,000 pound four year old. His \$12,000 sire is out of the famous Miss Valley Mead De Kol Walker, an 1,100 pound and 36 pound three year old daughter of De Kol of Valley Mead 2d. The resulting calf will have three crosses to old De Kol of Valley Mead through some of her very greatest descendants, and a bull of such breeding should unfailingly impress the characteristics of this great strain on his offspring.

The milk and cream produced by this herd is all consumed by the patients of the Los Angeles county farm hospital and juvenile hall, every precaution being taken to keep the purity of the product at the highest possible standard.

When H. J. Long, Fallon, Nevada, was selecting his foundation for a herd of registered Holsteins a few years ago most of his female purchases were made from among the tops of some of the best California sales. To head this select group of females he purchased one of the best young sons of the famous Sir Pieter Ormsby Mercedes. This young sire has for a dam the 34 pound three year old Glen Canary De Kol, and is therefore a full brother to the 1,323.30 pound yearly record four year old Glen Canary De Kol 2nd. Official testing in the Long herd has now begun to establish the correctness of foundation selection. The highest seven day production in the herd to date was made by Blamar 2nd, with 31.44 pounds butter from 587.7 pounds milk. She is by Dutchland Colantha Sir Ormsby, son of Colantha Johanna Lad, and out of the 29.50 pound cow Blamar. Gracia Colantha Burke, another daughter of the same sire, and out of the foundation cow Alamo, became Nevada's first 30 pound cow when she made 30.08 pounds butter in seven days. Carnation Skylark Segis, a daughter of Forward Prince Segis, out of a daughter of Dutchland Governor Sir Colantha, second dam a daughter of Sir Skylark Ormsby Hengerveld, recently made 30.97 pounds butter from 749 pounds milk in seven days as a four year old. Another splendid young female in the herd is Cascade Mary Ormsby, with 28.51 pounds butter from 655.9 pounds milk in seven days as a three year old. She is a daughter of Sir Korndyke Ormsby Piebe and out of a 29.90 pound daughter of Sir Johanna Ruth Fayne. The most pleasing record so far made in the herd, however, is that of the heifer Longheath Colantha Ormsby that calved at two years seven months and made 24.24 pounds butter from 461 pounds milk in seven days. She is the first daughter of the young herd sire King Ormsby Canary Johanna, the son of Sir Pieter Ormsby Mercedes previously referred to as the head of the herd, to be tested and her record promises much for the 40 sisters she has coming on in the herd. She is a heifer of splendid type and should develop into a cow of remarkable production in her mature form.

Howard Vaughn, manager of the California Shorthorn Breeders' Association sale to be held at the university farm, Davis, Stockmen's Week, has announced entries from the following herds: Blackhawk Ranch, Diablo; Edinger-Johnston Co., Hood; Caledonia Farms, West Sacramento; Straloch Farm, Davis; University of

California; Geo. E. Dierssen, Sacramento; H. M. Elberg, Woodland; Geo. S. Simms, Sacramento; W. T. Chapple, Willits; Gardiner Pierce, Davis; Howard Vaughn, Dixon; Dr. R. T. McGurk, Stockton.



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White Leghorn Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

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Barred Plymouth Rocks—"Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voden, Los Gatos, California.**

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Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Hatching Eggs from well Hoganized Walter Hogan strain White Leghorns. Will run 96% fertile. \$1.50 for 15 or \$3.00 a 100. **C. M. Bradford, Hemet, California.**

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. **BABY CHICKS.** Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

Partridge Wyandottes, Premier Strain, prize winners. Cocks and Cockerels. **Mrs. J. L. Dunn, Valley Home, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$3.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

POULTRY

NOTICE

Note the similarity of the names, Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from 1921 record pen. Sittings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.

Capacity 200,000.—For 20 years our reasonably priced chicks from 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, ducks, have made foundation flocks and filled repeat orders for hundreds. Reasons: Superior vigor, size, winter laying, profit. Still booking for any month below pre-war prices. Can yet fill 5,000 chick orders most weeks. Profitable Poultry, 13 North Fair Oaks, Pasadena.

Quality Chicks—Western Washington leads the world in high egg producing birds. We can furnish a limited quantity of Tanager strain Trap-Nest White Leghorn chicks from 200 egg females and better, mated with 250 egg cockerels and better, at \$20.00 per 100, f. o. b. Seattle. We also hatch R. I. Reds, Barred Rocks, Black Minorcas and Anconas. **QUEEN HATCHERY, SEATTLE, WASH.**

Hudson White Leghorns—More years of official 200 egg records than any other California breeder. Records made by our pullets in Oregon, three Washington and last Missouri contests. Booking orders now for cockerels, eggs and chicks. **Hudson Poultry Farm, ESCONDIDO, CALIFORNIA.**

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. **Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.**

The Poultry business can be made to pay by following the teaching and practical information given in **THE PACIFIC POULTRYMAN**, Quality poultry paper of the West. 75c per year, trial subscription, four months for 25c. **Seattle, Washington.**

Parks P. R. Pedigreed Cockerels and eggs for hatching. 230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

75 Trapped White Leghorn Cockerel, March hatch. Dams records 265 to 286 Sires dam record 274, \$5.00 and \$7.50 each. Male line trapped 18 years. **Bonnie Brae Farm, Burbank, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

For Sale—Thoroughbred Single Comb Black Minorca cockerels and one rooster. **C. F. Schwab, San Fernando, California.**

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

Brown Leghorn Cockerels, Light and Dark, for sale; excellent breeding birds \$2.50 each. **Anderson's Hatchery, Modesto.**

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. **Pause Pheasantry, Fair Oaks, California.**

DUROC-JERSEYS

Weanling Boars and Glits by Pathfinder Wonder (Great Wonder 1 Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glits. **Derryfield Farm, Capital National Bank Bldg., Sacramento, California.**

Greenwood Farm Durocs—Moderate prices on bred glits and weanling boars. Select individuals. Most popular breeding. **H. C. Witherow, Mgr., Live Oak, Sutter County, California.**

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. **J. Boyd Harrold, Dixon, California.**

Big Type Durocs—Better Durocs at right prices. **Harvey M. Berglund, Dixon, California.**

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA, CALIFORNIA**

BERKSHIRES

Berkshire Glits—Bred for late spring litters. Boar pigs of breeding age. **Calac Orchards, Martinez, California.**

POLAND-CHINAS

Big Boned Poland Chinas—Bred glits and young boars priced to sell at once. Young stock, either sex, for sale at all times. **Bassett Bros., Hanford, California.**

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. **Lead and Oil Paint**.....\$2.20 a gal. **Roof Paint Special**.....35c a gal. **Prompt Deliveries on Mail Orders.** **ANGELUS ROOFING & PAPER CO.** 764-766-768 So. San Pedro Street, Phone Bdway 5401 Los Angeles, Calif.

SEEDS AND PLANTS

For Sale: Brandywine, Klondike and Sen. Dunlap strawberry plants, \$1.50 per 100. **Cory's Thornless Blackberry,** 25c each. **Loganberry,** \$1.50 per doz. **Mammoth** and **Himalaya blackberries,** \$1.00 per doz. All postpaid. **The Hopkins Nursery, 153 South Hartwick Ave., Eagle Rock, California.**

For Sale—Selected Mebane Cotton Seed, 5c per pound. **Walter E. Scott, Box 174, Blythe, California.**

Strawberry Plants, Harri's and Gold Dollar, 60c hundred, \$4.00 thousand. **D. R. Bannister, Oakdale, California.**

Seed from Fine Papayas, 25c per ounce, postpaid. **Box 144, Brownsville, Texas.**

SEEDS AND PLANTS

HAIRY PERUVIAN ALFALFA SEED: EACH SACK CERTIFIED AS COMING FROM OFFICIALLY INSPECTED FIELDS. PLANTING SEASON NOW AT HAND. SAMPLES, PRICES, GOVERNMENT STATISTICS, ETC., CHEERFULLY FURNISHED UPON APPLICATION. **E. F. SANGUINETTI, YUMA, ARIZONA.**

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

Cory's Thornless Blackberry—Selected, well-rooted tips, \$2.40 per dozen, \$15.00 per 100, \$120.00 per 1,000. 50 at 100 rate or 500 at 1,000 rate. **Black Zante Currant Grape (Pananit),** heavy 2 year old vines, \$5.00 per 100. Packed free. **Sylvan Nurseries, Lincoln Highway, Roseville, California.**

For Sale—Thompson Seedless, Malaga and Muscat one year old grape rootings. Cuttings came from the finest producing vineyards of Tulare County and are guaranteed A No. 1. Reasonable prices for 1,000 lots or over. **J. Murray, 7050 Kester Avenue, Van Nuys, Los Angeles County, California.**

Carolina Strawberry Plants bear a full crop the first year, beginning 7 weeks after planting; large, firm berry, ripens evenly. Strong plants \$2.00 per 100, \$14.00 per 1,000. Write for prices in large quantities. Now is the time to plant. **Oliver Ranch, Lakeside, San Diego County, Cal.**

For Sale—Mountain grown Strawberry Plants, Americus Everbearing; fruits from May to November. Strong plants, \$3 per hundred. **Carolina, \$2; Banner and Lettersburg No. 80, \$1.50; Brandywine and Klondike, \$1 per hundred.** Postpaid. **B. Bryan, Camp Baldy, California.**

Strawberries, 21,600 boxes per acre, from July to November, 1921, from Hewitt's Improved Mountain Grown Progressive Everbearers. Fruits sooner and greater than any other crop. Descriptive folder listing popular varieties. **Carl N. Hewitt, Summit, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address: **George Forest, Standish, California.**

Strawberries six months in the year! Plant Everbearers, Superb, Progressive, \$2.00 hundred. **EVERBEARING RASPBERRIES,** six \$1.00, inspected. **Apple Blossom Nursery, Route 6, Seattle, Washington.**

Hubam Clover—My Hubam Clover Seed made over 1,000 pounds of seed per acre. Forage yield in proportion. Give it a trial for cover crop, hay or forage. Certified seed for sale by O. E. Lambert, Route 6, Box 226, Modesto, California.

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write Chas E. Mortensen, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00. 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower **Wm. Mortensen, Route 1, Lodi, California.**

Cabbage Plants—Any quantity at 50c per 100, postpaid. Varieties, **Winningsstad** and **Cannon Ball.** **The Hopkins Nursery, 153 South Hartwick Ave., Eagle Rock, California.**

Cory Thornless Blackberry—Extra fine 4 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 65 Kingsley Avenue, Palo Alto, California.**

For Sale—Rooted Grape Vines, **Pierce of California** Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 936, R. 2, San Gabriel.**

Mason's Everbearing Strawberries, \$1.2 hundred. **Klondike,** 75c hundred. **Cory's Thornless Blackberry** rooted tips, 11 \$2.00. **L. Specht, Galt, California.**

Concord and Niagara Cuttings, \$1.50 per 100 postpaid. **Aug. J. Motzeck, Encanto, San Diego County, California, Box 104.**

400,000 Rootings, Thompson, Malaga, Emperor, Muscats, Sultana and Cornicchio and cuttings, also wine grape cuttings; kinds of alfalfa seed. **Box 501, Fowler, Cal.**

For Sale—Brandywine Strawberry Plant fifty cents per hundred, postage extra. **E. A. King, West Fourth Street, River side, California.**

Thornless Blackberry Plants now ready fine plants, 8 for \$1.00. Also common blackberry plants, bargain. **Chas. McNeely, Alpaugh, California.**

Cory's Thornless Blackberry Plants, extra fancy, 15c each or rates by the thousand. **Corner Inglewood Ave. and Arbovitae, Inglewood, California. C. C. Bryso.**

Save Work—Plant Iris and Perennials; \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurtt, San Berna dino.**

Alfalfa Seed—Certified Hairy Peruvia Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Fe Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grap all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, S. Jose.**

Garlic—For sale, good large, fresh gar sets, per pound, 10c. Orders of 100 lb or more postpaid. **C. J. Baden, R. D. Orange, California.**

Malagas—5,000 rooted vines for sale. **P. B. Magee, Mecca, California.**

TREES

Citrus Trees, 1 and 2 years. Supply Co. and performance record bud selection quality trees. Valencia, Navel, Eureka, Lemon, Grapefruit. We think we know how to handle trees. Try us. We have a good line of stock. Prices right. Orchards planted to order. WANT TO BUY 50,000 sour seedlings. Cyrus W. Willhite Citrus Nurseries, P. O. Box 154, Glendora, California.

Prune Trees—We offer planters a few thousand Petite, Imperial and Sugar prune trees, on both peach and plum roots, at very close prices while they last. Also have a complete line of other nursery stock at attractive prices. Quality guaranteed. Send us your want list today. Benedict Nursery Company, 185 E. 87th Street, N. Portland, Oregon.

Walnut Trees grafted on Northern California black, Eureka, Placentia, Chase, Payne, Royal Apricots on apricot roots. Tuscan, Phillips and Sims Cling Peaches. HACHIYA PERSIMMON, locally grown on Lotus roots, extra fine stock, rooted grape vines, berries. Los Nietos Valley Nursery, Downey, California. Phone 692.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes. Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVEL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

BUDDED AVOCADOS All leading varieties—Fuerte, Pueblo, Dickinson, Spinks, Queen, Knight, Linda. Get our planters' prices. Field grown. Selected buds. MATHER'S AVOCADO NURSERY, PASADENA. Phone Colorado 3044. P. O. Box 585.

Nursery Stock at bargain prices. Prune 10c each; grafted walnuts \$1.00 each; pears 20c each; Black caps \$20.00 per 1,000; other stocks at bargain prices. Submit your want list, and send for planters list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—One and two year old citrus stock budded with "Supply Co. Buds." We have also all commercial varieties of deciduous. Now is the time to order. F. A. Tetley and Son, 415 W. 8th St., Riverside, Calif.

To Get Acquainted—I will mail three rhubarb and three assorted blackberry plants, or one seedless fig and one pomegranate, or four assorted rose bushes for \$1.00. Send for price list. Bishop's Nursery, Highland, California.

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For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana California. Phone 572-W.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Cal.

For Sale: Valencia Late, Washington Navel, Eureka lemon trees. Prices light. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

For Sale—ATHEL OR EVERGREEN TAMARIX. Best tree for immediate windbreak and shade in hot dry localities. Leonhardt Swingle, Indio, Cal.

Walnut Trees—4 to 12 ft. W. W. Pearmain apples, Bartlett pears, peaches, apricots and figs. Bassett Nursery, Puntre, California.

For Sale—Fine lot Florida sour stock orange seedlings, budded orange trees, grafted walnut trees. A. G. Snow, Oxnard, California.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 294.

For Sale—Hachlya Persimmon scions from one of the best 5 acre groves in the county. George M. Ketscher, 1101 E. 4th St., Santa Ana.

Sampson Tangelo and Dwarf Chinese Lemon; the two best citrus products ever introduced. Coolidge Rare Plant Gardens, Pasadena, California.

Have Ready for Planting 300 Ascolano Olive Trees, also 200 Mission ditto. Nursery 3 miles east of Ojai. Anton Relovich, Prop., Ojai, Cal.

Fig Trees—Extra fine Kadota and Mission fig trees. Enterprise Nursery, 1197 N. Fair Oaks Avenue, Pasadena.

Want 100,000 Sour Orange Seedlings, Dorton's Southwest Nurseries, Harlingen, Texas.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. W. Irwin, Lindsay, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena.

Quality Trees—Cheap. Send list for prices. Cash Nursery, Sebastopol.

Florida Sour Orange Seed for sale. Milo Hunt, Whittier, Phone 250.

PHOTO FINISHING

We Are Experts. Your next roll developed and six prints 30c. Send negative and 40c for 8x10 Art Enlargement. Warner, Ukiah, California, Dept. E.

BEES

For Sale: 80 Colonies of Bees in two story hives with full equipment. Best location in Imperial Valley. For full particulars write J. E. Beck, 1244 A Street, San Diego, California.

MACHINERY

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale—Fine Deep Well PUMPING PLANT, 15 h. p. Western engine just rebored. Famous double acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well, for cash or trade for late model Dodge auto. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale: Union Tool Tractor, used 365 days. Killefer 28 Disk, Killefer 18 Cultivator and 3 Disk Plow, all in first class condition. Will sell at a bargain as I will discontinue using them in orchard, being too heavy. Ira P. Bradley, Covina, California. Phone 798.

TRACTORS FOR SALE

1 75 H. P. Holt, good condition.
1 Best 60 New Type, good condition.
1 Model J Sandusky, new.
Also heavy plows and cultivators.
The Hogue-Kellogg Company,
Ventura, California.

Tractor Bargain—Almost new Sandusky tractor; plowed less than 100 acres. Taken back on foreclosure. Will sell for less than half the cost of new tractor, and arrange easy terms. 1121 Charles C. Chapman Bldg., Los Angeles, California. Phone 64191.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

For Sale—Holt 75 H. P. Caterpillar with Holt land leveler, plows, cook wagon, at big bargain. G. E. KENNEDY, 472 Spreckels Bldg., San Diego, California.

MISCELLANEOUS

Tobacco, Natural Leaf. Sweet and melon hand picked chewing or smoking; 5 lbs., \$1.50; 10 lbs., \$2.50. Smoking, 10 lbs., \$2.00. Furnish free receipt for preparing. Quality and delivery guaranteed. FARMERS' TOBACCO EXCHANGE, Sedalia, Ky.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Pruning—Commercial orchard pruning. Work guaranteed. For rates address W. I. SCIBIRD, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656W.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Tobacco—Kentucky Homespun natural leaf chewing and smoking. 10 lbs., \$3; 20 lbs., \$5. Maddox Bros., Dept. 24, Mayfield, Kentucky.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Edison Diamond Disc Phonograph with Victrola attach., \$95.00. Taken trade. Demmitt Tank Co., 120 N. Main, L. A.

WANTED

Wanted—Experienced farmer and vineyardist wants to take charge of or work on ranch. Can operate tractor or other farm machinery. Single and not afraid of work. Address Fred Fletcher, 1014 Santee Street, Los Angeles, Telephone 11048.

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

Wanted—Niagara, Pierce, Cataba, Wyoming-red, Goodale, Golden-chasselas, Black-monukka grape cuttings. H. Hamilton, 2432 E. Market Street, Stockton, California.

Wanted—Purebred Newfoundland pup, 3 to 4 months old. State color and price in first letter. Chas. McNeely, Alpaugh, California.

Want to Hear from owner having farm for sale, give particulars and lowest price. John J. Black, 116th Street, Chippewa Falls, Wisconsin.

Wanted—12-1500 Black Mexican Avocado Seeds. Mail prices to Otto Gutkaes, 1310 W. 40th Place, Los Angeles.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

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Caldwell's White Muscovy (quackless) Ducks. Win, weigh, lay and pay. Free circular. Caldwell Duck Ranch, Box 274-B, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching, \$1.00 per dozen, \$8.00 per hundred. A. Surtman, Petaluma, California.

CATTLE

GUERNSEY HERD FOR SALE My foundation herd of pure bred Guernseys, representing the most popular blood lines of the breed, is for sale. It includes such animals as Rebecca of Sunnyview, the state champion cow in BB Class, and Veda of Chiconia, whose son sold for \$10,000. Both cows are in calf to a son of the great Itchen Daisys May King of Langwater, who has a number of high record daughters. The herd consists of 14 mature females fresh or safe in calf; 3 heifers and 5 young bulls sired by Masterpiece of Edgemoor, Pencoyds Golden May Secret and Itchen Daisys May King of Langwater. They combine show type with high production. All animals tuberculin tested and guaranteed breeders. Will be sold singly or a specially attractive price will be made on groups.

Dr. J. A. Woodsldc, Rita and Fulton Aves., Van Nuys, Cal. Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. E. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords: Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

FARM LAND FOR SALE

High Class Dairy Ranch—Immediate income; 30 acres; 14 cows, pure bred bull, team, hogs, chickens, machinery; deep loam soil, no hardpan nor alkali, under irrigation; 26 acres alfalfa, family orchard. Good new house, hard finished, 5 large rooms, bath, screened porch, fine basement, large barn, milk house, garage, good well, supply tank. Near University Farm, Davis. Excellent neighborhood. Price \$20,000; \$6,000 cash. 40 acres alfalfa joining can be had, \$350 acre, half cash. This ad will not appear again. Earle Trimmer, 2415 L St., Sacramento.

20 Acres—19 alfalfa, rooted vines for one acre. Plenty shade, all water want year round, close to good town; \$1,000 down handles this. 40 acres rich level silt land, close to town, plenty water all the year; 5 acres alfalfa, has all been in alfalfa; priced below market. \$400 down, no other payment on principal for 4 years, no interest charged first and second year. Investigate this. Chas. McNeely, Alpaugh, California.

For Sale: My fine 20 acre ranch, 1½ miles east of Chino; 10 acres alfalfa, balance finest variety peaches. Peaches netted \$5,000 in one year. Modern 8 room house, other good buildings. Equipped with dairy, 12 good dairy cows, 3 head young stock, 1 team and all farming implements and dairy equipment. Terms if desired. Mrs. A. B. Bartholomew, Chino, California.

WE WANT "GO-GETTERS" Sutter Basin is ready for "Go-Getters." It is a practical farming project in crops today. Deep, rich soil with irrigation and drainage system, river and rail transportation. In the heart of the Sacramento Valley. Very liberal terms to men who know how and will work. Write today. Sutter Basin Company, California Fruit Building, Sacramento.

For Sale—Some of the Finest Orchard Land in Southern California, in a rapidly growing community, \$10.00 to \$50.00 per acre. Water available if desired. Call or address Adelanto Fruit Co., Adelanto, California.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Ramona, San Diego County, California, where prices have not been boosted Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry, F. M. Dyke, Real Estate.

For Sale—Ranches, Homes, Acres, free list. Willson Bros., Santa Cruz, California.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatery, El Monte, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TURKEYS

Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Mountain Farm, Calatoga, Cal.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, \$1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Wanted—Reliable Party within 50 miles, raise Ives Strain World's Champion Bronze Turkeys. Will furnish stock. Guarantee profits. See, write, Ives, 664 W. 66th, Los Angeles, formerly Knobnoster, Missouri.

Mammoth Bronze Turkeys—Stafford strain Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2, Box 129, Bakersfield, California.

Mammoth White Holland Turkeys—Choice hens and toms from our famous breed of large vigorous turkeys, improved by Eastern stock. Earl V. Smith, Loma Vista Ranch, Willows, California.

For Sale—White Holland Toms from blue ribbon stock at \$15, and eggs in season 50 cents each. Order early if you want them this spring. L. A. Robinson, Hemet, California.

Thoroughbred White Holland Turkey Toms, a few beauties at \$12.00. Three hens for \$20.00. Pause Pheasantry, Fair-oaks, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

Bourbon Red Turkeys—Prices reasonable. Mrs. L. S. Grosse, Scottsdale, Arizona.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

RABBITS

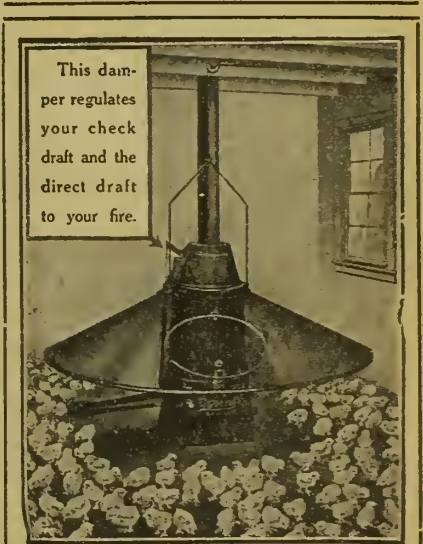
Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

PAYNE'S GARDEN GUIDE

Payne's Garden Guide for 1922, which contains many valuable statements as to gardening and an illustrated catalog of seeds and plants, is being mailed by Theodore Payne, 345 South Main Street, Los Angeles. Amongst the valuable suggestions is a garden calendar for each month of the year, together with seeding table and much other general information. The body of the book is made up of text on vegetable and ornamental plants and flowers, arranged alphabetically. In addition there are illustrations and price lists of garden tools, spray pumps, lawn mowers, etc.

COMPLETE EVEN TO THE INDEX

The Morris and Snow Seed Co., 439 South Main Street, Los Angeles, has been fortunate in bringing together a great mass of information as to seeds and plants of vegetables and ornamentals in their catalog for 1922. The calendar of planting operations is, we believe, the most extended we have seen. In addition there are tables giving number of plants or seeds required to the acre, sowing tables for the garden, in fact, a lot of regular garden planting stuff. Here are a few sentences at random: "Don't work freshly wet ground. Don't set plants or roots without watering at once. Don't plant seeds or bulbs in dry ground. Don't let weeds grow."



Reliable Blue Flame Brooder

The leader of oil burning brooders. Easy to operate, economical, abundance of heat. Four sizes for flocks of 1 to 1000. We also have Queen coal burning brooders, electric and hot water systems. Baby chicks and pullets. Ask for 1922 general catalogue.

C. E. HILL CO.

418 11th St. Oakland, Cal. Sole Distributor for Northern California

**RHODES DOUBLE CUT
PRUNING SHEAR**

Patented

RHODES MFG. CO.,
830 So. DIVISION AVE., GRAND RAPIDS, MICH.

THE only
 pruner
 made that cuts
 from both sides of
 the limb and does not
 bruise the bark. Made in
 all styles and sizes. All
 shears delivered free
 to your door.

Write for
 circular and
 prices.

Los Angeles Markets

Los Angeles, January 25, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 42 cents.

Jan.	18	19	20	21	23	24
'22	41	42	42	42	42	42

CHEESE

Brokers' prices:
California firsts, 23@25.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 42; case count, 41; pullets, 40.

Jan.	18	19	20	21	23	24
'22	42	46	46	46	43	42

POULTRY

Price to producers: Hens, 27; colored, 22; broilers, 35; roasters, 32; old roosters, 10; fryers, 35; ducks, old, 20; ducklings, Pekin, 3½ up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@17; old, 8.

LIVESTOCK

Los Angeles, Jan. 24.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 8.50; 175 to 225 lbs., 9.00. Cattle (on foot, gross weight): Steers, good, 6.50; medium, 6.00; cows, good, 5.00; medium, 4.50; bulls and stags, 3.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 7.00. Sheep: Ewes, 4.00@4.50; lambs, 8.50 @9.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe avenue. Green salted hides—No. 1 steers, 7½ per lb.; No. 1 cows, 6½ per lb.; No. 1 bulls, 5½ per lb.; No. 2 hides, 1½ less per lb.; grubby hides, 1½ less per lb.; kosher hides, 1 less per lb.; glue hides, 1 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75¢ each. Green hides—No. 1 steers, 6½ per lb.; No. 1 cows, 5½ per lb.; No. 1 bulls, 4½ per lb.; No. 2 hides, 1½ less per lb.; kosher hides, 1 less per lb. Calfskins and kipskins: No. 1 calfskins, under 15 lbs., 11 per lb.; No. 2 calfskins, under 15 lbs., 8½ per lb.; No. 1 kips, 15 to 30 lbs., 8½ per lb.; No. 2 kips, 15 to 30 lbs., 7 per lb.; kosher skins, 1 less per lb.; glue, 1 per lb.; slunks, 30@40 each. Dry flint hides—No. 1 hides, 16 lbs. and up, 10½ per lb.; No. 1 kips, 6 to 16 lbs., 11 per lb.; No. 1 calfskins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 2 less per lb.; glue hides and skins, 2 per lb. Pelts—Large, long wool, 50@80 each; medium, 25@50 each; short wool and shearings, 10@25 each. Goat skins—No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless. Tallow—No. 1 white and hard, 5 per lb.; No. 2, 4 per lb.; No. 3, dark and greasy, 1@3 per lb. Wool—According to quality and condition, 6 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 24 by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading. The potato market shows considerable strength at present, especially in the Russets, which are selling on an average of 3.00. Sweet potatoes met with a moderate demand, particularly in the case of sacked stock, which brought 3.00 to 3.50 per hundredweight. Peppers, peas and eggplant were very scarce and there were not enough sales reported to make a market. Potatoes: Movement moderate, market steady. Lugs, mostly 1.00@1.10. Stocktons: Burbanks, per cwt., best mostly 2.50@2.75; few, 2.85; poorer, 2.25@2.40. Idahos: Russets, best, mostly 2.85@3.00; few, 3.25; bakers, 3.50. Sweet Potatoes: Movement moderate, market steady. Locals, No. 1 best, per lug, 1.00@1.15; poorer, 80@90 per cwt.; No. 1, 3.00@3.50; Arkansas: Nancy Halls, bushel baskets, 5@5½ per lb. Onions: Demand moderate, market steady. Stocktons, per cwt.: White Globes, best, mostly 8.25@9.00; Browns, best, 7.00@7.50; poorer, 6.50; lugs, Whites, best, 2.75@3.00; Browns, 2.00@2.25; Lompoc Browns, 7.00@7.50. Garlic: 8@9; poorer, 5.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, January 24, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. The supply of vegetables on the local produce market has been limited by the recent freeze and several commodities were scarce and higher in price yesterday. Cauliflower averaged 50 cents a crate higher than Monday and sold from 2.75 to 3 a field crate. Celery was also high, the best local stock selling from 6.25 to 6.50 per crate. Cabbage prices were unchanged and much poor stock was offered. Lettuce was firm, but a good deal of the offerings were only of poor quality. Artichokes: Doz., 1.50@1.75. Brussels sprouts: 15@18 lb. Beets: Sk., 2.50@2.75. Bunched vegetables: Market steady. Per doz. bunches: Turnips, 40@45; carrots, 75; beets, 75; radishes, 25@30; parsley, 15; spinach, 40. Cabbage: Market firm. Per field crate, mostly 1.25@1.50; few, 1.75. Cauliflower: Market stronger. Wide range in quality. Per field crate, mostly 2.75@3.00; few, 3.25; poorer, 2.50. Carrots: Sk., 2.25@2.75. Celery: Market stronger. Locals: Best, 6.25@6.50; poorer, 5.00@5.50. Cucumbers: Market steady. Hothouse, mostly 1.00@2.50. Lettuce: Demand moderate. Locals: Field crates, 1.00@1.25; few best high as 1.50; poorer, 1.75. Parsnips: 75@1.00.

Onions, green: 20 bunch. Peppers: Locals: Chili mostly 12@15 lb. Turnips: Sk., 1.00@1.25. Tomatoes: Market steady. Mex., lug, repacked, 4.00@4.50; cr., 3.75.

FRESH FRUITS

Apples: Demand and movement moderate, market steady. Locals: Winesaps, Romes and King Davids, mostly 4@5, few 6; Delicious, 6@7; few 7 per lb.; B grade Delicious, 2.25@2.75; fancy, 2.75@3.25; Winesaps, fancy, 2.50@3.00; Romes, fancy, 2.50@3.00; B grade, 1.75@2.00. Watsonville, fancy, 3½ and 4 tier Bellefleurs, 1.60@1.65; few 1.75; poorer, 1.40@1.50; 4½ tier, 1.30; loose, per lb., 3@4; Pearmain, tier, 1.70; 4 tier, fancy, 2.10@2.25; B grade, 1.70; 4 tier, fancy, 2.10@2.25; Yellow Newtown Pippins, 4 tier, fancy, 2.00@2.25; 3½ tier, 2.10; loose, 5 per lb. Northwestern: Spitzenburgs, medium to large, extra fancy, 3.00@3.25; fancy, 2.75 @3.00; Winesaps, extra fancy, medium size, 3.00@3.25; Romes, extra fancy, 2.75 @3.25.

CITRUS FRUITS

Grapefruit: Movement slow, market dull. Californians, Northern: Packed box, 2.75@3.00; small, 2.50; market pack, 2.00 @2.50. Imperial Valley, 4.00@4.25. Arizonas: Seedless, 3.75@4.75, according to size and quality. Lemons: Demand and movement slow, market steady. Locals: Loose boxes mostly 1.25@1.50; few, 1.75; poorer, 1.00; lugs, 40@50; few best, 75. Oranges: Demand limited for packed stock, market weak. Navels, special brands, 100s-150s, mostly 4.00@4.50; 176s-216s, 4.00@4.25; market pack, 2.00@3.50, according to size and quality; culls, field boxes, best, 1.00@1.25; poorer, 50¢@75. Tangerines: Demand and movement light, mostly 5@6 lb.; few fy., 7@8.

GRAIN

Prices on L. A. Grain Exchange: Milo, 1.42½@1.45. Barley, 1.32½@1.35.

HAY

Alfalfa Growers of California report: Market showed more activity past week. Severe cold lowered prospects for early green feed. One of the many unusual features of the present situation is that our Riverside district has been filling orders for alfalfa hay from Idaho and the Coachella Valley, which districts are normally supplied from Imperial Valley. Stocks of marketing hay in Imperial Valley are almost exhausted and local prices there are about the same as in Los Angeles. There were 1,840 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending January 21, with 600 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa	25.00
Standard	20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	22.00@28.00
Barley	18.00@24.00
Alfalfa, Rabbit	24.00@28.00
Alfalfa, No. 1 Dairy	20.00@22.00
Standard	16.00@18.00
Straw	10.00

San Francisco Markets

San Francisco, January 25, 1922.

BUTTER

Extras, 42.	18	19	20	21	23	24
Jan.	42	42	42	42	42	42
'22	42	42	42	42	42	42

CHEESE

Dairy Exchange quotations:

California Flats	27½
California Y. A.	28½
Oregon Trips	27½
Oregon Y. A.	29

EGGS

Dairy Exchange quotations:

Extra Pullets	39½
Jan.	38
'22	39

POULTRY

Prices furnished by the state department of agriculture, division of markets: Sales to retailers: Below are listed the averages of actual prices obtained between 7:30 and 9 o'clock this morning by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered. Broilers: 1 to 1½ lbs., 36@38 per lb.; 1½ to 2 lbs., 36@38. Colored Fryers: 2 to 3 lbs., 33@35. Colored Young Roosters: 3 to 4 lbs., 29@31 lb.; over 4 lbs., 29@31; staggy, showing spurs, 24@25 lb. Colored Old Roosters: 18@20 lb. Leghorn Old Roosters: 17@18 lb. Leghorn Hens: 2½ to 3 lbs., 24@25 lb.; 3 lbs. and over, 25@26 per lb. Large Colored Hens: 30@32 per lb. Ducks: Young, 23@25 per lb.; old, 22@24 per lb. Geese: Young, 28@32 per lb. Supply light. Dressed Turkeys: Young, 44@46 per lb.; old, 41@43 per lb. Belgian Hares: Live, 16@20 per lb.; dressed, 25@28 per lb. Squabs: Live, 55@65 per lb., 3.50 doz. Old Pigeons: 2.50@2.75 per doz. Guineaes: Young, 6.00@8.00 per doz. Jack rabbits: 2.75@3.00 per doz.

LIVESTOCK

Western Meat Co. quotes: Weighed off cars at our yards in South San Francisco: Cattle: No. 1 steers, 7½@7¾ per lb.; do. strong quality, 6@6½ lb. Cows and heifers, No. 1, 5@5½ per lb.; do. second quality, 4½@5 lb. Bulls and stags, 3½@4 per lb. Calves: Light weight, 8@9; heavy, 6½@7½. Sheep: Wethers, 6½@7; ewes, 3½@4. Lambs: 9@9½. Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 10½ per lb.; do. 200 to 250

lbs., 9½ per lb.; do. 250 to 300 lbs., 8½ per lb.; light sows, 8½; heavy, 7½ per lb. California Farm Bureau Marketing Association reports: No. Hogs Ave. Wt. Dock Price

Turlock, January 18	55	162	8.85
	11	201	8.60
	9	231	7.85
	2	280	6.85

1 car, 15 consignors, \$1,182.86. Chowchilla, January 19

	39	165	8.65
	28	200	8.40
	13	141	8.05
	14	220	7.65

1 car, 9 consignors, \$1,411.20. Fresno, January 20

	30	163	8.50
	8	201	8.00
	10	238	7.00
	1	390	5.50
	3	618	4.00

1 car, 5 consignors, \$808.65. Total, 233 hogs, 3 cars, 29 consignors, \$3,402.71.

VEGETABLES

Prices furnished by state department of agriculture, division of markets: Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered. Reports of frost damage to peas, tomatoes, cucumbers, squash and peppers in the Imperial Valley continued to disrupt the local market and gave prices a very firm tone. One report from the Imperial Valley Vegetable and Melon Growers' Association was to the effect that the entire crop of those vegetables in the Imperial Valley was a total loss, but nothing definite can be ascertained until the frost dries out. Artichokes: Fancy, 18.00@20.00; choice, 1.15@1.50 per dozen; off grades, 50¢@75. Bunched vegetables: Carrots, 50 doz.; turnips, 40@50 doz.; beets, 40@50 doz.; parsley, 30. Cabbage: 2.00@2.25 per crate, 1½ per lb., 75¢@1.00 per doz. Carrots: 90¢@1.00 per sack. Cauliflower: 1.25@1.50 per doz. Celery: River fy., mostly 5.50@6.50 per crate; poorer, 3.00@4.50. Cucumbers: Per outside sm. box, 2.25 @2.50; hothouse, fancy, 2.50@3.00 doz.; do. smaller, 4.00; English, 1.20@1.50 per doz. Eggplant: Lb., 15; poorer, 5@10. Endive: 45¢@50 per lb. Garlic: 4¢@6 per lb. for medium grades; poorer quality, less. Lettuce: Small crate, local, 1.25@1.50; iced, Los Angeles, 3.00@3.25; Imperial Valley, 3.00@4.00. Mushrooms: Small box, 50@75; larger, 75¢@2.00, or 25¢@50 per lb. Olives: 5¢@9 per lb. Onions: Cold storage, browns, firm, mostly 5.75@6.25; white globe, mostly 7.50 @8.00; pickle onions, brown, 4.50@5.00; green onions, 2.25 per box. Peas: 15¢@20 lb. Beans: Lb., 12@15; Florida, fine quality, 40¢@50; limas, 6@10. Potatoes: Rivers, fancy, 1.90@2.10; Oregon Burbanks, 2.25@2.40; Idaho Netted Gems, 2.40@2.60; off grades lower. Pumpkins: Per sack, 75¢@1.00 per 90 lb. sack. Rhubarb: 2.50@3.00 per apple box; off grades, 1.75@2.25. Squash: Summer Brawley, 3.00@3.50, small crate; cream, 75¢@1.00 per lug; Hubbard, 1.00@1.50 per 90 lb. sack. Spinach: 6¢@10 per lb. Sprouts: 9¢@11 per lb. Sweet potatoes: Per cwt., 3.75@4.00. Yams: 4.00@4.50. Tomatoes: Repacked, Southern, best, 2.00@2.40 cr.; Mex., 4.00@4.50 per L. A. lug; off grades, 2.75@3.00; hothouse, 4.50 @5.50. Turnips: 1.10@1.50 sk.

FRESH FRUITS

Prices furnished by state department of agriculture, division of markets: Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered. Apples: California Newtown Pippins, 4 tier, 2.00@2.10; 3½ tier, 2.10@2.25; 4½ tier, 1.75@1.85; B grade, 1.25@1.65; Langford Seedlings, 4½ tier, 1.10@1.25; 4 tier, 1.40 @1.60. Northwestern: Newtown Pippins, extra fancy, 3½ and 4 tier, 2.40@2.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitzenburg, extra fancy, 2.25@2.65; fancy, 2.00@2.25; Rome Beauty, fancy, 2.00@2.25; choice, 1.50@1.75; banana, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fancy, 3.50. Avocados: California, large, 8.00@9.00 per doz.; medium, 6.00. Bananas: Eastern, 6½@7 per lb.; red, 7½ per lb.; Hawaiian, 6½@7. Cranberries: Slow, 4.50@5.50 box; ½ bbl. Cape Cod, 17.50@20.00 per bbl. Peas: Winter Nelis, 2.25@2.75 per box; Beurre Clairgeau, 1.75@2.50; do. off grades, 1.00@1.75. De Anjou, 1.50@2.25; poor storage, 1.00@1.75. Pineapples: 5.50@6.00 per doz. Pomegranates: Storage, 1.50@1.75 per small box; poorer, 1.25@1.50.

CITRUS FRUITS

Prices furnished by the state department of agriculture, division of markets: Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered. Grapefruit: California, fancy, special pack, 2.50@3.00 per box; Arizona, 4.25@4.50; Imperial Valley, 4.25@4.75. Lemons: Special pack, fancy, 4.50@5; others and

poorer, 3.00@4.00; Lemonettes, 1.50@2.00. Oranges: Special pack, 126s-100s, fancy, 5.00@5.50; 150s, 4.50@4.75; 200s, 3.50@4.00; choice, 2.50@3.50. Tangerines: 2.00@2.50 per small box; do. fancy, 3.00.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

Choice	13½
Extra choice	13½
Fancy	15

Apricots

Slabs	18½
Standard	18½
Choice	22
Extra choice	23
Fancy	26
Extra fancy	28
Moorparks, fancy	29
Moorparks, extra fancy	31½

Figs

California Peach and Fig Growers prices:	
White—	
Standard (in 50s)	.07½
Choice (in 50s)	.08½
Fancy (in 50s)	.11
Bricks, 12 No. 10s	1.10
Bricks, 24 No. 8s	1.80
Bricks, 50 No. 6s	2.80
Bricks, 70 No. 4s	2.95
Layers, 10 lb., 4 row	1.60
Layers, 10 lb., 5 row	1.40

Calimyrna—

Bricks, 24 No. 8s	2.05
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Peaches

California Peach and Fig Growers prices:

Slabs (in 25s)	.10
Standard (in 25s)	.10½
Practically peeled, Standard	.11
(in 25s)	
Cartons, 30 11 oz., per case	3.10
Cartons, 60 11 oz., per case	6.00
Cartons, 24 2 lb., per case	6.50
Cartons, 10 5 lb., per case	6.60

Pears

Standard	12
Choice	12½
Extra choice	17
Fancy	19

Prunes

California Prune and Apricot Growers prices:

Size	Basis	Per lb. in
30-40s	10	13½
40-50s	8½	11½
50-60s	7	9½
60-70s	6½	8½
70-80s	6	7½
80-90s	6	7½
90-100s	6	6½
100-120s (in 50s, per lb.)		6
120s up (in 50s, per lb.)		5½

Raisins

California Associated Raisin Company's prices:

Seeded	
Sun-Maid, 16 oz.	14½
Bakers (in 25s)	13
Loose Muscatels	
4 crown (in 25s)	15
3 crown (in 25s)	13½
2 crown (in 25s)	12½
1 crown, re-cleaned (in 25s)	13½

Seedless—

Thompsons, 16 oz.	14½
Thompsons, bulk (in 25s)	13
Thompsons, bakers (in 25s)	13½
Sultanas, bulk (in 25s)	13½
Bleached Thompsons—	
Choice, sulphur (in 25s)	19
Fancy, sulphur (in 25s)	22
Extra fancy, sulphur (in 25s)	22
Soda dipped (in 25s)	15½
Oil dipped (in 25s)	15½
Bleached Sultanas—	
Soda dipped (in 25s)	15½
Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points.	16

Black grapes (in 25s) withdrawn. Layers—All grades withdrawn.

BEANS

Below California Bean Growers Association shippers' prices choice re-cleaned

Large Whites	5.2
Small Whites	5.2
Pinks	5.2
Mexican Reds	4.6
Red Kidney	4.4
Henderson Bush	5.2
Cranberries	8.8
Bayos	5.0
Blackeyes	4.4

HAY AND FEED

A. W. Scott & Co. says: Arrivals past week 845 tons. Receipts continue moderate but demand has been light. Best grades continue in better demand. Interior trading has been a little better possibly owing to the freight reduction in more remote points permitting shipments at a little better figure.

We quote today wholesale prices as appear from dealer carload lots as appear from dealer transfers upon the markets in San Francisco (for prices to consumers, charges of switching, cartage, commission at handling expenses must be added, according to conditions).

Wheat hay No. 1	17.00@19.00
Wheat hay, fair grade	14.00@17.00
Tame oat hay	15.00@18.00
Wild oat hay	1

Citrus Markets

Los Angeles, January 25, 1922.

Oranges are going forward with caution. Only those which were picked before the freeze are being shipped. Fortunately there was a heavy supply in Navel packing houses. No picking will be done until February 6. The effect on the market is as yet entirely problematical but the determination on the part of the growers to prevent any injured fruit from going forward will, without question, have stabilizing effect.

Lemons are stronger than for some time. There is sufficient stock in packing houses to supply the demand for at least a couple of months. The early summer shipments will be greatly lessened by the freeze. Presumably prices will be very satisfactory for all stock in hand.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 4,275 cars; lemons, 1,284; total, 5,559. To same date last season: Oranges, 4,438; lemons, 1,169; total, 4,607. From Central California to date this season: Oranges, 4,113; lemons, 69; total, 4,182. To same date last season: Oranges, 3,950; lemons, 59; total, 4,009. From Northern California to date this season: Oranges, 666; lemons, 7; total, 373. To same date last season: Oranges, 301; lemons, 3; total, 304.

AT THE AUCTIONS

January 20

New York: 6 Nav., 3.15-7.10.
Boston: 10 or., 1 lem. Nav., 2.80-4.05.
St. Louis: 4 or., 2 lem. Nav., 2.35-4.10;
em., 2.60-4.00.

January 23

New York: 24 or., 3 lem. Nav., 3.65-4.00; lem., 4.65-5.40.
Boston: 9 or., 2 lem. Nav., 2.85-4.50;
em., 5.10-6.40.
Philadelphia: 2 or., 1 lem. Nav., 2.65-3.85; lem., 4.25-4.85.

January 24

New York: 10 or., 1 lem. Nav., 3.15-5.55; lem., 4.75-5.25.
Boston: 5 or., 2 lem. Nav., 3.70-4.95;
em., 4.45-5.45.

THE WEATHER GAVE US A JOLT, BUT WE'RE STILL ON TOP

(Continued from Page 91.)

Near some three degrees higher than in 1913 and practically the same as in the cold spell of 1919.

It must also be remembered that the 1913 cold spell followed electrical windstorms which resulted in serious injury to fruit, sapping the life of the tree as well, so that the injury from the cold weather was far greater than under ordinary conditions. This year's cold was preceded by heavy rains which increased humidity and put the trees in the best of condition to withstand cold weather. While it is probable much fruit will be injured and the broken cells result in its drying out there is practically no injury to the trees, at least that is the estimate of many a grower this early in the game. This drying out will not be apparent for at least two weeks and possibly not for 30 days, but owing to the two weeks period being sufficient to determine to an extent at least the injury to the fruit, the following resolution was unanimously adopted by orange growers gathered at a meeting of Los Angeles County range growers presided over by Jas. Britt, deputy state market director:

"Whereas, the shipment of oranges damaged by frost cannot but seriously affect the reputation of the California citrus industry, and

"Whereas, it is the intention of this meeting to protect both the industry and the consumer, and

"Whereas, it is at the present time impossible to segregate the damaged fruit, and

"Whereas, it will be possible to make some such segregation in the short time of two weeks; now, therefore, be it

"Resolved, that all picking of oranges be stopped and not resumed before February 6; and be it further

"Resolved, that the county horticultural commission be asked to put to force all its powers to stop shipments of citrus fruit damaged by frost."

The extent of the injury is entirely a matter of guesswork. Favorable features are the atmospheric conditions, the abundance of water in the soil, and the condition of the trees. On the other hand, it must be admitted that the temperature was low for a long period. The cold was general, reaching from Lower California to the northern end of this state, and the speakers at the meetings who maintained that their sections were in the lightest belt were greeted with laughter and the shout, "The same old story."

On Monday morning Commissioner Ryan took up the matter of the county of Los Angeles aiding in the campaign to be made for the protection of California's reputation. The board of supervisors acted instantly and passed an ordinance making it a misdemeanor to ship or market, or transport over highway outside of municipalities for the purpose of marketing or shipment, any quantity of fruit which contains 15 per cent or more of citrus fruits showing in two or more segments of each fruit marked evidence of frost injury.

This emergency ordinance was also immediately adopted by San Bernardino and Riverside Counties, and presumably before these words are read all other citrus counties will have passed similar ordinances. There were about 450 cars of oranges and lemons in packing houses before the freeze. These will be shipped, but greatest care is being taken that absolutely all picking shall be stopped until February 26. Deputy State Market Director Britt has also taken the matter up with the four transcontinental railways and urged them to aid in the campaign of protecting California's good name. This entire campaign is receiving heartiest endorsement of nine-tenths of the fruit growers, and the Fruit Growers' Exchange is most active in the propaganda which it is hoped will result in holding back injured fruit until by the use of the water separator the injured may be automatically separated from the good fruit.

SUIT AGAINST RAISIN GROWERS ENDED

(Continued from Page 91.)

life of the community rather than that the principle of cooperation is wrong. But in that case we must all join hands for the purpose of getting a new management instead of a new organization.

Firm at Opening Price

"Paragraph five provides that the practice of selling 'firm at opening' should be discontinued. We believe that this is a vicious method of doing business, should never have been practiced and had discontinued it ourselves over a year ago. This paragraph further provides that the guaranteeing of our prices 'against our own decline' should be discontinued. We do not agree with the government in this connection. We believe that the 'guarantee against decline' is not only right, but that it is good merchandising; that it costs the consumer nothing and stimulates sales because it practically guarantees the purchaser against loss, enabling him to work on a closer margin. However, this is a matter that is not vital and we, of course, expect to carry out the provisions of this paragraph in spirit as well as in letter.

"Paragraph six provides that we have not the right to lease or acquire by purchase packing houses belonging to our competitors. We have no objection to this paragraph because we have learned by experience that it is much cheaper to build packing houses than it is to buy them from our competitors.

Selling to Competitors

"Paragraph seven prohibits us from making contracts with any of our competitors that makes them our exclusive agent, but there is nothing in it to prevent the sale by us of raisins to one or all of them if it is to our mutual advantage. Neither is it necessary to sell to all because we sell to one. The question of whether or not we sell at least a part of our product to our competitors is not in itself of great importance as it may be at times advisable to do so, and our interpretation of this paragraph as affecting this much discussed question is that we have the right but not the obligation to sell them. If this interpretation is correct it is more than likely that this right can be exercised with justice to ourselves and to the advantage of all concerned. At any rate, so far as we are concerned this clause is entirely unobjectionable.

"Paragraph eight provides that we do not have the right to curtail or decrease the production of raisins.

This is something we have never done and never expect to do.

Destruction of Raisins

"Paragraph nine provides that we do not have the right to restrict or lessen competition in the marketing of raisins by destruction or waste of same. We have, of course, never been guilty of a practice of this kind and are only enjoined from doing a thing that we have never done and never expect to do.

"Paragraph 10 prohibits the making of contracts by which the price of the seller is fixed in advance of that contract. This is also a practice that we have never followed, and, therefore, the injunction against it matters not.

"Paragraph 11 provides that we do not have the right to make a sale of raisins and attach the condition that the buyer thereof cannot deal in raisins of our competitors. We are today selling to thousands of buyers who buy from our competitors and have no desire to change this rule, and, therefore, we are enjoined in this paragraph from doing something that we have never done and never expect to do, and this paragraph is not objectionable.

"The last paragraph provides that the jurisdiction of this case is to be retained for the purpose of modifying this decree by the court ordering it, which, of course, is entirely satisfactory to us, for we have an abiding faith and confidence in the final justice of our courts.

Hope This Is End

"This decree, we believe and hope, is the final culmination of this case, so far as the government is concerned. It is now almost three years since we were called before the federal trade commission and later before the department of justice to fight for the right of cooperative organization to pack and sell its own product. In these three years every possible phase of this question has been considered from every possible angle, the final answer is the above mentioned decree, which leaves us in a position by which we can continue business along the lines of our present policy, and with this decision we are, of course, more than pleased.

"We are making this simple statement because we know that there is no other question among the raisin growers of California so important as this. The life of this organization means so much to this state, and the questions involved mean so much to the thousands of men and women engaged in the production of raisins that it is a matter for congratulation that so satisfactory a conclusion has been reached. This suit has cost many anxious moments, it has cost approximately 150 thousand dollars in direct expenditure of money and an amount that we cannot determine accurately, but would estimate to be several million dollars on the sale of the 1920 crop, but even then we believe the gain more than offsets the loss for we have learned, as we never knew before, that in the face of a common danger the raisin growers of California will rise as one man to fight for what they believe are their rights, and this spirit, in the end, is worth infinitely more than the cost of this suit. In one form or another the great fight for cooperation among the farmers of the United States has just begun and in this great fight we must do our part and ever be found in the front ranks.

"And now forgetting the things that are behind let us turn our backs upon the past and our faces to the future. With our eyes alert and our heads erect let us move forward with a greater determination than ever to make the Sun-Maid Raisin Growers the greatest cooperative marketing agency in the world, and if we are to succeed in this we must never forget that we serve not ourselves alone but the hundred million consumers of this country."

HONEY PRODUCERS

(Continued from Page 107.)

and promote the selling work of the exchange, if and when the exchange is placed upon a firm foundation through reenrollment of its members.

At the same time Governor Stephens has set aside the week of February 6-11 as "Honey Week" in California, during which time honey will

be sold by the retail trade at wholesale prices, this in order to build up a market for this important California product.

It looks like brighter days for the honey man.

SUMMARY OF FOREIGN CROP PROSPECTS

Growing conditions for the winter wheat crop have continued favorable in Argentina, and a general feeling of confidence prevails concerning the yield of the new crop. The official estimate for the current season for the wheat area is 13,927,000 acres, compared with 14,957,000 acres in 1920-21. Harvesting is now in progress but no official estimate of production has been issued. The condition of other cereal crops is generally good, and fair to good yields are reported. The condition of the linseed crop is poor, and a low yield is expected.

Harvesting the wheat crop is in progress in Australia. Some complaints of damage from excessive heat are reported from various sections of the Commonwealth, and in New South Wales bush fires and hailstorms have caused some damage. The preliminary official estimate of production is 146,614,000 bushels, compared with 146,799,000 bushels in 1920-21. Quality of grain is generally reported to be very good. The latest estimates of the wheat crop in the Union of South Africa are very favorable, giving the yield for 1921-22 as 8,449,000 bushels, compared with 8,112,000 in 1920-21. The area of wheat in New Zealand shows considerable increase, being reported as 363,000 acres, compared with 223,000 acres in 1920-21.

Favorable Outlook for India's Crop

The fall crops of food grains have yielded well in British India and the outlook for the spring crops is favorable. Prospects for the wheat crop in the Punjab and Central Provinces, which together produce nearly half of India's total wheat crop, are very good. Rain is reported to be greatly needed in parts of East Deccan, but conditions are fair elsewhere in Bombay. Rain is also needed in some sections of Bengal. The second forecast for rice as issued by the Department of Statistics, India, gives the rice area for 1921-22 as 79,154,000 acres, or 103.5 per cent of 1920-21 and 102.7 per cent of the five year average.

The second sesamum forecast, which contains on an average about 74 per cent of the total area under sesamum in British India, gives the area for 1921-22 as 2,698,000 acres, compared with 2,221,000 in 1920-21. Sesamum is an important seed in India from which is made gingili oil. The first peanut forecast based on reports received from the three provinces of Madras, Burma, and Bombay, which comprises 99 per cent of the entire peanut area of British India, gives the area sown for 1921-22 as 1,489,000 acres, compared with 1,447,000 acres in 1920-21, or an increase of 3 per cent.

The condition of the fall sown cereals is variable throughout Europe and in many sections a poor start has been made. Germination of winter wheat, rye, and oats has been good in Great Britain and strong healthy growth is reported. The condition of winter wheat and rye is slightly below average in Germany and slightly above average in Austria and Poland. The continuous drouth hindered seeding in Hungary and has curtailed the acreage somewhat. Conditions have been favorable in Roumania, and a fair acreage has been sown. Seeding and growing conditions have been very unfavorable in France due to the long drouth which has curtailed planting and hindered good germination. Recent rains have been beneficial in Northern Africa, and a large acreage of wheat and other fall cereals is being sown. Fall sown wheat is entering the winter in good condition in Canada, and the area sown shows an increase of 6 per cent compared with last year. The winter wheat crop of the United States has the very low December condition of 76 per cent of a normal, while the average of the preceding 10 years is 89 per cent. The condition of the winter rye crop is better than the average.

Decrease in Cotton Production

The prospects for the cotton crop in British India are good. The third forecast of the department of statistics, India, gives the cotton area for 1921-22 as 17,855,000 acres, compared with 19,704,000 acres in 1920-21 and the yield as 3,623,000 American bales of 500 pounds (gross weight), compared with 3,030,000 bales in 1920-21. On the basis of these figures the average yield per acre of the present crop for all India is 97 pounds, compared with 74 pounds last year. The yield of the cotton crop just harvested in the United States is 8,340,000 bales of 500 pounds (gross weight) compared with 13,440,000 in 1920. The cotton crop in Egypt also shows considerable decrease, being 634,000 bales of 500 pounds (gross weight) in 1921, compared with 1,251,000 in 1920.

AN OLD ONE, BUT STILL GOOD

Tourist: "What's that beast?"

Native: "That's a razorback hawk, suh."

Tourist: "What's he rubbing himself on the tree for?"

Native: "Jest stopping hisself, suh, jest stopping hisself."

WEATHER REPORT

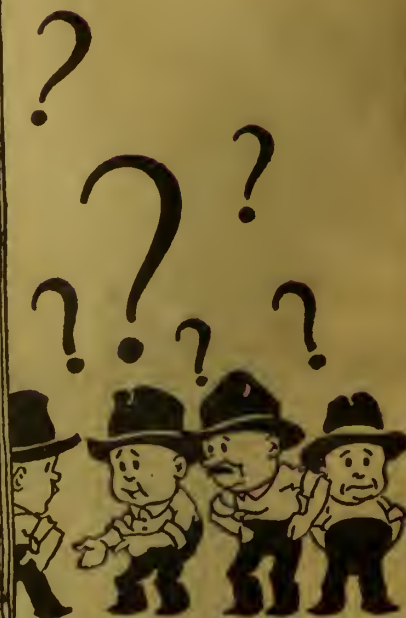
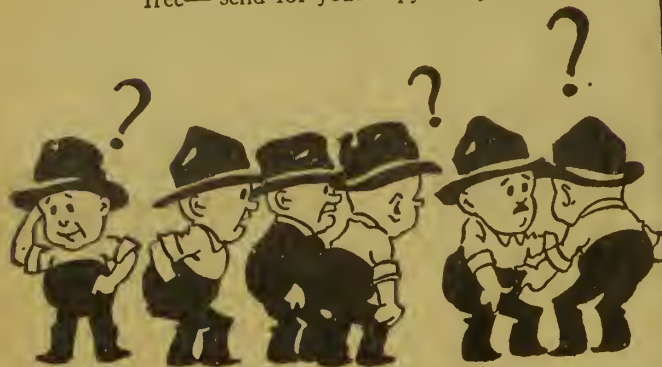
San Francisco, Cal., Jan. 21, 1922.

Stations	Rainfall			Temp.	
	Week	Season	Norm.	Max.	Min.
Eureka	0.31	13.87	22.08	56	30
Red Bluff	0.01	10.16	12.72	54	23
Sacramento	T	7.32	9.45	52	28
San Francisco	0.04	9.98	11.04	55	32
San Jose	0.03	7.84	8.01	58	24
Fresno	T	5.83	4.71	66	26
San Luis Obispo	0	9.75	9.11	62	26
Los Angeles	0	10.78	6.94	68	33
San Diego	T	12.94	4.58	64	36

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Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

February 4, 1922

No. 5

Grafting Walnut Trees

MANY requests have come recently to the Cultivator for information as to grafting over unproductive walnut trees or trees producing hard shelled nuts or fruits of lower grade and occasionally as to making over old seedling trees of the native California Black growing on hillside or in canyon. As the process is comparatively simple there is little new which may be written regarding it so we take the liberty of repeating an article written by J. B. Neff for Cultivator readers and used in the issue of January 17, 1920. On this page we also use illustrations taken with the Cultivator camera at a grafting demonstration at Whittier.

* * *

Success in grafting walnut trees requires greater care than in most of the deciduous fruit trees. There are certain rules to be observed which must be carefully followed and at the same time there are other supposed rules which have no bearing on success.

The larger part of the nursery grafting is done by persons who are expert hence we will confine our remarks to the grafting of older trees which have been planted in orchard form and are not producing as well as could be desired. It is not good policy to allow walnut trees which are not producing well to grow to the age of 15 or more years without top grafting, as those trees have large branches which have to be taken off, and scars are left which are slow in healing over and which, if not given more care than the average grower will have time to give, will eventually cause much damage to the trees. If, however, there are thrifty trees in the orchard which are not producing well they can be greatly improved and will come into good bearing much sooner by top

grafting than would be the case if the tree was removed and a new one planted.

If it is at all possible the scions should be placed in branches not more than three inches in diameter and two or three scions should be placed in each branch. If the scions should all grow they can be left the first year and the best one left at pruning time next winter. In most cases three to five branches will be enough to leave in which to place the scions, and the other branches should be cut close to the body of the tree before beginning the work of placing the scions. Scions should always be of solid, mature wood, that is, with as small pith as can be conveniently found, and with good living buds. The growth having buds close together is best, as shorter scions can be used, which is an advantage, as they require less moisture and are not so liable to be moved by birds alighting on them.

The most convenient size is about one-fourth inch in diameter and three and one-half inches long, but equally good success is obtained with scions much smaller, or as large as five-eighths of an inch diameter if properly placed. It is probably well to state in this connection that the movement of the sap in the trees is upward through the white wood and downward through the cambium layer (between bark and wood), that the requirements for successful grafting are that the union of scion and stock be such that the upward flow of the sap in the stock can pass into the scion and that the downward flow can pass from the cambium of the scion to the cambium of the stock. Also that all cuts, on ends of scions as well as where the scion is inserted in the stock, shall be thoroughly covered with wax and air

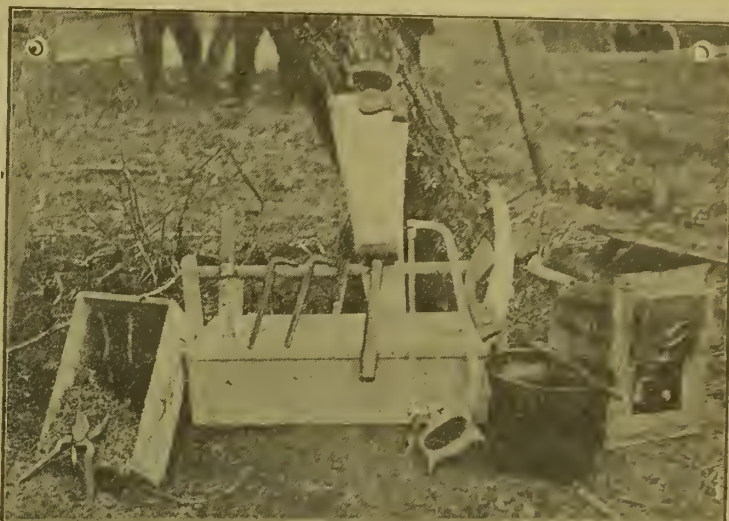
(Continued on Page 125)

Tools and Methods

Upper photo shows tools and appliances necessary. In the box beside the pruning shears are the scions preserved in moist shavings. Leaning against the tree is the large saw which should not be too coarse but fine enough to make fairly smooth cut. The large cleaver-like knife at left end of tool box is used for splitting the stub of the old tree, the mallet being used for this purpose. Next to the knife are a couple of wedges. These are ordinary blacksmith made, bent at right angle to facilitate prying open of the split for insertion of scion. Between the wedges and the mallet is a sharp knife for the careful work of cutting the scions. The two pruning saws at right end of the box are for emergency work under conditions where large saw would not operate. At the right of the picture is an ordinary five gallon oil can with top and part of one side cut out. Inside may be seen ordinary wick oil stove. The side opening is for draft and for access to the burner. In case of wind the "door" to the heater may be closed. The kettle of grafting wax is shown between the heater and the tool box.

Middle picture shows Prof. Batchelor calling attention to method of cutting the scion.

Lower picture shows a California black grafted to Ekrhardt and old enough to begin production.



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Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL
A Journal of Horticulture, Agriculture and Livestock

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Branton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard D. F. Reichard
J. W. Mills J. B. Neff
Fred M. Reed Louis B. Stanton
G. E. Gordon M. E. Bemis
A. R. Gould E. L. Koethen

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Saturday, Feb. 4, 1922

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If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Walnut growers will soon be asking for information as to grafting over unproductive or undesirable walnut trees. We have it ready-made on cover page of this issue. The walnut grower has one advantage over the dairyman. His only course with the unproductive cow is to send her to the block, and some walnut growers, thinking their position is the same, replenish their woodpiles with these unproductive trees. With good healthy trees, however, it is possible where Mr. Neff's suggestions are followed to make a much more satisfactory disposal of them.

* * *

The other day we attended the annual meeting of the Poultry Producers of Southern California. This is a purely cooperative poultry marketing association and is having what all cooperative associations have, trouble. The trouble is not serious, however, for it is the loss of a few members who have found that some of their neighbors, shrewder than the average of producers, have succeeded in getting a trifle

more for their product than are the association members. Others, appreciating the value of cooperation, are bringing their wares into the association, and the loss is being balanced so that the new year's outlook is satisfying to the officials of the organization. The whole trend of the meeting was toward closer organization, and the determination was often expressed "We will remain true to the cooperative principles backed by this association."

* * *

One trouble with cooperators is that too often they are not stand-patters. It takes stick-to-it-iveness to succeed in cooperation, and the producer who would market his goods in the best market must not be stampeded or set to drifting here and there because a temporary penny may look larger to him than a permanent dollar. The greatest work accomplished by the Poultry Producers has been the stabilizing of the market. If an organization which can do that is destroyed it will result in an irretrievable loss to the entire industry.

* * *

It is simply astonishing to note the fierce onslaughts already being made on the water and power act on which the voters will cast their ballots next November. Large interests which appreciate the wonderful wealth in white coal hidden in California mountains are presenting every argument within their power to discredit the movement to secure passage of this act which will benefit all the people. It is claimed the people do not have the business efficiency nor the capital to put across this great proposition, and if they did it would cost them far in excess of what it would cost the private companies. The only reply needed is to call attention to the fact that the city of Los Angeles is providing electrical energy for both illumination and power cheaper than the public utility corporations are securing it for surrounding communities.

* * *

Announcement was made that there would be no citrus institute in connection with the National Orange Show this year. We note in San Bernardino County local papers items to the effect that the institute will open, however, on Tuesday, February 21. There is to be discussion of citrus fertilization and scaly bark of orange trees and other diseases of the citrus.

* * *

Secretary Dudley of the Sacramento chamber of commerce has been touching the high spots of the East and is now doing the state in the interests of "The Days of Forty-Nine." It is but a few weeks now until Sacramento and all California will be celebrating gold discovery day. Cabins of hermits through the old gold diggings are being ransacked for suggestions which may renew memories of "Miners—49ers" and educate others of us in the real events following the discovery of gold in California.

* * *

"They say" that gold was discovered on January 24, 1848. Others, however, maintain that it was January 19. None of us are worrying particularly excepting a few who are anxious to make Gold Discovery Day a legal holiday in California. All honor to Marshall and others connected with the discovery of gold, but for heaven's sake give us a rest on legal holidays. It's hard enough now to go to the bank and draw out a bit of money to carry us over Sunday and find the doors closed. If this continues we will have to resort to the stocking for our banking operations.

PROTECTING THE ORANGE

The value of the California orange crop is endangered by the wilfulness of some shippers in insisting that their fruit picked since the recent cold spell shall go forward regardless of inspection of standardization officials. Standardization specialists have made careful examination of fruits which have been shipped and declare the cells are already showing a breaking down, likewise proof of frost injury through crystallization is also possible. The railroads announce that they will not ship excepting they have certificate from standardization officials. As a rule orange growers are standing pat with the officials and demanding that the good name of the California orange be sustained by absolutely preventing any injured fruit going forward. Where shipment of fruit picked prior to the frost has been carried on officials have made inspection of fruit in packing house while car was being packed out and given it proper certification.

USURY

The president has ordered investigation of the charge that banks which have been advanced funds by the war finance corporation at 5 or 5½ per cent have turned and loaned to livestock men at rates greatly in excess of 7½, which was the maximum allowed under agreement with the government when the money was advanced to the banks.

This is worse than usury; it is common thievery, and a bank which accepts money from that fund and then charges this excessive interest should be advertised from one end of the land to the other. It is a plain violation of trust which the people today are not in the mood to stand for.

STIR UP THE AIR

Many years ago Newton B. Pierce, at that time connected with the department of agriculture, made a statement through the columns of the California Cultivator that he believed an immense windmill, reversed in its operation, that is, propelled by an engine, could be induced to agitate the atmosphere and bring to earth some of the warmer currents above. The suggestion was not deemed practical by citrus growers, at least was never tried to any extent so far as we know.

Now comes Ontario with a try-out of practically the same proposition. L. J. Whitlock is using immense electric fans in the effort to draw warmer air from 320 to 400 feet above the ground and mix with the cooler air below. He maintains that he has made a difference in temperature of some two to four degrees.

ANOTHER RAIN

Another rain covering the entire coast has given precipitation varying from a small fraction of an inch to three inches. As was the case with the end of December rain, the heaviest precipitation was south of Tehachapi and the precipitation in the north is not yet up to normal. Eureka's total to the present is 14.95, while normal to date is 24. Red Bluff has 10.64, while its normal is nearly 14 inches. The precipitation at San Jose totals 8.82, which is practically normal. Fresno is somewhat above normal with a precipitation of 6.5, as against 5.1 normal. The heaviest precipitation reported for the storm was at Eagle Rock, near the city of Los Angeles, 3.72. At Los Angeles the total for the storm was 2.77, which makes for the season to date 13.57. Santa Paula, storm 2.60, for season 15.27. Porterville, for storm, .44, for season 6.87. Hemet, 3.20, for season 19.78. Last year's precipitation at this date was only 4.10. Redlands, for storm 2.85, for season 17.98. Oxnard, storm 1.40, season 1.49. Bakersfield, storm .68, season 4.68. Santa Barbara, storm 2.6, season 12.33. Escondido, storm 2.60, season 20.46. San Diego, storm 1.14, season 14.66. Santa Ana, storm 1.80, season 11.34.

Riverside, 2.08, season 14.51. Pomona, 2.35, season 16.05.

THE CONFERENCE

The agricultural conference is ended. "It accomplished much"; "It accomplished little"; "It accomplished nothing." "It played into the hands of the railroads," are some of the expressions made by those observing the proceedings at their different slants. At this distance and this early date it appears that the greatest result of the conference is the publicity which has been given to the fact that the farmer has been bearing the brunt of reconstruction, with labor, with capital, with transportation and with marketing interests practically all working against him. And there is a practically unanimous suggestion that "something must be done."

One resolution, which partisans regretted seeing passed, was that endorsing the agricultural bloc. Some politicians fear this will mean the wrecking, or at least crippling, of the two old parties, and the organization of a new one. As a rule, however, the impression seems to be that it is simply an instrument temporarily used to save the agricultural industry.

President J. R. Howard of the farm bureau appears to be entirely satisfied with the accomplishments of the conference, and from a statement which he issued, as reported by the Associated Press, we quote:

"The farm bureau will undertake to organize all the farmers and unite them into strong commodity marketing associations which will improve the distribution of food to the lasting benefit of both consumer and producer. We want to bring the eater and the grower closer together."

"The agricultural conference will go down into history as the most far reaching conference of farmers ever held. The topmost feature, of course, was the address of the President of the United States and the commitments which it contained of the administration's attitude toward agriculture."

"Probably no chief executive of the nation has previously indicated so deep and intelligent an interest in the farmers' affairs. President Harding recognized the bad state of agriculture, stressed the outstanding importance of agriculture in our national life; showed that the farmer must have a credit system adapted to his needs, asserted that lasting improvement is to come only through the development of cooperative marketing, favored a scientific limitation of production and pointed out the dignity of the profession."

"The cooperative marketing movement as fostered by the American Farm Bureau Federation is a protest expressed in action against excess margins and distributive costs. It is no new thing. It has been carried on successfully in Europe for hundreds of years. Within less than 50 years, Denmark through cooperative marketing has reduced distribution costs so that the producers receive 72 cents of the consumers' dollar, more than twice as much as we get here, and through cooperative marketing has rebuilt her entire national prosperity."

"Secretary Wallace comes out of the conference with his hands greatly strengthened to perform a real and definite service for agriculture and the nation. Particularly notable in the indorsements of the conference is the farmers' demand for early completion of the St. Lawrence deep waterway, the development of the Muscle Shoals by Henry Ford, the building of a credit machine adapted to a farm turnover at reasonable rates of interest and the farmers' demand that both capital and labor must share alike in the readjustments which have already hit agriculture."

"The indorsement by the conference of the agricultural bloc is significant."

"The conference would probably never have been possible except for the work of the congressional joint commission of agricultural inquiry under the agricultural leadership of Chairman Sydney Anderson. To President Harding, Secretary Wallace and Chairman Anderson the farmers of America are today rendering a sincere vote of thanks for an opportunity to present their case to the nation and to seek a just and lasting remedy for the benefit of both agriculture and the nation."

California Cultivator

Vol. LVIII, No. 5

Los Angeles, February 4, 1922

One Dollar Yearly



WITH the approach of the planting season the prospective fruit grower is inclined to wish that he might look into the future for guidance in the selection of varieties. What kind of fruit will pay best when his acreage reaches the bearing age? It is a serious question to decide and one which should not be gone into blindly, yet few growers have the time or money to investigate conditions relating to market transportation and the extent of non-bearing acreage already in the state. With some fruits there is also danger of foreign competition. Perhaps the fruit grower is the only business man who would think of entering a new field without adequate information on every phase of the proposed enterprise.

Someone has said that a safe rule to follow is to plant only those fruits others are neglecting. This rule is based on the idea that everything which goes up must come down, and to a certain extent this has worked out in a general way with almost all fruits in California. Judgment must be used to avoid making serious mistakes. Most fruits are somewhat particular as to soil requirements and others must be planted in as nearly frost free districts as possible. Nearness to market is also a controlling factor. Prevalence of disease in a district may be the reason for lack of planting in that district of certain fruits.

This may be illustrated by the fact that no one thinks now of planting pears in the San Joaquin Valley in spite of the fact that some years ago some districts in the valley were noted for their fine Bartletts. When the industry was in a very flourishing condition pear blight made its appearance and soon ruined the future prospects for that fruit in the valley.

In looking over the field of prospects for future planting nearly everyone gives grapes at least some thought. That this thought has been serious in many cases is evidenced by the tremendous increase in acreage of both the table and raisin varieties in all districts where there is a promise of success.

Cautious people are now wondering

Why Not Peaches?

By Fred K. Howard

if grape production will not be overdone even before the new acreage already planted comes into bearing. But for the frost it is probable that the shipping season just past would have been a disastrous one for the table grape men because of a shortage of refrigerator cars. This condition was brought about by the great tonnage of wine grapes sent to eastern markets. The railroads are probably justified in not rapidly increasing their building program until they are more certain that wine grape shipping is to be permanent.

In referring to the fruit grower as a business man, it was with the idea of bringing out the point that in California growers are business men. If they had not been business men of the highest order the 1921 season would have been as disastrous to them as it was to almost all producers in other sections of the nation. Nearly every fruit is now marketed by organized growers, and it is wise to confine planting to those fruits which are protected by cooperative marketing organizations or where such an organization is in the development stage.

It is only through organization that the growers of California can hope to continue to produce fruit profitably, since standardization is essential to continued success and intelligent national advertising with the proper distribution of the crop is also necessary.

After considering all these points carefully we come to the question: "Why not plant peaches?" This is perhaps one fruit which will stand the application of the tests mentioned above. There is very little peach acreage being planted in the state. In the great peach growing districts there are no serious diseases or insect pests which would cause one to hesitate or which might wipe out the industry. Peaches are being handled very successfully by one of the largest cooperative organizations of the state. The California Peach and Fig Growers

have been exceptionally successful in applying a new process of defuzzing the fruit. The result of this process on the trade demand has been one of the wonders of the age. Only recently it was the comment of the manager of the association that all grades of peaches would be entirely cleaned up long before the new crop comes on. Added to this, more than 3000 acres of peaches have been dug up in the past year. This destruction of trees was not due to poor prices but to non-productive trees.

Until the peach men were organized a few years ago this fruit sold for less than the cost of production and consequently many orchards were badly neglected. Fertilizers were almost unknown and with the bulk of the peach acreage in light sandy soils these soon became depleted. Lack of organic matter also had its effect and many of the orchards suffered for water. Today most of the remaining orchards are battle scarred relics of the troublesome unorganized past. Sunburned on most of the scaffold branches and the home of borers, these trees are doing their best to justify their existence by production of fruit in much larger quantities than we have a right to expect. This is a view of the peach industry of today. There are a few outstanding exceptions to this condition, and those growers who are fortunate in having good trees are not thinking of going out of the business for some time. So much for the drying peach.

The canning industry has had its ups and downs but on the whole quality fruit has been justly rewarded, and with the advent of a new canning peach cooperative marketing organization, which is now practically an assured success, the future seems bright. Quality peaches whether of the drying or canning kind will not have a hard time finding consumers for a long time, and the grower who recognizes this condition now is sure

to reap a rich harvest. Peach soils are plentiful, but we should not expect the greatest measure of success unless all conditions are right for production. Level land, with plenty of water, an intelligent fertilization program which should include green manuring, spraying at least twice a year and a continuous fight against red spider throughout the summer are necessities.

The natural question when one has decided to grow peaches is that of the variety to grow. The best advice is to stick to the standard varieties unless there is a very good reason for doing otherwise. Some of these reasons may be found in the cling varieties. Canneries can run more efficiently if they have a long season and no exceptionally heavy peak load. If it is found that a district runs largely to a single variety such as Tuscans or Orange Clings find out what the local cannery advises and with their help it might be wise to select earlier or later ripening varieties to fill the gap.

Muir and Lovells are the standards in the freestone field, with the preference on the side of the Muir, while Elbertas are best for fresh shipping. Right here it might be added that it is not wise to try some of the varieties which are leaders in the East. The chances are that you could not get the trees by the quarantine officials because of the danger of peach yellows, a serious disease which has not yet reached California, consequently we have ruled that trees shall not be shipped into the state from most of the other peach growing districts. Probably you would be disappointed with the fruit if you did get it.

Use every care in the selection of nursery stock. Crown gall, an old enemy of the peach and other fruits, should not be tolerated, and every effort to get stock free from this serious disease will be well paid in the future.

The preference at the present time is toward peach roots, and if possible apricot roots should be avoided entirely in planting unless there is a very good reason for using them. The gopher is very fond of apricot roots, often being so fond of them that a few of these pests may ruin the orchard.

Why not plant peaches?

February in the Vegetable Garden

Southern California

By D. F. Reichard

THE spring planting season is at hand. The call of the great outdoors is everywhere. Follow the impulse. Get out the measures and the garden line and stakes. Lay off a garden plot or improve on the one already established. Put the spade fork in good and deep and rake it over till it is nice and fine. That is a good start.

What kind of a garden are we to have? A little plot in the backyard of a rented place from which we will move in a few months, or are we to establish a permanent garden in connection with that beautiful place—home?

For the temporary garden confine your plantings to quick maturing seeds and plants comprising cabbage, cauliflower and lettuce plants; carrot, beet, radish, spinach, lettuce, green onion, turnip and Canadian beans.

For the home garden we plan for more permanent things; we look into the future. We not only plan on stuff that comes to maturity and yields a crop this year but we want things that it requires two or three years to bring into a producing state, and then continue to yield for a number of years. In this group are asparagus, rhubarb, artichokes, berries, and fruit trees if space permits. The garden should be so planned that these items will be in a permanent location so that they may be cared for without interference of the annual stuff. The sides or boundaries are the preferred situation for these things. Plant them as soon as possible.

While it is a little early for the more tender vegetables such as beans, corn, cucumbers, melons and squash in most places, there are many warm slopes in Southern California where any or all of these may be put in with safety. If there is any doubt as to your particular location it is just as well that you plant only the hardier vegetables

during the first part of February. The hardy vegetables are beets, carrots, radish, turnips, parsnips, salsify, lettuce, onions, peas, cabbage, cauliflower, spinach, Swiss chard, kale and kohlrabi.

It is now time to start in hot beds or boxes that can be protected at night, tomato, egg plant, and pepper plants for setting out later.

For those who have a garden already started see that the growing stuff is thinned out and hoed to allow proper development.

Prune and spray all shrubs and trees while they are still dormant. The best dormant spray is lime-sulphur solution.

Northern California

By A. R. Gould

RECENTLY the vegetable grower has been hit severely by the weather, first the cold winds and then the frosts. However, as the

days grow longer and spring advances we must make another start and get busy again. Some crops must be replanted and the ground should be put into shape at once. In the preparation of the plots apply farmyard manure wherever possible. Where this is hard to secure you may use sulphate of ammonia or dried blood and bone meal and where you are dealing with heavy clay or adobe soils work in a sprinkle of lime. Deep trenching of the soil is very essential and will pay every time. Avoid waste of time and good seed by being thorough in garden preparation.

When making your garden plans see that your water is available and the pipes laid to the various plots as irrigation is a very important factor and means much to your success.

Lettuce

Sow White Paris Cos, Big Boston and Los Angeles this month and make successional sowings. Sow the seed in rows very thinly 18 inches apart. The

(Continued on Page 126)

Agricultural News Notes of the Pacific Coast

Northern California

The Associated Chambers of Commerce of Alameda has passed strong resolutions condemning county division.

California communities are finding that municipal camping grounds pay in attracting settlers and purchasers of farms.

Officers of the Glenn County farm bureau are: President, W. H. Walker, Willows; vice-president, W. W. Foster, Butte City; secretary, Kirby Clark, Oriand.

The Squaw Hill bridge in Tehama County which has been under construction for more than a year, is now completed and will soon be thrown open to traffic.

The Pacific Fruit Express, owned jointly by the Union Pacific and Southern Pacific has asked for bids on 3,300 standard refrigerator cars to be delivered during 1922.

At the hog auction sale of the Tehama County farm bureau exchange, January 10, average price received by growers for the 218 head sold was 9½ cents; San Francisco price same day, 9 cents.

The Asparagus Growers' Association has chosen as its officers: President, W. C. Kesner, Ryde; vice president, J. W. Gardiner, Isleton; treasurer, John E. Brown, Walnut Grove; corresponding secretary, Signund J. Janss.

The Humboldt County farm bureau has elected officers for the coming year: Robert Fisher, Carlotta, president; L. T. Smith, Fortuna, vice-president; J. C. Mankin, Blue Lake, J. B. Sage, Fields Landing, James Jensen, Loleta, A. W. Gobie, Fortuna, directors.

Central California

Litigation has ended in the Raisin Association case. The association is allowed to continue in its present status.

The San Joaquin County farm bureau has filed complaint with the postmaster general on rural service out Lodi and Stockton.

A government experiment station is in course of construction at Shafter and will soon be ready for the government to take it over.

San Joaquin County farm bureau officers for 1922: President, L. K. Marshall; vice-president, L. L. Newton; directors-at-large, Mrs. Wm. Mikesei, M. E. Phillips, Amon Swank, and S. A. Shearer.

The Turlock Melon Growers' Association has been incorporated and temporary directors selected are: W. H. Reedy, W. A. Mason, H. A. Stammerjohan, Harry Alexander, A. C. Rapp and M. L. Pope.

Hog auction sales dates of California Farm Bureau Marketing Association: Modesto, February 1; Chowchilla, 2; Fresno, 3; Wasco, 4; Tulare, 7; Visalia, 8; Hanford, 9; Corcoran, 10; Merced, 14; Turlock, 15; Madera, 16; Fresno, 17; Bakersfield, 18; Tulare, 21; Visalia, 22; Hanford, 23; Merced, 24.

Ft. Romie Grange installed its new officers January 5. Officers are: Master, Lee Dudgeon; overseer, J. C. Whisman; lecturer, Attilio Binsacca; steward, Miss Katie Binsacca; chaplain, Mrs. Louise Whisman; treasurer, Mrs. Anabel Anderson; secretary, Mrs. Jennie Dudgeon; gate keeper, Jesse Moon; Ceres, Mars, Amanda Wright; Pomona, Mrs. Adelia Nelson; L. A. S., Miss Anna Binsacca.

Southern California

Tractor school at Santa Ana high school, January 30-February 4.

Giacomini Andreola, rancher of Satcoy, was gored to death by bull last week.

The Mutual Orange Distributors is planning to build a packing house at Garden Grove in Orange County.

L. J. Weishaar and S. S. Rogers of the state bureau of standardization are in Imperial Valley with Horticultural Commissioner Waite regarding the lettuce deal.

Ten thousand cryptolaemus Montouzieri were brought from the Whittier insectary and turned loose in citrus groves of Orange County last week to combat mealybug.

Five thousand sacks of beans were shipped from Hueneme, Ventura County, wharf one day last week. Last year's shipments from the same port amounted to 110,000 sacks.

During the latter part of February the agricultural service will conduct in Los Angeles County a series of field demonstrations on top working of deciduous fruits and walnuts. The most approved methods of grafting will be shown at these demonstrations.

W. C. Jacobsen, state superintendent of rodent control, is giving demonstrations in Los Angeles County. Those scheduled for the next three days are: February 4, 10 a. m., Lankershim, on A. P. Stockwell's place; 4, 2 p. m., Van Nuys, northwest corner Culvert Street and Sherman Way; 6, 10 a. m., Whittier, Union High School; 6, 2 p. m., La Canada, Searight & Johnson Ranch; 7, 10 a. m., Owensmouth, southeast corner Canoga and Sherman; 7, 2 p. m., San Fernando, Lemon Association at Old Mission.

The Coast and General

A very large showing of livestock is being made at the Southern Florida fair at Tampa this week.

A grapefruit juice factory at Bradentown, Florida, reports finding receptive market for all the juice it can offer.

The Kittitas County (Washington) Hercules Shorthorn Baby Beef Club has been organized by club boys and girls. The calves will be shown as prime steers at next fall's county fair and at the Western Royal Livestock Show at Spokane in November.

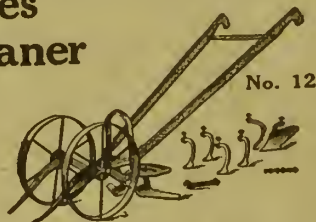
Washington state shipped 23,087 cars of apples between July and December 2, according to figures announced by the federal bureau of markets. The Wenatchee district shipped 10,776 cars, Yakima district 8,065, Spokane district 2,374, Walla Walla district 1,324 and White Salmon 548 cars.

The desert border of southern Pima County, Arizona, is being mapped, based on geographic charts and 10,000 photographs taken by military aviators. In general the work will include the country westward from Tucson to the Colorado River and south of Maricopa to the Mexican border, 220 miles long by 80 miles wide.

James H. Hulbert of Mount Vernon, Washington, has been appointed regent of Washington state college, succeeding the late Fred S. Stimson. Mr. Stimson's place as president of the Washington State Holstein-Friesian Association has been filled by succession of Vice President H. C. Davis and Judge Charles Carey, first vice president of the Pacific International Livestock Exposition, will assume Mr. Stimson's duties as president.

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A Planet Jr. wheel hoe makes light work of the kitchen garden. There's no vicious chopping and stabbing at tender, growing plants when you use this No. 12 Planet Jr. Double and Single Wheel Hoe Combined. Not only does it hoe closer to the row than you can safely work with the old hand hoe, but it does much more—and better—work than you can do in the old way. No. 12 straddles and hoes both sides of a row at once, sliding easily along as you walk. The sharp hoes clip weeds clean off below the surface, and leave a fine protective mulch. So easy to handle, a woman or boy can easily do the garden work, saving



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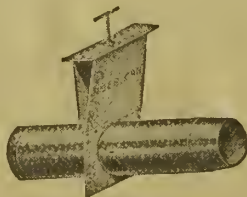
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GRAFTING WALNUT TREES

(Continued from Page 121)

tight. Where clefts are made pour these full of hot wax after placing the scion.

When the stubs are cut at the proper place use a heavy butcher knife and mallet to make the clefts, placing the knife across the stub as if a chip one-half to five-eighths of an inch were to be split off. Then depress the handle of the knife to an angle of 30 to 45 degrees and split the edge down two and one-half or three inches, allowing the edge of the knife to reach the farther side of the stub but not cutting down on that side. Open the cleft with a steel wedge one-half inch wide and thickest on one edge, placing the thickest edge toward the outside and far enough from the bark to allow room for the scion. Trim the cleft in the stub so it will be smooth, using a sharp knife. Then cut the scion so it will fit perfectly and place it so the inner bark (cambium layer) of both will be on the same line or at least cross twice. Remove the wedge and put hot wax over all the cuts on both scion and stock at once. The work should be examined every three

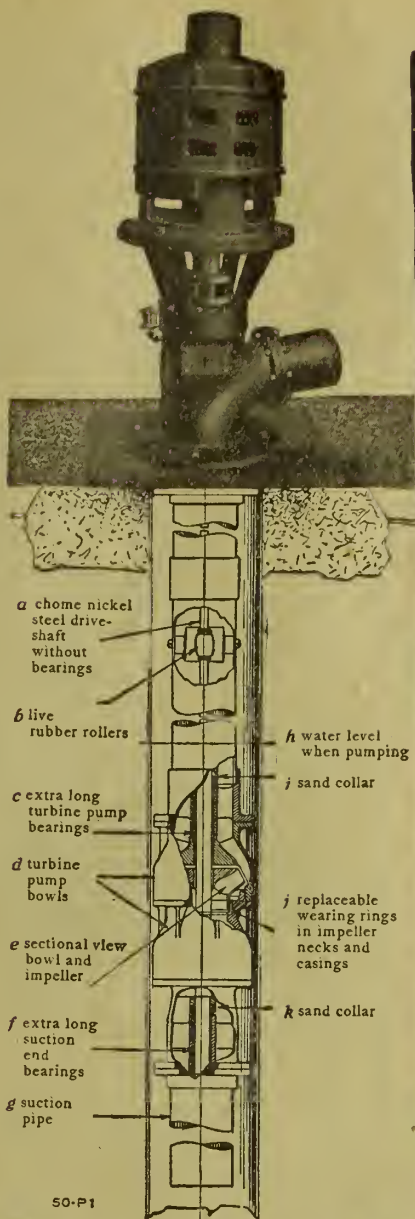


Method of Tying Growing Grafts

Native black which has been grafted to Eureka. Note large stakes or supports which have been spiked to the tree and to which the scions as they have started to grow have been tied for support.

or four days until leaves are formed, and if threadlike cracks are found they should be covered with hot wax. Any cuts on the body of the tree should be covered with a coat of heavy mineral paint and the trunk and stubs should have a coat of whitewash. An excessive flow of sap for a week or two will kill the scions as the callus cannot form in water. This flow of sap can be controlled by boring one-quarter inch holes in the trunk of the tree near the ground. Bore one or two holes three or four inches deep and wait a few minutes to see the effect before boring more. Do not bore too many holes, as three or four will be sufficient to control the flow on the largest trees. These holes soon the callus over and do not damage the tree.

If the sap flow has damaged the wax covering wipe it off and cover again. The wax can be made of one pound beeswax, five pounds rosin, one tea-cup flaxseed oil and one ounce lamp black melted together. The object is to get a wax which is soft enough to be pliable without running in the hot weather. Be sure to get pure flaxseed oil as an oil that will not dry on exposure to the air will penetrate the bark and destroy the cambium, in that way killing the scions. The lamp black is added as coloring matter to show when all the cuts are covered. After the scions have made a foot of growth it will be necessary to nail laths to the stubs and on the tree in such a manner that the new growth can be trained in the desired direction. Care must be taken that the scions are not disturbed when nailing. Strong laths will be needed and can



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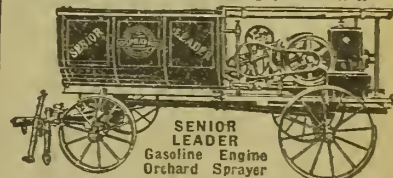
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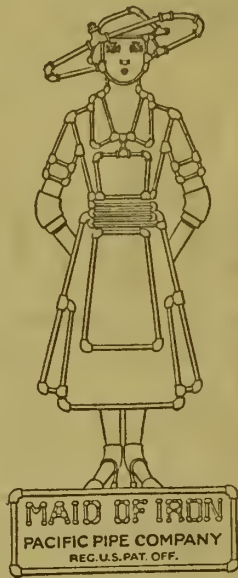
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Write, or better still, see my field. Fred W. Kelsey, South Rosemead Ave.,
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be made of Oregon pine, one inch by
two inches by eight feet long. These
will be needed two years before remov-
ing. Do not take off any of the sprouts
at first except those within a few
inches of the scions, but as the scions
increase in size the sprouts may be
thinned, and when the sprouts become
two feet long they should be headed
back but not removed entirely until
the next winter. Do not head back
any of the scions during the growing
season.

The grafting can be done at any
time after the middle of January, but
if only a few trees are to be grafted
it will be well to wait a month later
since there will be less time in which

they should be thinned out and some
used for transplanting to other plots
which must be well prepared with
manure. Cultivate between the rows
of the early varieties as they should
now be making considerable progress.
Onion sets may be planted out this
month also and will give a good crop
for fall.

Beets

Improved Globe and Detroit Dark
Red are very satisfactory types to
grow, and seed may be sown in rows
18 to 20 inches apart in fairly rich
soil. Sea Kale beet is grown for use
as spinach and will grow easily if kept



The Grafting Operation

The native black tree from which the top has just been cut. The split has just
been made in the short stub in the center. The angular wedge has been driven in
to spread the split apart for insertion of the scion which is being prepared with a
sharp knife in the hands of the operator.

they will require attention. The graft-
ing can be continued until the sap
begins to flow and causes the bark to
slip. Scions can be cut at any time
after the trees are dormant until the
bark begins to slip and the buds swell
and open. Scions should always be
kept in a cool damp place but not
where they will be wet. Damp saw-
dust inside a house is a suitable place.

It is not necessary that scions be cut
in advance and "cured" as it is some-
times termed. They can be kept two
months or can be cut and placed in
the tree at once with equal success.
Any wax that will adhere to the wood
without cracking or running and with-
out any free oil to soak into the bark
is equally good. Scions of mature
wood of the last year, whether one-
eighth or five-eighths of an inch in
diameter, are equally good when prop-
erly placed. One part of the twig from
which the scions are cut is as good
as another provided the wood is ma-
ture and the end buds are as good as
those on the side and vice versa.

The Illinois experiment station
made a series of experiments with
fruit trees to determine whether there
was a difference in propagating from
large or small buds or whether cut-
tings from different parts of the tree
had any influence on growth. The
conclusion was that all buds from
healthy wood were equally good, so far
as growth of trees was concerned, and
that there is no tangible basis for the
assumption that large scions are supe-
rior to small diameter scions for
purposes of propagation.

FEBRUARY IN THE VEGETABLE GARDEN IN NORTHERN CALIFORNIA

(Continued from Page 123)

soil should be rich and this crop will
require plenty of moisture.

Asparagus and Rhubarb

Established plots should have been
well dressed with manure and then
lightly dug. For new plantings secure
strong roots of Conover's Colossal
and Palmetto asparagus and Victoria
and Crimson Winter rhubarb, and set
in manured trench.

Onions

The main crop varieties sown sev-
eral weeks ago should be soon show-
ing through the ground, and as soon
as the seedlings are a few inches high

well supplied with water. Sow this
in rows at least two feet apart.

Turnips

Early Snowball and White Egg
should be sown for succession in rows
20 inches apart. They like a rich soil
and must not be allowed to dry out or
they will lose their tender qualities.

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hoppers or dry winds.
Can be easily removed.
Will last for years. Send
for samples.

	Per 1000
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12 in. long, 7 in. wide	11.00
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16 in. long, 7 in. wide	13.50
18 in. long, 7 in. wide	15.00
24 in. long, 7 in. wide	18.00
30 in. long, 7 in. wide	21.00

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Peas

Sowing of the main crop varieties may still be made, and the varieties we recommend are Alderman, Abundance, Stratagem, Little Marvel and Yorkshire Hero, all good croppers. These should be sown thinly in rows three feet apart. A warm hillside usually brings in early crops of peas but they must also be well supplied with moisture.

Radish

Sow Crimson Giant Forcing for succession on a rich soil in rows 12 inches apart.

Artichokes

These are the most popular and unfortunately the recent frosts in some districts have destroyed or severely in-

jured the plants. Young plants may usually be secured from the nurseryman and planted in rows four feet apart and at least that same distance in the row. The plots will require manure every year.

Raspberries

There is still time to plant these, and the plots should be well prepared with manure and a fence erected for the support of the canes. Deep trenching is essential and the canes should be planted in rows four feet apart and 18 inches apart in the row. As raspberries are somewhat surface rooting the canes should not be planted deep. When the canes get old they should be removed and new ones planted as every year many new suckers appear from the old stock and may be used for transplanting. Where the canes become too thick they must be thinned out to about four of the strongest.

Southern Arizona

By M. E. Bemis

FEBRUARY in the lower valleys of southern Arizona may be counted as a spring month. Frosts will continue more or less through the month and into March, but the sun begins to run higher and ordinarily we may expect considerable growth of plants. It is a time of increased activity among regular gardeners and a time for those who have not already begun the garden to get busy.

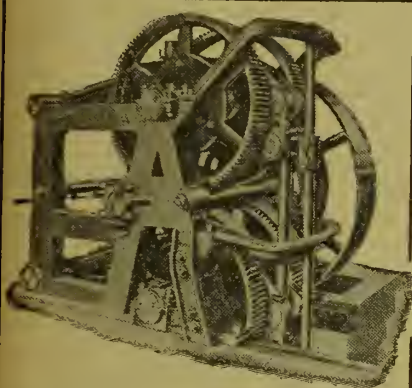
Most of the recommended plantings are just about the same as for January; Eclipse, Crosby's Egyptian, Extra Early Egyptian, Early Blood, Detroit Dark Red beets and Swiss chard. Danver's Half Long, Oxheart, Chantenay, and Improved Long Orange carrots. A recommended carrot for stock or rabbits is the White Belgian, purely a stock variety. Collards, kale and kohlrabi are in the program of the February gardener. Arizona Wonderful lettuce, or New York Market, of which it is in reality an improved variety, Iceberg, Denver Market, Early Prize Simpson, Prizehead, Big Boston and Improved Hanson are other varieties that might be planted. Prickly seeded, New Zealand, and Bloomsdale spinach; Purple Top Strap Leaved, Snowball, Rutabaga, Purple Top White Globe, White Egg, and Early White Dutch turnips may be planted this month. Onions that may be planted are Australian brown, Crystal White wax, Yellow Globe Danvers, Silverskin and Bermuda.

Potatoes are not grown extensively in Southern Arizona, although some good yields and good profits are made by experienced growers. A light soil is very desirable for success in potato growing, but it should be made very fertile. Plowing under some green crop is a good preparation. Irish potatoes should be planted early and will mature in June when prices are good and before the main crop of the potato growing sections has come on the market. Varieties that do well here are the Bliss Triumph, Early White Rose and Irish Cobbler. Peerless, Pink Ohio and Coconino Red are also splendid. Potatoes for best results should be planted in rows three feet apart and nine inches in the row, covering three or four inches deep.

The early bush squash is usually planted earlier than most similar vines. The early white bush scallop may be planted the latter part of the month, and unless very heavy frosts come some very early squash will be obtained. Squash of this variety is usually on the Phoenix markets before many people think that time for planting has come.

Sweet corn may be planted early. There are two native varieties of corn both good for early planting. These are the Pima and Papago. These are small eared quick maturing varieties that have long been grown by the Indians and have now been improved and are finding favor with truck gardeners as well as the home gardener. Adams Extra early, Country Gentleman, Golden Bantam, Oregon Evergreen and Stowell's Evergreen are all good. The field varieties of corn are better planted later.

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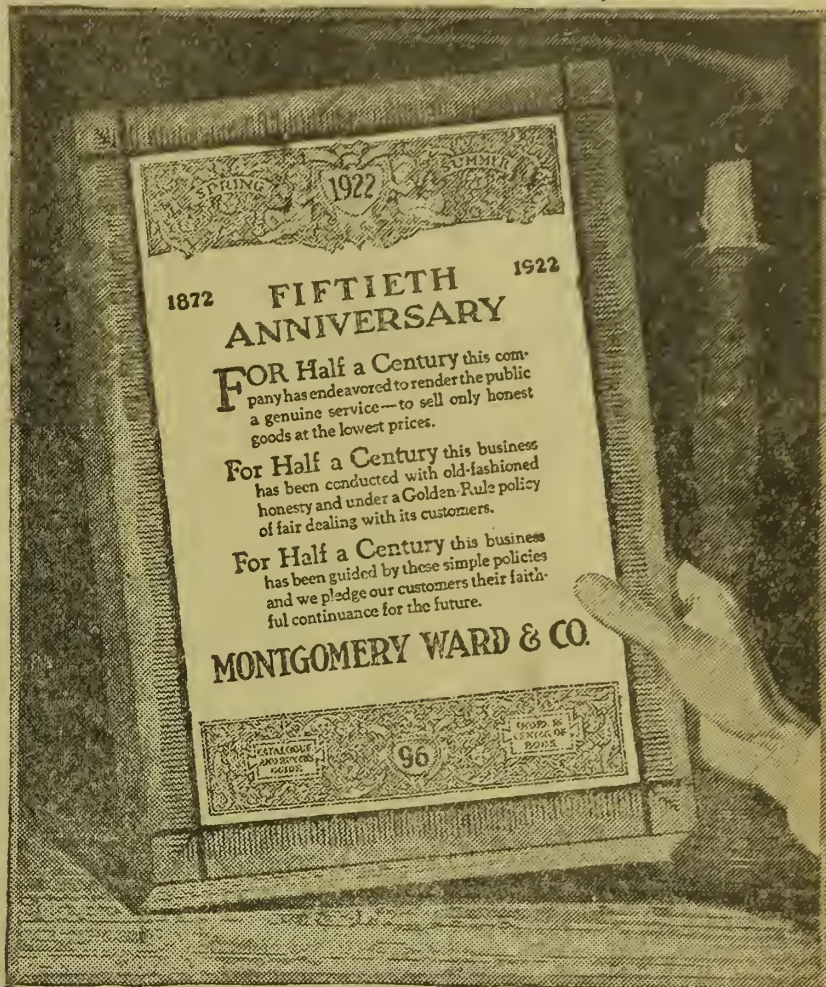
That Please the California Fruit Grower. G. J. Reichert, Napa Co., Cal., writes: Jan. 7-22. Received strawberry plants today in fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.

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Treatment of Frost Injured Trees

By Ernest Brauton

FARM ADVISER HODGSON of Los Angeles County had programmed before the recent cold snap a series of citrus pruning lectures and demonstrations based on orchard needs in normal years, but frost injury has changed the subject matter somewhat, for the growers demand the how and when to prune frozen trees. So that Mr. Hodgson begins his talks by saying: "Don't prune frost damaged trees now; for reasons that will be given later"; and then comes a preliminary talk on

How Trees Feed

"Trees feed upon about ten elements, six of which are taken from the soil. Three of these are considered essentials: Nitrogen, phosphorus and potash. Of these nitrogen is the most important, most deficient in soils, most necessary for proteins. One pound per tree per year must be present if the tree is to grow. Fifty per cent of the total of the tree is water

which comes from the soil. Forty-seven per cent is carbon which comes from the air. These are the two important elements of food, and the tree must have good intakes and balance of both or it suffers. Because of present injury and dormancy you may plow deeply close to the trees, even though you break many surface roots. Defoliated trees should be whitewashed to protect from sunburn, but it would be as well to make the whitewash a Bordeaux so it will also prove a disinfectant. From close observation we find trees pruned in November and December were more heavily injured through freezing than those pruned in January. Therefore we recommend now, as we have in the past, that pruning of citrus be done during January and February.

The 1913 freeze showed that the extent of injury was not revealed in some cases for three or four months following the freeze. Growers are therefore advised to delay pruning injured wood for four or five months.

Observations made on injured trees pruned in various ways showed that the unpruned trees were in practically every case better off at the end of the first season than trees which had been pruned. In most districts the soil is amply supplied with moisture. If rains do not occur within the next month or six weeks it may be advisable to irrigate. The soil should not be allowed to become dry, and growers are advised to watch the soil moisture conditions and to irrigate in case this becomes necessary before further rains.

The use of chemical fertilizers, particularly quickly available nitrogen such as ammonium sulphate and nitrate of soda, is not recommended for frost injured trees. On the other hand, growers are advised to continue the application of organic materials such as barnyard manure, bean straw, alfalfa hay and other materials of this sort.

Treatment of Young Trees

In many districts it is apparent that trees under the age of six years have been badly injured in the way of splitting and cracking of the bark on the trunks. In some cases it is doubtful whether any treatment which may be applied will be productive of beneficial results. The recommendation of the agricultural extension service is to immediately bind up the trunks, using strong cord such as binder's twine. The binding should begin a few inches below the signs of cracking and should extend well above all indications of splitting. In some cases it will be necessary to start at the surface of the ground and bind the trunks clear up to the crotch. The binding should be done in the form of a spiral with the strands a half inch or so apart and the bark should be pulled in tightly. The binding should be allowed to remain for two months or thereabouts. Extensive observations made following the 1913 freeze have indicated that this is the only method of treatment which gave any substantial results.

The use of grafting wax, asphaltum paint or other preparations for sealing up the wounds is not recommended, it having been found that sealing up the wounds with these materials enclosed fermenting sap, the result being molding and decay. Narrow strips of cloth may be substituted for cord, but the important matter is to pull the bark in tightly against the trunk of the tree. Within two or three months the wrapping should be removed at which time the dead bark should be thoroughly cleaned away and the wound's surface treated either with Bordeaux paste or with corrosive sublimate 1 to 1,000. Later in the season the wounds should be covered over with asphaltum paint or some other good wound covering. It is important that the binding be done immediately if beneficial results are to be secured. This treatment cannot be guaranteed to give results but is the only method which can be recommended as calculated to benefit the trees. Where the bark has not been killed this treatment will prevent further splitting and in many cases will save a considerable part of the bark area. Where the bark has been killed and this cannot be ascertained at the present time, no treatment will prove beneficial. The recommendation, however, is to immediately bind all trees showing signs of splitting. Where the bark has been ever, killed in most cases it will still be possible to rehabilitate the trees, either by permitting the growth of sprouts and inarching these above the point of injury, or by rebudding new sprouts and forming entirely new heads to the trees.

Several growers with whom the writer talked and who experienced orchard injury in 1913 claim that it pays to prune twice, taking away the dead foliage as soon as dry or it and the dried twigs will draw moisture from the living. One case was cited where but one man in a district so pruned his lemon grove. His trees most quickly recovered, having green leaves before any other orchard surrounding and the next crop was the best and heaviest in the neighborhood. Many prefer to give a preliminary pruning at once to avoid the untidy and neglected appearance consequent to frost damage. So it would appear that if an orchard owner so wishes he may prune now or soon without injury resulting, even though no fundamental gain accrue.

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propagating plants
in CALIFORNIA
-one in Oregon-
-one in Arizona



HOT WATER TREATMENT OF GRAPE CUTTINGS

By D. B. Mackie, State Department of Agriculture

Considerable complaint has been made of the regulations of the California department of agriculture during the last year's shipping season, making treatment by hot water process mandatory. While it is true that considerable loss was entailed in this regard, a survey of the apparatus used leads to the conclusion that by far the greater proportion occurred in application of the treatment.

A recent investigation by the California department of agriculture has developed the fact that standardization of the types of outfits used for this purpose is one of the first requisites of any attempt to prevent a recurrence of last season's losses. Preliminary to the regulations which the department will issue shortly covering this subject it is desired to convey the following caution:

The use of direct fired outfits renders the temperature control an exceedingly difficult matter, one fraught with grave possibilities for damage to the vines by overheating and a great reduction in the safety factor from a standpoint of destroying possible phylloxera infestations.

What is perhaps the second greatest cause for mortality among dipped vines and which has heretofore been given little or no consideration, comes from the lack of proper cooling after dipping. As a result of a lack of proper handling in this regard, vines are in a condition which is decidedly favorable to excessive drying out. There is a well defined equation in the above regard which is governed first, by the difference between the temperature of the vine and that of the atmosphere; second, by the velocity of the air currents to which the vines are exposed, and last, by the amount of exposed surface. While there are other considerations involved the above represents those of major importance.

To reduce danger from this source to a minimum vines should immediately after removal from heating tanks be cooled by hosing or by submerging in cold water until atmospheric temperature is reached.

AVOCADOS TO AFRICA

The R. M. Teague Nurseries of San Dimas made a shipment of avocado trees to South Africa on September 24, 1921, by express. Shipment arrived in London October 17, from there to Pretoria, South Africa, arriving on November 22, practically 60 days en route. The customer writes that they were very much pleased as all of the trees arrived in good condition and commended the nursery on their careful method of packing.

PEAR GROWERS ANNUAL

At the annual meeting of the California Pear Growers Association at San Francisco on January 17 possibilities of shipping fresh pears by water to Atlantic ports was taken up and will be thoroughly investigated before the next season. Last year's officers were all reelected. The membership is 1,048 as against 589 last year.

MAKING GRAPE CUTTINGS

Grape cuttings are made from well ripened wood of the past season, usually about eight inches in length. Most propagators prefer to cut the lower end just below a bud and the upper end one or two inches above a bud. They may be tied in bundles of 50 or 100 by means of twisted willow twigs and stored and well callused. Place them in a pit with the butt end up and three inches of soil over them.

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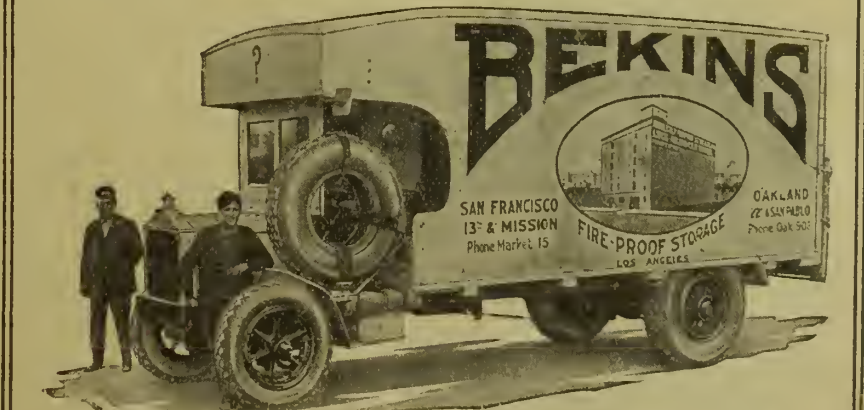
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

June Drop

Referring to comment on June drop in this department of the Cultivator of January 21, R. R. Snowden writes: "I have repeatedly pointed out that the effect of one factor is frequently attributed to another. Your Porterville correspondent (January 21 issue) sprayed his orange trees with lime-sulphur. It is presumable the spray used in April is the same used later. In your issue of August 10, 1918, I called attention to an orange grove in the Porterville district that after receiving an application of gypsum held and matured a 65 per cent crop while neighboring groves matured but a 15 per cent crop. I believe the lime and sulphur in soluble form applied to the soil may have had much to do with the prevention of dropping in Mr. Reynolds' orchard."

Neff Walnut

What kind of nut had we better plant here (Riverside)? Have three that were bought for Neff's four or five years ago. They have done well, bear a nut almost as large again as the Placentia. It is shaped like a butternut with hard shell. Is that true to name? I hear some discouraging remarks about the Neff. Are they well founded?—Sulphure, Riverside.

If the location is one which will not be subject to late spring frosts any of the standard varieties should do well. If late frosts are to be avoided it will be best to plant the Eureka as it comes into leaf a few weeks later than some of the early varieties. The Eureka is, however, not a prolific producer in its early years in this part of the state. You likely have the true Neff walnut and we do not think the remarks you may have heard will cause you any uneasiness after the trees come into bearing.—J. B. N.

Paying for Paper

I have been taking a paper for some time. I subscribed for three months, paying in advance, and the paper has continued to come after the subscription has expired. Can the paper collect for the time sent after I subscribed for it? I have told them to stop the paper but could not prove it as there was no witness.—Subscriber, Gridley.

Legally a paper may be able to force collection so long as the paper is accepted from the postman or taken from the post office. Practically there are very few papers nowadays that force collection because of this feature of postal regulations. It is possibly an error when a paper continues after it is ordered stopped. If it continues to come the proper procedure is to notify the postman that the paper is refused. The postmaster then sends official notice to the publication.

Killing Poison Oak

What will kill the roots of poison oak? All of the growth and most of the roots have been removed, but want to prevent new shoots coming up.—Subscriber, Watsonville.

The best method is cultivating so often that the leaves are prevented from forming and the plant will soon die. If, however, they are allowed to grow and form leaves a new starch is formed in the roots and life is prolonged. If in alfalfa or other field which is not cultivated we know of no better way than the repeated use of the hoe. This will be much cheaper than trying to kill with chemicals.

Purifying Water

What will sweeten water in windmill water tank? It is of redwood. We pump only about once a month and between pumpings a green growth forms in the water, a kind of moss, which makes the water taste unpleasant. I know there is something that can be placed in water and left there to sweeten it, but do not know just what, or the proportion to use. The tank holds 1,500 gallons.—Subscriber, Watsonville.

We know of no way of removing the tannin taste of the redwood excepting filling and after allowing the tank to remain full for a few days drawing off and refilling. There will not be many renewals required until this redwood taste is removed. In the matter of algae forming this is seldom a serious factor where the tank is covered and the light kept out. But if it is open at top and sunshine is allowed to enter the best protection is the use of small quantity of sulphate of copper. This does not add to the attractiveness of the water and the cover is a much more satisfactory protection. Do not use of the copper sulphate more than one ounce for every 30,000 gallons or 4,000 cubic feet of water. Probably one ounce to 75,000 gallons will be sufficient. The sulphate should be dissolved in a small quantity of water before adding to the tank or one may put it in a small bag and suspend in the tank near the surface. If thrown into the tank loose it will fall to the bottom and remain undissolved. Another purifier for water seriously contaminated with bacteria is chloride or hypochlorite of lime which are both most powerful germicides. Use not more than one part of the chemical to 7,000 parts of water.

Blood for Fertilizer

I would like to know through your columns if pure blood from slaughterhouse is good for three year old grape vines, to be used as a fertilizer. Should it be put near roots or on top of ground?—Subscriber, Modesto.

The use of the blood would be an excellent idea. It is not a complete fertilizer, of course, containing practically nothing but nitrogen, but the nitrogen is in one of the best forms to use for building up the soil. It is especially valuable where a sandy or loamy soil is supplied with sufficient organic matter to permit of bacterial action, or, in other words, the nitrifying of the soil. It is probable it would be well to supplement the use of the blood by the use of bone meal or, rather, bone reduced to the very fine consistency of flour. This would supply the phosphoric acid, and presumably your soil is abundantly supplied with potash.

Sow Bugs

Is there any way to get rid of sow bugs in sheds during rainy weather?—Subscriber, Willowbrook.

Sow bugs may be controlled by cleaning up rubbish and scattering a liberal portion of air slaked lime. Where this can not be done they may be readily poisoned by the use of paris green spread on slices of raw potatoes, carrots or other vegetables and laid where the pests are troublesome. If the case is serious one may cover with tarpaulin or tent and fumigate with hydrocyanic acid gas. Use greatest care in handling of the gas, which is deadly to humans.

Japanese Walnuts

We have received notice from several subscribers that there are several trees of Japanese walnuts growing in this state large enough to produce seed.

Wire Worms

Can you tell me what is the matter with my carnation roots? The plants die and I find the roots infested with little wire worms. Are they the cause of the plants dying, or is it bad drainage? What can be done to remedy it? Will they affect other plants?—Subscriber, National City.

This is certainly a serious infestation of wire worms and they are proceeding to get a good living off the roots of the carnations, which appear to be very old plants. It is hardly probable that the lands are valuable enough to sterilize by the use of steam heat or bisulphide of carbon. However, by letting the ground go entirely barren with clean culture for a year or so the number of wire worms would be greatly reduced. But this is impossible with the man who has limited acreage and wants to work every foot of it every year. Some help may be had by using potato ball Ventura County lima bean section

have succeeded in raising beans on lands so seriously infested with wire worms that seed has been destroyed before plant became established. Their procedure has been to use pieces of potatoes buried in the soil near to the seed just planted. The field is inspected daily, a man going rapidly from bait to bait, which has been marked with stake and bright colored marker. The bait is carefully lifted from its hiding place in the soil and is often found to be covered with many of the wire worms. Shake the worms from the bait into a bucket containing small quantity of oil. The bait is replaced in the soil, the inspector passes to the next, and so on. Plowing at this period, or better still, a month earlier, kills many of the pests.

Strawberries for Chico

What kinds of strawberries are the best adapted to this section of the country? Some say the Banner is the best, others the Progressive, still others the Oregon Everbearers, the Patagones or Magoons, and one man told us that he would not bother with anything else than the Carolina and told us that you could tell us all about them. Can you tell us where we can get the Progressive plants?—Subscriber, Chico.

In the Florin, Sacramento County, district, a section quite comparable to Chico, the commercial favorites are the Oregon, Dollar, and Jessie. The Carolina is rapidly becoming a favorite but we do not know as to its behavior about Chico. The Progressive is at present a leader in some eastern states and is widely advertised there but of its California value we have no report. We believe any northern dealer advertising in the Cultivator can supply the plants.

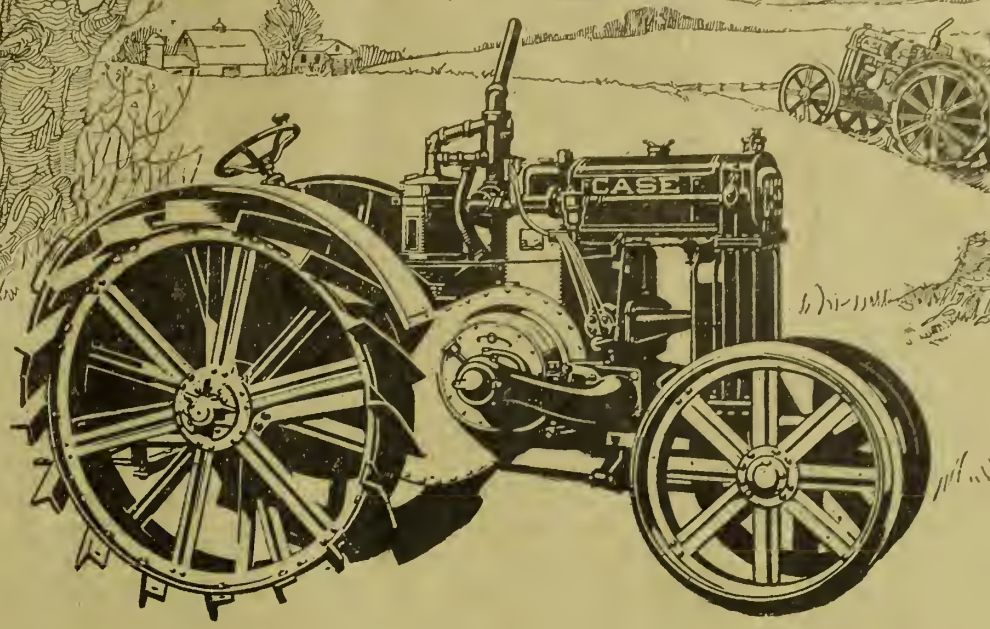
Citrus or Walnuts

I have 35 acres which I am now putting under irrigation with the intention of planting an orchard and intercropping until the trees grow too big. This is suitable land for either citrus or walnuts. Will you kindly advise me where I can secure figures as to relative returns on lemons, oranges and walnuts and the present proportion of young unproducing orchards to those in bearing. I should also appreciate your own opinion as to what sort of an orchard to plant.—Subscriber, Carpinteria.

Relative returns from different varieties of fruits are sometimes misleading as factors entering into production may have been overlooked. The writer has known an orchard since it was planted that has had uniformly good treatment and has given good results. There are both walnuts and oranges on this tract. The walnuts are about 16 years old and the oranges were planted nine years ago. The soil is a good loam with the walnuts on the heavier part of the tract. The walnut crop of 1920 sold for \$545 per acre gross, and the orange crop of that year for \$487 per acre gross. The walnut crop of 1921 sold for \$490 per acre gross, though the price per pound was higher, and the orange crop was \$698 per acre gross. The only noticeable difference was that the walnuts were not irrigated in the last of August or first of September of 1920 and dropped their leaves early, showing that the buds and wood had not been fully matured for the crop of 1921. The oranges had a plentiful supply of water at all times and the walnuts have had plenty of water this past season as the leaves were on the trees until the late heavy winds. The cost of growing oranges is considerably more per acre than that of walnuts and walnuts have not been subject to such violent fluctuations of price as has been the case with oranges. Intercropping can be done without injury to the trees provided it is not continued too long and there is an abundant water supply. It must also be remembered that additional fertilizers equal to the amount taken out by the intercrops must be put on the land, and in no case must the water be withheld from the trees to grow the annual crops which may be planted.—J. B. N.

The saying that "haste makes waste" is old, but the truth it carries is as fresh as ever. A little delay often opens a wiser and safer way.

DURABILITY



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3344. Dress for Work or Porch Wear—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 6 yards of 36 inch material. The skirt with plaits extended measures about 1 1/2 yards. Price 10 cents.

3802. Child's Dress—Cut in 4 sizes: 2, 3, 4 and 5 years. A 4 year size requires 3 yards of 27 inch material. Price 10 cents.

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PATTERN DEPARTMENT

California Cultivator Los Angeles

SHOES

I'll tell you it's a problem when a youngster's nine years old To keep his feet in leather and to keep him heeled and soled; Just about the time I fancy I've some money I can use, His mother comes and tells me that he needs a pair of shoes.

Now I can wear a pair of shoes for several months or more. But Bud, it seems, is working for the man who keeps the store, And the rascal seems to fancy that his duty is to show How fast a healthy, rugged boy can wreck a leather toe.

But shoes are made for romping in, for climbing and for fun, For kicking bricks, and empty cans, and I am not the one To make him walk sedately in the way that grown-ups do— There's time enough for that, I say, when all his boyhood's through.

So let him wreck them, heels and toes, And scuff their soles away; I'll not begrudge the bill for shoes that I'm compelled to pay, For I rejoice that it's my lot, when mother breaks the news, To have a healthy, roguish boy who's always needing shoes.

—Edgar A. Guest.

UPSTAIRS

By Leon W. Dean in Forward



HE cabin stood on the bank of an ice bound mountain stream. At its rear rose a high, wooded hill. Across the stream rose another hill. On every side stretched miles of forest, a world of trees that creaked in the intense cold and were buried to their lower limbs in treacherous depths of snow.

Down into the valley between the hills Rael Cilne had stumbled, his fingers nipped with the frost, his eyes blinded by the swirling snow. He sought nothing but such slight shelter from the wind as the hollow might afford, and rest from his ceaseless battle against the elements. So long had been the struggle that distance and time had come to mean little to him. With numbed body and numbing brain he merely plodded on, warding off the end as long as he might.

He floundered, fell, and lay quite still. After a time he moved, as one might move in a dream, almost unconscious of the will that still flickered feebly and urged him on. He floundered first to his knees and then to his feet, and would have gone helplessly on, had his eyes not chanced to light on the cabin, where it stood half smothered in snow.

He stood still and looked at it dully. There was no elation in his gaze, rather a dumb questioning. It took some time for his clouding brain to understand its significance, to realize that here perhaps was safety. When the fact did penetrate to his inner consciousness and was grasped and held, it quickened all his being with new strength and hope. It also brought a tantalizing mistrust and fear, for every few seconds the little building would be lost to sight in a curtain of intervening snow, and at such times he doubted its presence there.

Here was possible shelter, and toward it he groped his way. In time his hands reached out for it and touched it and he found it for what it was—the little cabin between the hills. Who had built it, or why, he neither knew nor cared. It was there, and the great business of his life was to gain admittance.

At first he thought the structure was built of logs. A closer examination showed that instead of logs, it was made of rough slabs, hewn off and nailed into place with the bark still on. There were windows, but heavy shutters of the same material securely closed them in. It was a solid little place, evidently meant to defy the various vicissitudes of wilderness existence, and as the boy viewed it, now somewhat protected by it from the storm, his heart misgave him. In his weakened condition, could he ever force an entrance? A hatchet swung at his belt, but even that would be a feeble instrument when wielded by an arm sapped of its strength by cold and exhaustion.

Rounding a corner, he came upon a porch, and in trying to reach it sank to his waist in a welter of snow. Unable to extricate himself, it seemed for a moment as if he might perish at

the very door of deliverance, but his seeking hands found a railing and by its help he was able to flounder free.

He might have hoped for some reward of his labor, but so far as he could see there was none. Door and windows there were, but these must either be pried or pounded open. He was about to attack the former, when he noticed the shutters over the nearest window were held in place by hinges. If he could chop the hinges free, the rest should be easy.

Ordinarily the thrill of a new hope would have heartened and revived Rael, nerving him to his task, but the sources of his vitality seemed to have been drained, and it was with clumsy, weak arms that he set to work. The building and the hills, however, protected him from the full blast of the storm, and if his strength did not flow higher, neither did it ebb. Hacking away patiently, he freed first one hinge and then the other. The shutter now fell away from its niche, and hung by only the inside hook which had it shut.

Rael tried to raise the sash, but could not, so crashed in the glass and followed it. Once inside, he looked about him, for fire and food were almost as essential to his needs as was shelter. It was a small room in which he found himself, scantily furnished, but containing that one thing for which he looked most eagerly—a stove. He had with him matches and a little food. And as if waiting some forlorn traveler like himself, there was wood piled ready beneath the hearth.

Fortunately, Rael's hands and face were not so badly frosted as to cause him much trouble beyond the terrible ache, as snow and heat restored the circulation.

By the time he had worked the frost out, and was sufficiently over the pain of it to care for anything else, his pot of tea was ready, and, with a small

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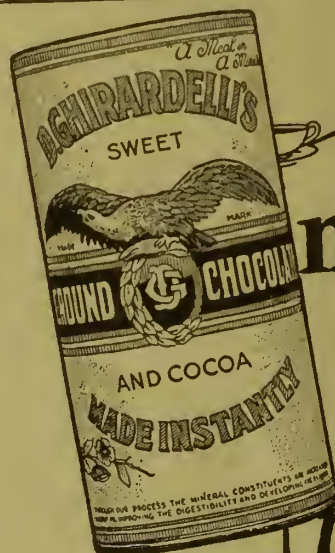
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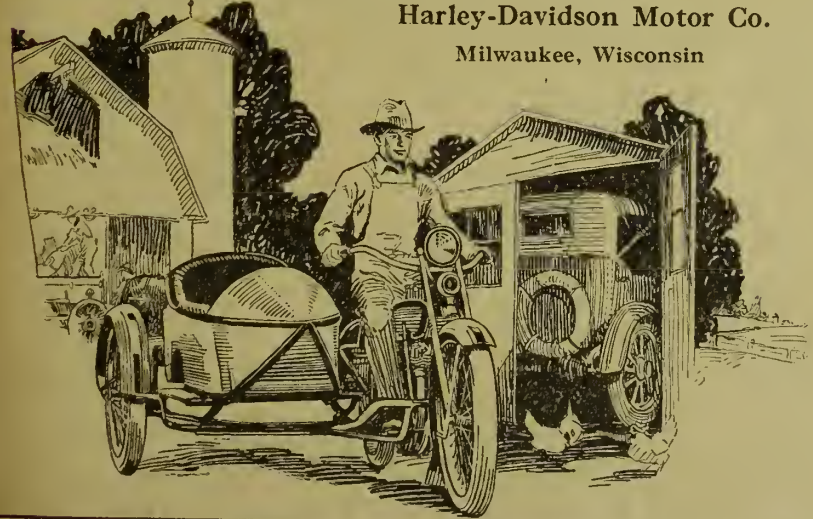
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store of food taken from a pack he had carried on his back, he made out a meal that put fresh vigor in his limbs, and made him think of his recent adventure almost as a dream. Could it be possible that a few minutes before he had been so near death that even now, but for this little cabin, he might be lying out, wrapped in the great white silence and done with the life flowing so sweetly through his veins? How narrow had been his escape? Was it even yet an escape?

From the past his thoughts flew to the present and the future. He had found a refuge, yet his food was all but gone, and where he was he had no idea. Rael knew that many a man before him had suffered a like and even a worse fate. Clinging too long to their interests in the mountains, they had been caught by the swift approach of winter. Some of them had perished miserably. Others had fared better, and had escaped unharmed. Rael could not be sure to which class he belonged. It was too soon to decide. For unless some searching party found him, he would have to spend the winter here, a pinched and starved winter, too.

There was another room to the cabin into which Rael had no more than glanced. Suddenly anxious to know the full extent of his resources, he crossed the threshold.

He found a room larger than the one he had just left, but it contained a wide fireplace, a board table, two or three chairs, some shelves that might once have contained books, and here and there a well selected magazine picture upon the wall.

Who could have built such a snug little place with its evident attempts at refinement the boy could not at the time imagine, though he found out afterwards that it belonged to an invalid who had come into the mountains for his health. If the room he had first entered could be called the kitchen, this might be called the living room. Over the kitchen there had been no other room, but in one corner of this room a flight of stairs led to an opening in the ceiling. Evidently the sleeping quarters were on the floor above.

He crossed the room and had just placed his foot on the lower step when from overhead came the sound of a heavy thump, as of some large, soft body striking the floor. So foreign was such a sound in that tightly sealed cabin that the boy's scalp began to creep, and something like a cold chill crept up his spine. He paused, every muscle tense and every sense alert for he knew not what.

(Continued next week)

HINTS FROM HOUSEKEEPERS

Italian Salami

I saw an inquiry for salami or Italian sausage in a recent issue, so am sending recipe which we use: 15 pounds ground pork, five pounds ground lean beef, onions and garlic to suit taste, ground, also salt and pepper to suit taste. Mix all together thoroughly and stuff in casings and hang in smoke till well dried. This will keep for a year in a dry place.—Mrs. C. M. Throop, Santa Rosa.

Boiled Sunshine Cake

One and one-half cups sugar, one-half cup water, one cup flour, one teaspoon cream of tartar, six eggs, pinch of salt, vanilla. Boil sugar and water till it threads, pour in fine stream over stiffly beaten whites of eggs. Beat until cold, add beaten yolks, then flour, salt and cream of tartar sifted together and flavoring. Bake in moderate oven 50 or 60 minutes. Let hang in pan upside down until cool.

Icing: White one egg, one tablespoon butter, vanilla. Add powdered sugar to white of egg without beating the white (as much sugar as the egg will take); cream about same amount with butter, then mix the two. Add flavoring and spread on cake. This cake is especially fine cooked in fireless cooker.—Mrs. B. J. Foster, Orange Cove.

HOUSEHOLD QUERIES

Scorched Lard

Can someone tell me if there is any way to sweeten or purify lard that has been burned in frying out, so that it may be used in cooking? I have about 50 pounds that is badly scorched. If

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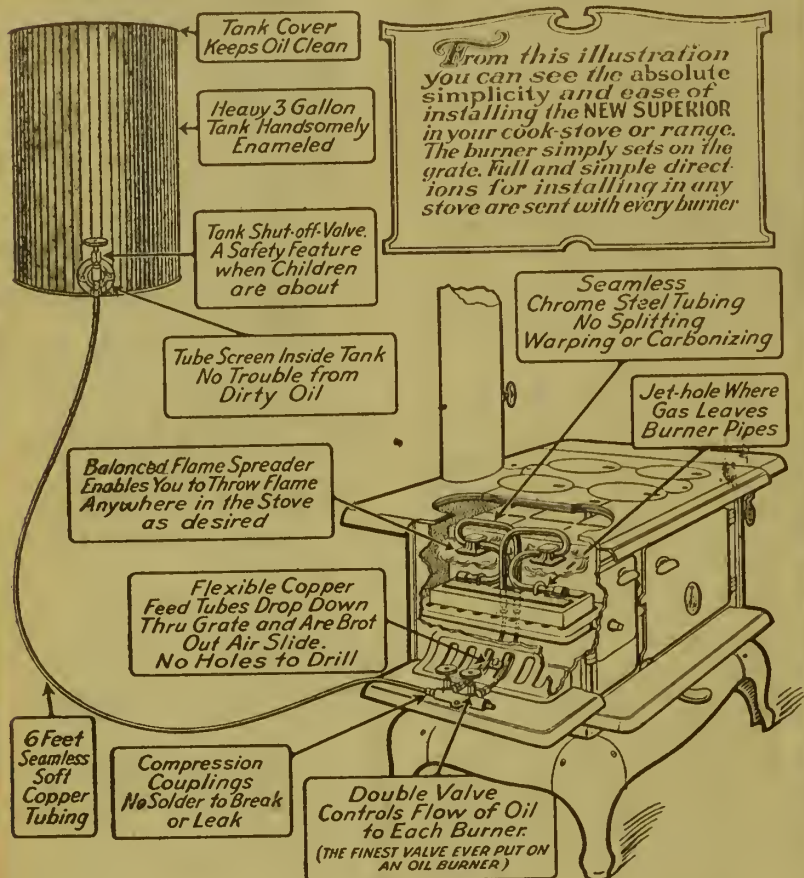
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there is no way to sweeten it what can it be used for aside from cooking?—Subscriber, Santa Rosa.

Ink Stains on Hardwood Floor

Please advise through your paper if there is anything to take ink stains out of a hardwood floor without scraping.—Subscriber, San Mateo.

If the hardwood is covered with wax or shellac finish, simply rubbing with cloth dampened in hot water will remove. Let spot stand wet for a short time if it is very dry and hard, when it can be readily wiped off. A little soap or Dutch Cleanser on cloth will not hurt finish if not too vigorously applied. Where finish is worn off and the ink has penetrated the grain of wood, cut lemon in half, rub ink stain with cut surface. If the stain is far into wood squeeze out lemon juice and let stand for several hours. If more than one application is necessary it will in no way hurt wood. It will bleach it lighter than surrounding wood, but a little dirt judiciously applied (rub with oiled dust cloth which has been used till slightly soiled) will make the cleaned spot uniform in color with uncleaned portion. A saturated solution of oxalic acid may be used in same way.

By the way, there is nothing so effective for cleaning drainboard of sink. After washing the supper dishes, rub cut surface of lemon over drainboard and let stand overnight. In the morning you will find it clean and white.

Again the Hand Knitting Machine

"I noticed in a recent issue of The Cultivator the request of a correspondent for some information regarding the auto-knitter. The same day I happened to run across the enclosed clipping from the Rural New Yorker and thought it might be of interest for your correspondent."

"My wife purchased an Auto-Knitter machine (Simplex) in October, and when it came I set it up for her and attempted to use it according to their instruction book. It was impossible to make a sock, and, after studying the machine, I started to put it in shape. Being a machinist, I was able to make the machine over, by changing various parts, filing here, boring a hole there, and putting some parts on that I made myself and, after going over every part and changing it, I made it so that it now does perfect work, although I had to discard the directions in the instruction book to do it, even after making the machine over. I have since made over 300 pairs of perfect socks, and a lot of women's and children's stockings, and have studied the machine from a practical, technical and theoretical standpoint, and here are my findings: The machine is defective in design, material and workmanship. The company took our work for a few weeks, and then began to reject work which was perfect, and which readily sold elsewhere. They made many mistakes, either intentionally or otherwise, in their dealings with us.—S. H. W., New York."

"I saw your article about the 'Auto-Knitter,' and I agree with what you said. I have run one four years and I don't know all about it yet. As to getting rich with it, you can't do it by sending the goods to the factory, but I can make about 30 cents an hour by selling them around home. I would not advise anybody to buy a house with one, or to expect to run one without practicing about six months. It usually takes about three weeks to get repairs and other supplies.—A. H., New Hampshire."

On these letters the Rural New Yorker comments:

"The above reports on the Auto-Knitter are more favorable than previous ones, but when a machinist has to make the machine over to get results it is easy to imagine the result had this machine fallen into the hands of some poor widow without mechanical skill or money to make necessary changes and repairs to secure production. And, of course, it is, as a rule, women in the poorest circumstances who seek to earn a little money in this way."—R. R. McLean, Farm Service Department, First National Bank of San Diego.

LABOR LOST

Small Boy.—What's the use of washing my hands before I go to school, mother? I'm not one of those who are always raising them.—Orange Owl.

ALMOND RECIPE BOOK

The California Almond Growers Exchange has ready for distribution a book of recipes telling how to use almonds in many forms in many different combinations. This book will be sent free on request to California Almond Growers Exchange, 311 California St., San Francisco.

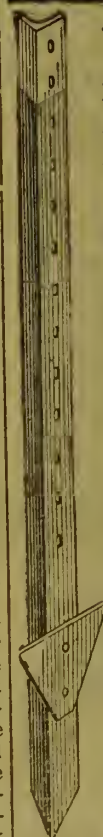
Mention having seen this notice in the household department of the California Cultivator when you write.

Here is one of the recipes appearing in the book:

Almond and Date Cookies

1/4 cup butter, 1 cup sugar, 2 eggs, 3 tablespoons milk, 1 cup flour, 1 teaspoon baking powder, 1/4 teaspoon salt, 3/4 cup almonds, 3/4 cup dates, 1 teaspoon vanilla. Cream butter and sugar, add eggs well beaten, add milk and dry ingredients, mixed and salted, add chopped almonds blanching, chopped dates and flavoring. Drop in small cookies apart on greased pans; place a half almond on top of each and bake in a moderate oven until brown.

Red Top GUARANTEED Steel Fence Posts



RED TOPS save you money in three ways—in setting, in repairs, and in replacements.

It costs one cent to set a RED TOP against 10 to 20 cents for a wood post. No holes to dig; it drives like a stake. Holds staples always tight—does not burn, rot or break. Built for years of service.

If you want to know fence satisfaction try RED TOPS on your next new fence—or in repairing an old fence. Made in angles and tees.

Send for Circular giving all the facts

RED TOP STEEL POST CO.

431 Pacific Finance Building
Los Angeles, Cal.

Motor Troubles Ended

New Invention Creates Wonderful Spark—Doubles Power, Makes Winter Starting Easy, Stops Oil Pumping, Eliminates Carbon, Saves Gas—Free Trial Offer.

Any car owner who is bothered with a motor which pumps oil, fouls spark plugs, wastes gas or carbonizes badly, can stop these troubles by using a remarkable device called Warren Transformers, perfected by W. H. Warren, a Kansas City motor expert.

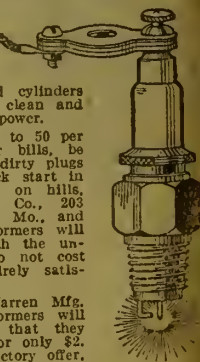
In two minutes a boy can attach Warren Transformers. Then you will be amazed to see your car go whizzing up hill on high where you formerly had to shift gears.

You will also notice a big increase in your mileage and instant starting in coldest weather. Spark plugs that formerly fouled and cylinders that pumped oil will be clean and dry and fire with full power.

If you want to save 25 to 50 per cent on fuel and repair bills, be rid of missing cylinders, dirty plugs and carbon, have a quick start in coldest weather and pep on hills, write the Warren Mfg. Co., 203 Gray Bldg., Kansas City, Mo., and a set of Warren Transformers will be sent immediately, with the understanding that they do not cost you a cent if not entirely satisfactory.

So confident is the Warren Mfg. Co. that Warren Transformers will more than delight you that they offer to send a \$4 set for only \$2. This is a special introductory offer, good only a few days, and readers should take advantage of it immediately.

Send No Money with your order—just your name and address, name of car and number of cylinders. Warren Transformers will be sent immediately. When they arrive merely pay the postman \$3 and postage. Use them 10 days. If not satisfactory return and your money will be refunded. Write today. End your motor troubles. This offer fully guaranteed.



Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Herefords

February 21, Pacific Coast Hereford Breeders' Association, University Farm, Davis.

Shorthorns

February 22, California Shorthorn Breeders' Association, University Farm, Davis.

Durocs

February 8, California Duroc-Jersey Breeders' Association, University Farm, Davis.

February 9, June Acres Stock Farm, Davis.

February 16, Sierra Vista Stock Ranch, Perris.

Poland Chinas

February 24, California Poland China Breeders' Association, University Farm, Davis.

Berkshires

February 27-28, American Berkshire Congress Show and Sale, Riverside.

Breeders in Washington have launched a campaign to abolish scrub and grade sires. The extension division is now conducting a survey and later a series of meetings is planned for each community. Bankers and business interests are expected to assist in financing the purchase of pure bred sires. California is in sore need of such a campaign.

T. B. Purvine of Petaluma has been making some very creditable register of merit records with his Jerseys. The aged cow Romulus' Legacy Jean has completed a record of 639.64 pounds fat from 9,613 pounds milk; Phyllis Fairy Belle is credited with 536.76 pounds fat and 9,925 pounds milk and Fairy Boy's Onan Ashantee in 330 days has produced 370.45 pounds fat and 7,379 pounds milk.

L. D. Smith of Humboldt County has been doing a brisk trade in Guernseys and has sold to Homer Fisher of Arcata the young bull Squire's Duke of Claremont and the three females, Bonnie Belle of Claremont, Mysie of Linda of Claremont and Mysie's Betty of Claremont. Silva Bros., Arcata, selected the two females, Claremont Lass and Polly of Claremont.

Howard Vaughn, manager of the forthcoming Shorthorn sale to be held at the university farm, Davis, during Stockmen's Week, writes that Caledonia Farms, West Sacramento, and Thos. T. Miller of Hollister have entered consignments. The former herd will be represented by offspring from their three well known herd bulls and the latter herd will send forward a number of sons of Imp. Secret Stamp and Greendale Sultan.

At the last annual meeting of the American Shorthorn Breeders' Association a reduction of the registration fee from \$2.50 to \$2 was ordered, effective January 15.

How to Stop
Calf Scours

You can do it in a quick simple reliable way—costs little. One good calf saved will repay the expense of protecting your whole herd for a long time against this infectious disease.

Leading breeders and dairymen throughout the country say, there is nothing like B-K. It contains no poison or acid—it is clear as water and safe to keep anywhere.

B-K acts as an anti acid and sweetner in stomach and also quickly kills the germs that cause scours or diarrhoea. It heals the inflamed membranes, relieves irritation and restores healthy action.

SAVE EVERY CALF

It's so simple to keep your barns sanitary and your animals in a healthy condition. B-K also prevents such germ diseases as Abortion, Retained Afterbirth, Barrenness, Calf Pneumonia, and you have this wonderful help all in one bottle—always ready.

Keep a supply of B-K handy for all the "little ills" of the barn—cuts, scratches, anything where infection can do harm.

GENERAL LABORATORIES

MADISON, WISCONSIN.

We will send you on request a bulletin telling you "How to Save Every Calf."

B-K is a pure sodium hypochlorite—every scientific man knows the value.



1 Gal. and 5 Gal. Pkgs.

Witherow & Stafford, Greenwood Farm, Live Oak, report the sale of a Duroc boar to C. F. Busjager of Manteca.

Entries to date indicate there will be about 25 head of sows and gilts consigned to the California Duroc-Jersey Breeders' Association sale at the university farm, Davis, February 8. Although the sale will not be large in point of numbers it will be a sale that will include a lot of sows of high quality. The consignors to date are: V. F. Dolcini, Davis; J. E. Thorp, Lockeford; Harvey M. Berglund, Dixon; Diamond Bar Ranch, Spadra; Golden Star Farm, Vacaville; H. P. Slocum & Son, Willows; W. M. Way & Son, Modesto; A. D. Long, Davis; M. W. Cutler, Redding; R. E. Clifford, Davis; University of California, Davis; Lowell J. Beaver, Fresno, and Witherow & Stafford, Live Oak.

Thomas Harrison of Santa Rosa has sold the aged Percheron stallion Motif to the San Luis Obispo Polytechnic School. Motif was sired by Tamerlane, and his dam was Jonquille. He was grand champion at the recent California National Livestock Show.

L. D. May, generally regarded as the dean of Milking Shorthorn breeders, died at his home near Granville Center, Pennsylvania, early last month.

A plan is being projected by a number of San Francisco sportsmen to revive racing at the old Tanforan race track south of San Francisco. Years ago this track was the scene of many high class meets and with the renewed interest in racing it is hoped to regain some of its past glory.

The directors of the Western Berkshire Congress at a meeting held at Sacramento last week decided to abandon the annual sale held at the university farm and to lend united support to the show and sale to be held at Riverside February 27-28.

Alex Wilson, manager of the swine department of the Italian Vineyard Company, Guasti, has secured the services of Wilson Rowe as herdsman for their Berkshire herd. Rowe is one of the best known men in Berkshire circles. For many years he was herdsman at the Iowa state college. Later he was in charge of the Iowa herd. In 1920 Rowe judged Berkshires at the California state fair.

V. F. Dolcini, June Acres Stock Farm, Davis, has arranged to hold his sale of Duroc-Jersey sows and gilts at the university farm, February 9, the day following the association sale. This will be Dolcini's first public sale, although his herd is one of the oldest in the state. He is featuring the get of his popular sire, Choice Wonder 3d, grand champion at the 1920 state fair. As attractions he has included the champion sow of 1918 and half sister of the 1921 champion sow.

DAIRY MANUFACTURING SHORT COURSES

The ten day courses for experienced men connected with commercial dairy manufacturing plants will open at the university farm next Monday. The following courses are offered: Butter makers and creamery managers; cheese makers, milk plant operators. These courses will all be given at the same time by the dairy industry division of the college of agriculture assisted by the United States dairy division and state department of agriculture. Several men connected with commercial dairy manufacturing have been secured to take part in the discussions of the subjects to be presented. Those interested in taking these courses should register at the administration building Monday morning, February 6. Instruction starts at 1:30 p.m. on that date. The courses will close with the annual meeting of the California Butter, Cheese and Ice Cream Makers' Association.

FIRST DUROC SALE A SUCCESS

The first Duroc sale of the season was held by Witherow & Stafford at their Greenwood farm near Live Oak, January 26, and furnished ample evidence that California farmers are developing substantial interest in pork production. Twenty-eight head of bred sows and gilts were eagerly snapped up at a general average of \$53.30, a valuation entirely satisfactory to the

sellers. The offering was a balanced lot of well bred and nicely developed breeding material. The top, \$77.50, was paid by J. F. Moorehead of Chico for a two year old daughter of John-son's Defender Jr. Moorehead was the heaviest buyer at the sale, taking 11 head. Other buyers were: H. P. Slocum & Son, Willows; G. W. Summy, Meridian; J. H. Ballou, West Butte; Floyd Onyett, Oroville; C. B. Phillips, Dixon; W. W. Hooper, Gridley; C. W. Scott, Winters; Ralph Albee, Weed, and J. L. Ames, Live Oak. Ord L. Leachman of Sacramento was the auctioneer.

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D Los Angeles, Cal.
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Hynes, Cal.**

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SALES OF
REG. DAIRY CATTLE
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H GEN. FARM SALES
O in all parts of
A Calif. and ad-
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Write for dates
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CONTAGIOUS ABORTION

Describes cause, effects and treatment; tells how farmers in all parts of U. S. are stopping the ravages of this costly malady.
Write for free copy today.

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FREE BARN

Blue Prints—Worth \$10

Made Especially for Your Requirements

If you're thinking of building or remodeling a barn, fill out the coupon below and we'll make up, free of charge, a set of blue prints, made to suit your requirements by the barn experts in our Plan Department. The set will include cross section as well as elevations and floor plan. No charge. This offer is to get your name so we can send you a copy of our 348-page, bound and profusely illustrated catalog, showing

STAR Equipment

HUNT, HELM, FERRIS & CO.
Dept. 22 Harvard, Illinois

Gentlemen: Please send me free a special set of barn plans. BUILDING I am thinking of REMODELING? a barn.

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I have Cows.....Horses

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American Berkshire Congress Sale and Show

A National Event

Riverside, California
Feb. 27th, 28th

Monday, 27th. Auction Sale, 30 Berkshire bred sows and gilts. Picked from leading herds in United States.

Tuesday, 28th. Greatest show of Berkshires ever held in the West. Nearly 200 head on exhibition. Fat Barrow Show. Boy's Judging Contest, Men's Judging Contest, Women's Judging Contest.

\$650 in premiums, besides large number of silver cups. Trip to the Orange Show.

Annual meetings of the Western and Southwestern Berkshire Congresses. Banquet.

When Writing Advertisers Please Mention Cultivator.

HEREFORD BULLS IN CARLOAD LOTS

At Public Auction

Tuesday, February 21, at 1 P.M.
University Farm, Davis, Calif.

This sale affords the first opportunity in California for buyers of range bulls to buy them in groups suitable for the carload buyer. There will also be at least 20 bulls sold individually, to take care of the buyer who wants only one or a few head. There will also be about 25 cows and heifers of good breeding for the man who wants to increase his she stuff.

Every Animal Registered. Transferred Free of Charge, Guaranteed a Breeder, and Tuberculin Tested.

These choice registered Herefords are consigned by fifteen leading Pacific Coast breeders under auspices of

Pacific Coast Hereford Cattle Breeders Association
J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Calif.

For catalog of sale write to sale managers
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

MR. FARMER:—

You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now. Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs. of butter in 7 days, included in this offer. Call or write at once.

BURR FARM

26th and Downey Road, Los Angeles
RFD 2 Box 120

This Valuable Cow Book FREE!

Van Pelt's
Cow
Demonstration
by
Hugh S. Van Pelt

Tells how
to pick
out
Good
Cows

This 84-page book is worth its weight in gold. Its author, Hugh G. Van Pelt, a prominent dairy editor and former professor of dairying, is a practical dairyman and one of the best judges of dairy cattle in the country. It is so plain and simple that any one can use it as a guide in selecting good cows, and building up a herd for large and profitable production.

We will gladly send you this book free of charge if you will fill out the blank below and send us the names of

five people who will need cream separators or milking machines within a year's time.

Any one who is wasting cream by using an old, worn-out or "balky" separator, or by hand skimming, needs a De Laval Separator. Any one who is milking ten or more cows by hand needs a De Laval Milker.

If you cannot give five names, we will send you this book on receipt of 20 cents.

How
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DE LAVAL PACIFIC CO., 61 Beale St., San Francisco, Cal.

Please send me Van Pelt's Cow Demonstration Book, for which I am sending you the names of five people who need De Laval Cream Separators or Milkers. (Include your own name if you need a separator or milker.) 75

Name _____ P.O. _____ R.F.D. _____ State _____

NOTE—After each name, in last column, mark S if person needs a separator, M for milker, SM for both.

NAME	P.O.	R.F.D.	State	No. Milk Cows	Prospect For
1.					
2.					
3.					
4.					
5.					

Last Notice!

California Duroc-Jersey Breeders' Association
Third Annual Consignment Sale University Farm, Davis, Feb. 8

25 Selected Bred Sows and Gilts

The Offering Has Been Drawn from the Following Well Known Herds:

V. F. Dolcini, Davis
Harvey M. Berglund, Dixon
Diamond Bar Ranch, Spadra
J. E. Thorp, Lockeford
Golden Star Farm, Vacaville
Slocum & Son, Willows

Wm. Way & Son, Modesto
A. D. Long, Davis
M. W. Cutler, Redding
R. E. Clifford, Davis
Lowell Beaver, Fresno
University of California

Witherow & Stafford, Live Oak

This sale offers sows sired by and bred to such boars as Chole Wonder 3rd, Ace of Pathfinders, Lord's Orion Cherry King, California Orion King, June Acres Pathfinder, Western Chief, High Pathfinder, Mammoth Sensation, Jr., Key of Giant, Dreadnaught Sensation, Experimental Defender, Falfadale's Sensation, Johnson's Defender Jr., King Orion Cherry, Western Pathfinder, California Golden Orion King. State Fair prize winners are included in the offering.

This is a breed promotion sale, designed to give an opportunity to farmers and breeders to select from the best that the leading herds have to offer. If you want to make pork production more profitable you will find sows in this sale that will fill your needs and fit your purse. If you want to improve a good breeding herd here is where you will find sows that will do it. DON'T MISS THIS SALE.

Ord L. Leachman, Auctioneer

For Catalog write

E. H. Hughes, U. C. Farm, Davis, or H. C. Witherow, Live Oak, Cal.



Make
Your
Own
Concrete
with a

Stewart Concrete Mixer

Hercules Engine Drive
They do the work well, and give no trouble. Besides—they're priced right.
Write for details.

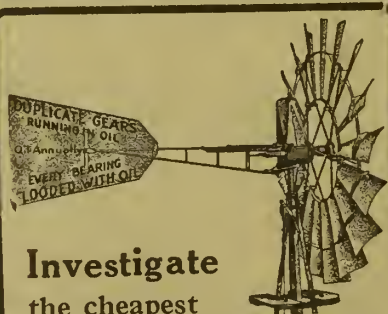
SMITH-BOOTH-USHER CO.

Machinery, Supplies, Pipe, Fittings
SAN FRANCISCO LOS ANGELES

Tosantos Herd

Bulls for Breeders and Dairymen. All our milking females have A. R. O. records. Every calf is out of an A. R. O. dam. All our milking females are on long time test. Only one bull of service age left.

E. D. Barry, Jr. Covina, Calif.
Workman and Azusa Ave.



Investigate

the cheapest
method of Pumping Water for
Irrigation and Domestic Use.

Capacities from 200 to 6500
gallons per hour.

Write for particulars

Shaw-Palmer-Bakewell Co.

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DAIRY DAY

The dairy cow will be the guest of honor at Riverside on Saturday, April 8, at a big dairy day celebration. Plans for this event were formulated by a committee of the Associated Chambers of Commerce of Riverside County, consisting of J. E. Wherrell of Riverside, chairman; Robt. N. Clapp, Nuevo; A. J. Stalder, Riverside; Geo. W. Thomas, Arlington, and S. F. Kennedy, Riverside.

All the prominent civic organizations of the county have appointed representatives to take part in this demonstration and at a general meeting held in Riverside committees were appointed to look after every phase of the work.

The important place held by the dairy cow in human life and development as well as her financial importance will be demonstrated in an elaborate series of floats and window displays.

The importance of the dairy industry is rapidly becoming a leading feature in Riverside County development. The animal industry division of the state department of agriculture is expected to take an active part in developing visual instruction and the committee also expects a very instructive and interesting display from the federal government. Various state organizations connected with many forms and various phases of the dairy industry have also signified their intention of taking part. This exhibition will be held in Riverside, with a parade, plays and exhibitions in the various store windows and a milk fairy pageant.

A competitive contest in poster and essay production will be held in both the elementary and the high schools of the county, with cash prizes for each class of work from each class of school.

DIVERSIFY

There seems to have been a new expression adopted in reference to our recent cold spell. We don't say "freeze" now; we say "low temperature." That sounds better and let us hope that the final findings may be much more agreeable than some of us are inclined to predict.

Among many hog breeders the question seems to be, "What effect will this citrus setback have on the coming hog sales?" It doubtless will be felt by the hogmen, but in only one way—it will do them good. The orange situation somewhat resembles the cotton situation. We all know that during the cotton boom thousands of acres were planted to cotton which should have been devoted to livestock and general agriculture. Every section of Southern California is not adapted to oranges and a great many men now engaged in citrus growing would be more profitably occupied if they were growing livestock, and even others might well consider the advantage of a small dairy and hogs in connection with the orchard. Inasmuch as the hog industry has stood the gaff of reactive commercial changes about as well or better than any other industry it is quite possible that a good many fellows who discarded the good old livestock for an inviting orange grove will now be inclined to gather up a few "mortgage lifters."—G. A. S.

BERKSHIRE CONGRESS

The coming annual sale and show of the American Berkshire Congress at Riverside, February 27-28, should encourage more activity in the swine growing industry. This event is of national importance and the Berkshire boys all agree that the purpose of the convention is not to create high prices or to put any breeder into the limelight, but to stimulate interest in the industry and to let the people know that agriculturally California is very much on the map. The show will be conducted along the same lines as the best fall fairs. Premiums and prizes are offered for all classes and special premiums are offered for barrows. There will be a judging contest for boys, open to any club boy, and also a men's judging contest. An invitation is extended to growers and breeders of all breeds of hogs to attend the show, to criticize or commend as they see fit. The directors of the Southwestern Berkshire Congress feel that a mixing of all breeders can only result in a general benefit to all,

inasmuch as we have the same object in view, viz., the development of a better hog and the advancement of the livestock industry.

FEEDING RICE AND BY-PRODUCTS TO SWINE

California is one of the largest rice producing states, and much interest has been manifested lately in the feeding of rice and rice by-products to swine. Experimental evidence on this subject is meager. In view of these facts we are realizing the need of more information concerning these feeds. An experiment was outlined and started at the university farm in October, 1921. The plan called for 16 lots of ten hogs each to be fed various rations. The equipment at the university farm made it inadvisable to feed more than eight lots. Eighty head of hogs were divided into eight lots of ten hogs in each lot. They were fed the following rations in dry lot. All the lots were self fed: Rolled barley and tankage; rough rice and tankage; rice polish and tankage; rice bran and tankage; rice polish, rice bran and tankage; rolled barley, rough rice and tankage; rolled barley, rice polish and tankage; rolled barley, rice bran and tankage.

These lots of hogs were finished December 10 and slaughtered by lots. A record of their dressing percentages and other data were obtained from the packing plant.

There are 80 more pigs in the feed lot at the university farm at this time. They are receiving the same rations and are fed in the same lots as the ones that were used on the first test. These pigs will be ready for market during Stockmen's Week or shortly after. The results of these two tests will be given out on Thursday, February 23. It will be possible for visitors to see the various lots of hogs at that time.—E. H. Hughes, in charge of Swine Section, University Farm.

SWINE BREEDERS TO MEET AT U. C. FARM

The annual business meeting to the California Swine Breeders' Association will be held at 9:30 a.m., February 23, at the university farm. At this time J. I. Thompson, president of the association, will give talk on "A Development Program for the Association."

The California Swine Breeders' Association is responsible for the pure feed law now in operation in California. This association has been responsible for the classification of swine at the state fair and indirectly has been responsible for the classification at other California shows. The first auction sale of pure bred hogs held in California was under the auspices of this association. There are many things to be done to put the swine business of California where it belongs. Mr. Thompson will outline projects which the association might develop during the coming year.

A ham and bacon show will be held in connection with the meetings and it is hoped that this show will cause increased interest in swine production and in developing a revival of interest in home curing of good hams, bacons and sausage.

HAM AND BACON SHOW TO BE STAGED

A ham and bacon show will be held in connection with the annual Stockmen's Week at the university farm February 20-24. It is hoped that such a show will cause a revival of interest in home killing and curing of pork products and especially the making of good hams, bacons and sausage. This show is to be held under the auspices of the California Swine Breeder's Association. Liberal premiums will be offered. Premiums are offered for: Best home cured country ham. Best home cured country bacon. Best home cured country shoulder. Best smoked or other cured country sausage to be shown in jars, sacks or cases. Best fresh country sausage. Best exhibit of meat in the above classes from any one exhibitor.

For details write to E. H. Hughes, Secretary of the California Swine Breeders' Association, Davis, California.

SAN BENITO-SANTA CLARA COW TESTING

The San Benito-Santa Clara Cow Testing Association now has 32 members. The total number of cows represented is about 1,200. The project was started by the San Benito County farm bureau in 1921, with Frank Frazell, prominent dairyman, as chairman of the committee in charge. J. R. Screaton is official tester, and has been carrying on tests since October, 1921. Mr. Screaton is thoroughly familiar with cow testing association work, having had experience in New Zealand along this line.

Early in January a drive was put on which netted some 400 cows to the association. Prof. V. C. Bryant of the University of California spent two days aiding in the work, together with County Farm Advisor W. J. Tocher. Members of the cow testing committee are S. D. Pedrazzi, L. Ladd, E. Holbrook, Dr. C. S. Brooks and E. A. Weller.

After four months of testing some dairymen are weeding out a good percentage of their poor cows. While ordinarily a year's record is used as a basis of culling, some cows show up so poor that they are marked as "boarders" early in the game and are sent to the butcher.

INTEREST IN BETTER SIRES

With exactly 5,900 persons enrolled in the "Better Sires—Better Stock" campaign at the close of the calendar year 1921, records of the United States department of agriculture show a continued interest in this work which has extended to all states and several island possessions. During the year the number of livestock owned by the persons enrolled increased from about 400,000 to 750,000. The figures include both male and female stock. All of the males are pure bred, and the females, which may be of varied breedings, are bred in all cases to pure bred sires.

It is noteworthy that 56 per cent of all female stock listed are pure bred. This figure is one per cent higher than a year ago. The effect of the use of pure bred sires in reducing the number of scrub animals on farms is shown by the small proportion of scrubs in herds and flocks headed by pure bred males. The figure at the end of the calendar year 1920 was 2.1 per cent and for 1921, 1.9 per cent scrubs in such herds.

VALUE OF COW TESTING SHOWN BY COMPARISONS

With figures from a Virginia cow testing association as the basis for his calculations, a representative of the United States department of agriculture has made some convincing comparisons of the best herd and the poorest herd, that bring out with unusual emphasis the value of testing.

There were 511 cows owned by members of the association. The best herd consisted of 16 cows, with an average of 306 pounds of butter fat in a year. The poorest herd had 91 cows, averaging 155 pounds butter fat in a year. The first herd made an average income of \$75 per cow over the cost of feed consumed; the latter made an average return over feed cost of only 64 cents per cow.

The introduction of a few variations on these figures will help to show just how far apart were these cows in the two herds. The average cow in the best herd produced more income above the cost of feed than all of the 91 cows in the other herd. It would require 117 cows like the average in the poor herd to equal in profit production one of the cows in the top herd. To equal the herd of 16 good cows a farmer would have to keep 1,872 animals like the average cow in this poor herd.

LIVESTOCK BROKERAGE AND SALES

Believing that a need has existed here for some time for an efficient livestock exchange and vending concern, C. R. Thomas announces that he has opened an office at San Francisco. For more than 30 years Mr. Thomas has been closely allied with the livestock industry; as secretary of one of the major national breed associations; as manager of its sales and of those of its members; as commissioner in private treaties, and as manager of livestock shows, including the late California National.

At Milking Time
That's when it Proves its Worth

DOESN'T it stand to reason that if a cow's milk-producing organs are out of order there is certain to be a reduced milk flow? Stands to reason, too, that there will be enough loss in just a few milkings to more than offset the time and slight expense of giving prompt medicinal assistance to a cow that is in any way "off-color."

This is where Kow-Kare comes in. In a great majority of the best dairies this cow medicine is used regularly, at intervals during the housed-in winter season. When the cow's producing organs are put to severe strain by the loss of pasturage and the use of heavy concentrated foods and roughage, Kow-Kare will avoid a break-down by keeping the digestive and genital organs in a healthy, normal condition. Regularly at milking time you get big premiums on every penny invested in Kow-Kare.

More Profit in the Milk Can

COWS must be kept healthy if they are to show a profit. Most of the diseases common to cows can be successfully and easily treated at home by using Kow-Kare according to directions. Barrenness, Abortion, Retained Afterbirth, Scouring, Bunches, Milk Fever, Loss of Appetite, etc., are promptly cleared up by Kow-Kare because it acts directly on the organs where these diseases originate. The use of Kow-Kare for two weeks before and after calving works wonders in carrying the cow over a time when her powers of disease-resistance are greatly lowered.

A package of Kow-Kare, plus our valuable free book, "The Home Cow Doctor," will put more profit in the milk can and set your mind at ease. It's the cheapest form of health insurance.

General stores, feed dealers and druggists sell Kow-Kare at the new reduced prices of 65c and \$1.25.

DAIRY ASSOCIATION COMPANY, INC., Lyndonville, Vt.



Kow-Kare and Bag Balm Distributor for California, Germain Seed Co., Los Angeles, Cal.

Duroc-Jersey Sale

Davis, February 9th, 1:30 P.M.

A REAL CHANCE TO IMPROVE YOUR STOCK

35 head sows and gilts, either sired by or bred to CHOICE WONDER 3RD, GRAND CHAMPION BOAR 1920 State Fair. Those sired by Choice Wonder 3rd are bred to JUNE ACRES PATHFINDER, son of the famous Pathfinder.

GRAND CHAMPION sow of 1918 State Fair, and a half-sister of 1921 Grand Champion sow will be included in this sale.

Terms—Cash or Bankable Notes.

DON'T MISS THIS OPPORTUNITY

JUNE ACRES STOCK FARM

V. F. Dolcini, Proprietor

Davis, California

BULL BARGAINS

We offer a limited number of high record registered Holstein bulls of excellent type and popular breeding. They are

—Ready for heavy service.

—Out of dams with 700 to over 1,000 pounds butter in one year.

—By sires whose dams have yearly records up to 31,000 and 33,000 pounds milk and up to 1,200 and over 1,300 pounds butter.

There are only a few on hand and at the prices we have placed on them they will soon be gone. If you can't visit our herd, write or wire for description and prices.

THE J. S. GIBSON CO.
WILLIAMS, CALIF.

HOLSTEIN

Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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have sold more than \$500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

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POULTRY

Baby Chicks—When you buy baby chicks the big thing for you to remember is QUALITY, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves; for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. **Lyon Hatchery, Gardena, California.**

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the Vineburg Hatchery. All baby chicks guaranteed safe delivery. **Vineburg Hatchery, Vineburg, California.**

Santa Cruz Chicks—Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching, choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Soquel, Santa Cruz County, California.**

White Leghorns—Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder "Secret of Success." **Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.**

Baby Chicks—From the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. **The White Leghorn Hatchery, Pomona, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. **Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. FISCHER POULTRY RANCH, Route 2, Compton, California.**

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.**

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. **Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.**

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live vigorous chicks guaranteed. Prices on request. Reliable since 1898. **MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. **Model Poultry Farm, W. C. Smith, Prop., Corning, California.**

Single Comb White Leghorn Eggs for hatching. Wyckoff-McFarland strain. \$7.50 per hundred. Baby chicks, \$14.00. **Garmac Ranch, Rt. 1, Box 382, Gardena, California.**

White Leghorn Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Barred Plymouth Rocks—"Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voden, Los Gatos, California.**

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

Anconas, Our Sixth Year—Cockerels, single birds, \$3.50 and \$5.00. Satisfaction guaranteed. **A. S. Wilkinson, Winton, California.**

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 198A, Sunnyvale, California.**

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

POULTRY

Baby Chicks—Are you looking for chicks that will grow into good layers? We have been supplying this kind to our customers for several years. All our hatching Eggs are from carefully selected Hoganized stock. Our record of 1918 eggs from 10 Rock pullets for 12 months proves that our Rocks are the best bred-to-lay stock in the West. Customers report Reds laying at 4 months and 15 days. Write us at once for dates; or better still, send in your order, as we are heavily booked for 1922. Every Sunday we have a hatch of Rocks, Reds, Anconas, and White Leghorns. Prices for chicks delivered, Parcel Post: Rocks, Reds, Anconas, 25-35; 50-100; 100-200; 500 Reds, \$90; Leghorns, 100-160; 500-775. Circular free. Established 1915. **Hargett & Son, Route 2, Box C, Compton, California.**

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guinea \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

Our Prices Are Right For

SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? **White Leghorns Only—the laying strain.**

Custom Hatch—2c per egg

We have the capacity for you.

STEELE'S EGG RANCH

Phone Gardena Exchange 692
Moneta, California

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. 1, San Diego, California.**

BABY CHICKS

LAYERS AND PAYERS

Ours pay. Chix and Hatching Eggs from hens tested and mated for egg production. R. I. Reds, Barred Rocks, Black Minorcas, White Leghorns. Prices correspond with egg prices. Special reduction on lots of 500 to 3500. Express prepaid on February deliveries.

DENTON POULTRY YARDS,

Box 3, Campbell, California.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. **Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Penn's Quality Barred Ply. Rocks and Ferris heavy-egg-type White Leghorns. Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM, Porterville, California.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Baby Chicks—White Leghorn, the kind that lay and pay; only strongest chicks shipped. Parcel post, prepaid. **Electric Hatchery, 2306 Carlin Avenue, Willowbrook, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Hatching Eggs from well Hoganized Walter Hogan strain White Leghorns. Will run 96% fertile. \$1.50 for 15 or \$8.00 a 100. **C. M. Bradford, Hemet, California.**

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. **BABY CHICKS.** Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

POULTRY

NOTICE

Note the similarity of the names, Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from the 1921 record pen. Settings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. **Albert Sly, 1642 C. Middleton Place, Los Angeles.**

Quality Chicks—Western Washington leads the world in high egg producing birds. We can furnish a limited quantity of Tanager strain Trap-Nest White Leghorn chicks from 200 egg females and better, mated with 250 egg cockerels and better, at \$20.00 per 100, f. o. b. Seattle. We also hatch R. I. Reds, Barred Rocks, Black Minorcas and Anconas. **QUEEN HATCHERY, SEATTLE, WASH.**

Baby Chicks hatched in Petaluma Incubators are a superior class. Strong, vigorous, sturdy, grow rapidly, lay early. Buy chicks from hatcheries using Petaluma Incubators. You will find one near you, if not, write us. Catalog free. **Petaluma Electric Incubator Co., Petaluma, California.**

Hudson White Leghorns—More years of official 200 egg records than any other California breeder. Records made by our pullets in Oregon, three Washington and last Missouri contests. Booking orders now for cockerels, eggs and chicks. **Hudson Poultry Farm, ESCONDIDO, CALIFORNIA.**

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. **J. P. CLOUGHLIN, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.**

Pullets—Threemonths old S. C. White Leghorn, from closely culled and carefully mated pens with high egg records. Orders now booked for April and June delivery. Visitors welcome. **El Dorado Pullet Farm, 803 N. Spadra Rd., Fullerton, California.**

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. **Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.**

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 13 years of trapnesting for vitality and high production. None better anywhere. Circular free. **Bonnie Brae Farm, Burbank, California.**

Parks P. R. Pedigreed Cockerels and eggs for hatching! 230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

For Sale—Thoroughbred Single Comb Black Minorca cockerels and one rooster. **C. F. Schwab, San Fernando, California.**

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1573 W. 46th St., Los Angeles, California.**

Baby Chicks—90% Pullets Guaranteed—White Leghorns from heavy laying stock. **Lightning Hatchery, Box 16A, Seabright, California.**

Partridge Wyandottes, Premier Strain, prize winners. Cocks and Cockerels. **Mrs. J. L. Dunn, Valley Home, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$3.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. Pause Pheasantry, **Fair Oaks, California.**

Langshans Purebred—Eggs \$2.50; Stock \$2.50. **Francis Rudkin, Fillmore, Calif.**

Buff Orpington Eggs, \$2.50. **Mrs. P. Bone, Route B-57, San Jose.**

RABBITS

Pedigreed Flemish Glants—No fancy prices. **Maud Beeching, 1573 W. 46th St., Los Angeles**

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. **The Kruckeberg Press, 236 Court St., Los Angeles**

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For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. **La Corona Goatery, El Monte, California.**

SEEDS AND PLANTS

HAIRY PERUVIAN ALFALFA SEED: EACH SACK CERTIFIED AS COMING FROM OFFICIALLY INSPECTED FIELDS. PLANTING SEASON NOW AT HAND. SAMPLES, PRICES, GOVERNMENT STATISTICS, ETC., CHEERFULLY FURNISHED UPON APPLICATION. **E. F. SANGUINETTI, YUMA, ARIZONA.**

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

Cory's Thornless Blackberry—Selected, well-rooted tips, \$2.40 per dozen, \$15.00 per 100, \$120.00 per 1,000. 50 at 100 rate or 500 at 1,000 rate. **Black Zante Currant Grape (Panarit),** heavy 2 year old vines, \$5.00 per 100. Packed free. **Sylvan Nurseries, Lincoln Highway, Roseville, California.**

For Sale—Thompson Seedless, Malaga and Muscat one year old grape rootings. Cuttings came from the finest producing vineyards of Tulare County and are guaranteed A No. 1. Reasonable prices for 1,000 lots or over. **J. Murray, 7050 Kester Avenue, Van Nuys, Los Angeles County, California.**

For Sale—Mountain grown Strawberry Plants, **Americus Everbearing;** fruits from May to November. Strong plants, \$3 per hundred. **Carolina, \$2; Banner and Bittersburg No. 80, \$1.50; Brandywine and Klondike, \$1 per hundred.** Postpaid. **B. Bryan, Camp Baldy, California.**

Strawberries, 21,600 boxes per acre, from July to November, 1921, from Hewitt's Improved Mountain Grown Progressive Everbearers. Profits sooner and greater than any other crop. Descriptive folder listing popular varieties. **Carl N. Hewitt, Summit, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest, Standish, California.**

Strawberries six months in the year! Plant Everbearers, Superb, Progressive, \$2.00 hundred. **EVERBEARING RASPBERRIES,** six \$1.00, inspected. **Apple Blossom Nursery, Route 6, Seattle, Washington.**

Hubam Clover—My Hubam Clover Seed made over 1,000 pounds of seed per acre. Forage yield in proportion. Give it a trial for cover crop, hay or forage. Certified seed for sale by **O. E. Lambert, Route 6, Box 226, Modesto, California.**

Cory Thornless Blackberry—Large vigor-ous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas E. Mortenson, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower **Wm. Mortenson, Route 1, Lodi, California.**

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.**

For Sale—Rooted Grape Vines, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 936, R. 2, San Gabriel.**

Cory's Thornless Blackberry—Well-root-ed plants, \$1.50 per dozen. **Loganberry, \$1.25 per dozen.** **C. E. Jenkins, 127 Luther, Riverside, California.**

Concord and Niagara Cuttings, \$1.50 per 100 postpaid. **Aug. J. Motzcek, Encanto, San Diego County, California, Box 104.**

400,000 Rootings, Thompson, Malaga, Em-peror, Muscats, Sultana and Cornichon and cuttings, also wine grape cuttings; 4 kinds of alfalfa seed. **Box 501, Fowler, Cal.**

For Sale—Brandywine Strawberry Plants, fifty cents per hundred, postage extra. **E. A. King, West Fourth Street, Riverside, California.**

Thornless Blackberry Plants now ready; fine plants, 8 for \$1.00. Also common blackberry plants, bargain. **Chas. McNeely, Alhambra, California.**

Save Work—Plant Iris and Perennials; a \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurt, San Bernardino.**

Alfalfa Seed—Certified Hairy Peruvian. Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, San Jose.**

Garlic—For sale, good large, fresh garli-co sets, per pound, 10c. Orders of 100 lbs. or more postpaid. **C. J. Baden, R. D. 2, Orange, California.**

For Sale—Selected Mebane Cotton Seed, 5c per pound. **Walter E. Scott, Box 174, Blythe, California.**

Strawberry Plants, Harris and Gold Dol-lar, 60c hundred, \$4.00 thousand. **D. R. Bannister, Oakdale, California.**

Seed from Fine Papayas, 25c per ounce, postpaid. **Box 144, Brownsville, Texas.**

Florida Sour Orange Seed for sale. **Milo Hunt, Whittier, Phone 250.**

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We Are Experts. Your next roll developed and six prints 30c. Send negative and 40c for 8x10 Art Enlargement. **Wagar, Ukiah, California, Dept. E.**

TREES

Walnut Trees grafted on Northern Cal. black. Placencia, Eureka, Chase and Payne. HACHIYA PERSIMMONS locally grown on Lotus root bench grafted; also seedlings ready to plant. ROYAL APRICOTS on apricot roots, standard varieties Apple, Peach, Pear, Plum and Nectarines, Rooted Grape Vines, Berries. All stock strictly first-class; prices reasonable. Los Nietos Valley Nursery, Downey, Calif. Phone 692.

Citrus Trees, 1 and 2 years. Supply Co. and performance record bud selection quality trees, Valencia, Navel, Eureka, Lemon, Grapefruit. We think we know how to handle trees. Try us. We have a good line of stock. Prices right. Orchards planted to order. WANT TO BUY 50,000 sour seedlings. Cyrus W. Wilhite Citrus Nurseries, P. O. Box 154, Glendora, California.

Specialize on Japanese Persimmons, Kadota figs, Concord grapes and Winter Rhubarb because they pay best of all crops in Southern California. Trees, cuttings, plants and seed for planter and nurseryman. D. Lotus and D. Virginia Seed. See me before you plant. Fred. W. Kelsey, South Rosemead Ave., 2 miles west El Monte, California.

Prune Trees—We offer planters a few thousand Petite, Imperial and Sugar prune trees, on both peach and plum roots, at very close prices while they last. Also have a complete line of other nursery stock at attractive prices. Quality guaranteed. Send us your want list today. Benedict Nursery Company, 185 E. 87th Street, N. Portland, Oregon.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVAL, VALENCIA LATE ORANGE AND EUREKA NAVAL TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

BUDDED AVOCADOS

All leading varieties—Fuerte, Pueblo, Dickinson, Spinks, Queen, Knight, Linda. Get our planters' prices. Field grown. Selected buds. MATHER'S AVOCADO NURSERY, PASADENA. Phone Colorado 6044. P. O. Box 585

To Get Acquainted—I will mail three rhubarb and three assorted blackberry plants, or one seedling fig and one pomegranate, or four assorted rose bushes for \$1.00. Send for price list. Bishop's Nursery, Highland, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale: Valencia Late, Washington Navels, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Walnut Trees—4 to 12 ft. W. W. Pearmain apples, Bartlett pears, peaches, apricots and figs. Bassett Nursery, Puente, California.

For Sale—Fine lot Florida sour stock orange seedlings, budded orange trees, grafted walnut trees. A. G. Snow, Oxnard, California.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 6294.

For Sale—Hachiya Persimmon scions from one of the best 5 acre groves in the county. George M. Ketscher, 1101 E. 4th St., Santa Ana.

Sampson Tangelo and Dwarf Chinese Lemon; the two best citrus products ever introduced. Coolidge Rare Plant Gardens, Pasadena, California.

Fig Trees—Extra fine Kadota and Mission fig trees. Enterprise Nursery, 1197 N. Fair Oaks Avenue, Pasadena.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees. fine stock. J. W. Irwin, Lindsay, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena.

Quality Trees—Cheap. Send list for prices. Cash Nursery, Sebastopol.

WANTED

Wanted—Reliable Party within 50 miles, raise Ives Strain World's Champion Bronze Turkeys. Will furnish stock. Guarantee profits. See, write, Ives, 664 V. 66th, Los Angeles, formerly Knobnoser, Missouri.

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

Wanted—Niagara, Pierce, Catoba, Wyoming-red, Goodale, Golden-chasselas, black-monukka grape cuttings. H. Hamilton, 2432 E. Market Street, Stockton, California.

Wanted—Purebred Newfoundland pup, 3 to 4 months old. State color and price in first letter. Chas. McNeely, Alpaugh, California.

Wanted to Buy—Six-ton wagon scales. Address, care Cultivator, W. J., Los Angeles.

Want Farms for cash buyers. Will deal with owners only. R. A. McNown, 370 Wilkinson Bldg., Omaha, Nebr.

DUCKS

Mammoth White Pekin Duck Eggs for hatching, \$1.00 per dozen, \$8.00 per hundred. A. Surtman, Petaluma, California.

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Tractor Bargain—Almost new Sandusky tractor; plowed less than 100 acres. Taken back on foreclosure. Will sell for less than half the cost of new tractor, and arrange easy terms. 1121 Charles C. Chapman Bldg., Los Angeles, California. Phone 64191.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

For Sale—Holt 75 H. P. Caterpillar with Holt land leveler, plows, cook wagon, at big bargain. G. E. KENNEDY, 472 Spreckels Bldg., San Diego, California.

MISCELLANEOUS

Bargain—We have taken over a large stock of hose, absolutely new, and will ship any quantity you may desire. This hose is manufactured by the most reputable hose factory in the country.

10,000' 3/4" seven-ply hose @ 14c per foot. 80,000' 3/4" five-ply hose @ 10c per foot. 40,000' 5/8" five-ply hose @ 9 1/2c per foot. This shipment of hose will be ready for distributing February 5th. Send for sample. American Machinery Co., 518 Fourth Street, Oakland, California.

Tobacco, Natural Leaf. Sweet and mellow hand picked chewing or smoking; 5 lbs., \$1.50; 10 lbs., \$2.50. Smoking, 10 lbs., \$2.00. Furnish free receipt for preparing. Quality and delivery guaranteed. FARMERS' TOBACCO EXCHANGE, Sedalia, Ky.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Homespun Tobacco—No. 1 Tennessee red, 5 1/2 lbs., \$1.80; No. 1 smoking, 5 1/2 lbs., \$1.65; 6 1/2 lbs., choice burley smoking, \$2.75. All prepaid. Satisfaction or money back. Farmers' Association, Dukedom, Tenn.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

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Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

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20 Acres—19 alfalfa, rooted vines for one acre. Plenty shade, all water want year round, close to good town; \$1,000 down handles this. 40 acres rich level silt land, close to town, plenty water all the year; 5 acres alfalfa, has all been in alfalfa; priced below market. \$400 down, no other payment on principal for 4 years, no interest charged first and second year. Investigate this. Chas. McNeely, Alpaugh, California.

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Sutter Basin is ready for "Go-Getters." It is a practical farming project in crops today. Deep, rich soil with irrigation and drainage system, river and rail transportation. In the heart of the Sacramento Valley. Very liberal terms to men who know how and will work. Write today. Sutter Basin Company, California Fruit Building, Sacramento.

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For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

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Berkshire Glits—Bred for late spring litters. Boar pigs of breeding age. Calace Orchards, Martinez, California.

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Big Boned Poland Chinas—Bred glits and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

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CATTLE

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My foundation herd of pure bred Guernseys, representing the most popular blood lines of the breed, is for sale. It includes such animals as Rebecca of Sunnyview, the state champion cow in BB Class, and Veda of Chiconia, whose son sold for \$10,000. Both cows are in calf to a son of the great Itchen Daisys May King of Langwater, who has a number of high record daughters. The herd consists of 14 mature females fresh or safe in calf; 3 heifers and 5 young bulls sired by Masterpiece of Edgemore, Pencoyds Golden May Secret and Itchen Daisys May King of Langwater. They combine show type with high production.

All animals tuberculin tested and guaranteed breeders. Will be sold singly or a specially attractive price will be made on groups.

Dr. J. A. Woodside, Rita and Fulton Aves., Van Nuys, Cal. Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords. Chose bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman, Willits, Mendocino County, California.

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Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

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Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Mountain Farm, Calistoga, Cal.

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Thoroughbred White Holland Turkey Toms, a few beauties at \$12.00. Three hens for \$20.00. Pause Pheasantry, Fair Oaks, California.

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Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder 1 Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs—Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harold, Dixon, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

Big Type Durocs—Better Durocs at right prices. Harvey M. Berglund, Dixon, California.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Udder Trouble

One of my cows has a hard lump in her udder about the size of a base-

ball. It has been there about two weeks. She has been fresh six months. Prior to the lump coming she was bothered with gargetty milk. Can you suggest some remedy?—Subscriber, Hynes.

The lump in the udder is caused by the gargetty milk, as you call it, clogging the ducts, and it may form an abscess. You should have started the treatment when the thick, lumpy milk first appeared. Lumpy milk is the first symptom of congestion of the udder and should not be neglected one moment. Congestion of the udder may be caused by a bruise or extreme cold weather but is usually caused by the condition of the blood. Some cows that get dry feed continually get constipated and the blood gets thick. The thick blood clogs the ducts in the udder and trouble begins. Laxative feed should be given, and be sure that she gets plenty of good water to drink. Roots, green feed and sloppy mashers are also good. To thin the blood quickly give a physic of salts. One pound of epsom salts and half a pound of common salt dissolved in two quarts of hot water is the right amount. When cool give at one dose as a drench. Or a handful of salts, mixed as above, given in the feed twice a day for a week will do the same but not as soon. Your cow will probably lose that quarter but maybe you can save it by using the above treatment and carefully rubbing the quarter and milking it out clean every time.

More Udder Trouble

Cow seems to have much trouble with her udder caking every time she comes fresh. The time before the last after milking for some time she lost the use of one quarter. The last time she nearly lost the use of two quarters and dried up sooner than she should have. She has been dry now about four months and is due to calve again soon. Could I prevent the caking by treatment before calving? I read your article on "Udder Trouble" in the Cultivator of January 7, but this cow will not eat any medicine in the feed. She will refuse feed with only common salt in it. It seems to me that any of the cows here do not eat as much salt as those I have known in Wisconsin. What would you advise doing?—Subscriber, San Diego.

When a cow refuses medicine in the feed put it in a long neck bottle, add water, shake and give it at one dose as a drench. A cow is very easy to drench. With your finger and thumb in her nostrils like a leading clasp, pull her nose up and pour the medicine into the mouth, a little at a time, giving her time to swallow. It would be good to start milking her some time before she comes fresh. Also feed her green feed, roots and sloppy feed. Don't forget the salts.

Drying Up Cow

Kindly give me some information about drying cow. Last year I milked her right along until fresh but was told this was not good for the cow. I started to dry her about five weeks ago by milking her once a day, then every other day until she gave very little and that was very thin, when I stopped. She will be fresh again soon. I tried her teats this morning and got a yellow substance, part water. Is this a bad sign?—Subscriber, Arroyo Grande.

Cows that are milked every day of the year very seldom have udder trouble or milk fever at time of calving. It is a great shock to a cow to be dry and then start a large flow of milk at once. The shock of calving is enough at one time. The cow that gives a regular flow of milk the year around will give more milk in the year than the one that has a great flow on coming fresh and goes dry part of the year. The milk may not be very good for a week or two before coming fresh but you can give it to the chickens. If the cow is fed green feed and her bowels are free she will probably come fresh all right, but if she has been getting dry feed it would do her good to put a handful of salts in her feed once a day for a week or two before calving. Mix two parts epsom salts with one part common salt. Do not bother the udder until she comes fresh unless it fills up too full, then milk it out and relieve the pressure. Read the other questions and answers in this column.

Why Should I Cooperate?

IN DISCUSSING the problems of the cooperating poultrymen of California in marketing their products, Cornele G. Ross, chairman of the executive committee of the Poultry Producers of Southern California, writes:

The above query, or one of similar import, is usually the greeting which meets our field representative when he solicits poultrymen to join our organization and become a part of the movement to upbuild and strengthen the industry. The great majority of poultrymen, while willing to admit that cooperation has done and is doing much for the industry, are inclined to forget the conditions which confronted us six or seven years ago, and which led to the forming of the California cooperative poultry associations as the only means of saving the industry.

Doubtless many of them are new to the business and have no personal knowledge of the conditions which existed in our industry in 1913 and earlier, but the older poultrymen should refresh their memories as to what we were up against in those days, and rally to the support of the only means of preventing a still more serious situation during the coming season.

In 1913 California did not produce enough eggs for its own consumption and yet, in spite of the necessity of importing eggs from the Middle West our local markets were dominated at the whim of the jobbers, and prices were governed solely on a market fixed absolutely by the purchaser. These jobbers made their profit at so much per dozen and the lower the market the greater the consumption and consequently the larger the profits.

In the flush of the laying season this frequently meant a market price below the poultrymen's cost of production, and as the producers were unorganized they were forced to place their eggs upon the market at whatever figure the jobbers would pay, while the jobbers placed them in storage to be sold later at "all the traffic would bear."

The following table, showing the "low" and "high" market for each month of 1913 shows what happened without cooperation on the part of the producers, but in a market which had to bring in eggs from outside the state to supply the demand.

Los Angeles Produce Exchange quotations on case count, highest and lowest: January, .35, .22; February, .29, .18; March, .23, .18; April, .21½, .23; May, .24, .21; June, .26½, .23; July, .30, .23; August, .34, .30; September, .40, .34; October, .45, .40; November, .54, .45; December, .52, .43.

Can any of you imagine where these figures would have gone with a surplus production of close to 1,500 cars, or say 700,000 cases of eggs, as there has been this year, and with Oregon and Washington at our doors with their growing surplus to dispose of?

Our last census returns show an increase in poultry in California, from 1910 to 1920 of 55 per cent; the present year will show a larger proportional increase for 1921, and from all available data, 1922 is coming strong, both in California and in our neighboring states, and the question is, how can we dispose of this immense surplus without greater and more loyal efforts on the part of all the producers to join in cooperative marketing?

Even the most superficial study of the situation should convince those interested that cooperation alone is responsible for our standardized grading and pack, and the distribution of our surplus to foreign markets opened to us by virtue of the high quality of our product.

All this has been accomplished in the face of criticism and obstruction on the part of short sighted producers who are unwilling to realize that we have an industry here in California which could be expanded to unlimited proportions if we would work together. Many producers are withholding their support of this movement on the ground that they cannot afford to deprive themselves of the higher price which they can obtain

for their product by selling on the outside.

Granting that, as long as the cooperative organizations are strong enough to stabilize the market, by exporting or storing the surplus, a producer can, in some cases at least, obtain more for his eggs than the organization can pay, are you willing to continue the selfish policy of placing your eggs in the hands of those whose sole interest is to increase their net profits, by any means available, and always at your expense?

Every producer of poultry products should realize that the jobber is only interested in his profit per dozen, and that he consequently desires to buy at the lowest figure possible, and will use every means in his power to depress the market quotation; that he only buys to supply his own retail trade, and has no particular interest in exporting any surplus (without cooperative organizations the only one who would be interested in export shipments would be the speculator, who would wish to purchase at the lowest figure and would expect to pocket the profits); that it is to the jobbers' interest to cripple or disrupt all producers organizations, and his offers of premiums above the market are directed to this end.

We hope our members will give these facts due consideration; that they will investigate for themselves and see if they do not find that our industry is facing an enormous surplus production during the coming season, not only in our own state but elsewhere; that they will realize if this surplus is not, to a considerable extent at least, in the hands of responsible producers organizations, it means a market subject to wide fluctuations and much lower levels than would be the case with a standardized product in the hands of our own organization.

Our organizations are growing in knowledge of the best marketing methods; we are perfecting methods of helping our members, other than marketing his eggs; we have created a reputation for a standardized product of high value, and it would seem the better policy to stick to our guns and continue to advance, even if some of the short sighted and selfish outsiders do get a bit more for their eggs, than it would be to permit our organization to be weakened or disrupted and see the industry wrecked from inability of any of us to get cost for our product in a market glutted by thousands of producers seeking to dispose of their eggs at some figure, regardless of cost.

Poultry Queries

Conducted by Jean A. Koethen

Chicken Pox

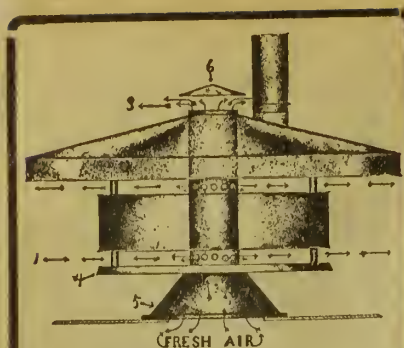
In reading the Cultivator I have noticed a great many inquiries about chicken pox in the last two months, also the advice and treatment the paper has published which is very good for I have tried it.

I have found that chicken pox can be avoided if one will watch the weather and the feeding. When feeding for egg production in cold weather one is rarely troubled with chicken pox. So I have tried this formula with very good results: I put one tablespoon of salts to each quart of drinking water once a week if weather is warm and follow it up with the same amount of sulphur to each quart of mash.

This formula will also cure the chicken pox. If one has the time to get rid of the sores paint the combs with creolin. One application is all that is necessary, but care must be taken not to get it directly in their eyes. If poultry men will use this treatment they will not be bothered with chicken pox. Don't give salts in cold weather.—R. J. Harrison, Flagstaff, Arizona.

Age of Hatching Eggs

I would like to know how long I can keep eggs for setting.—Subscriber, Lancaster.



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Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

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No order too large or too small to receive our careful attention. Send for prices.

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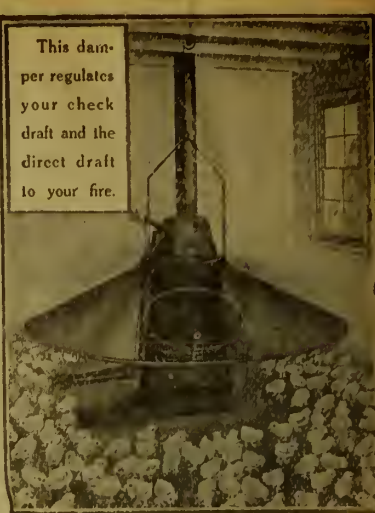


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Our free book "Chickens from Shell to Market" gives full particulars.
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will burn coal, coke, wood, or briquets. The only safe and reliable method of brooding chicks. Queen stove has patent draft that controls heat perfectly. Write for catalogue, also ask for general catalogue of full line poultry supplies.

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We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination. Copyrighted and guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

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Duck Raising

I am going into the duck business and would like to know what kinds of ducks are best. Where can I get them and what is best to feed them?—R. F., Watsonville.

The best kind of duck is the one that suits your purpose best. If you want eggs—market eggs, I mean—get Indian Runners. I believe the Muscovy is considered a very good market duck, but the White Pekin is generally preferred by people who want to make a business of raising ducks for market. The Pekin grows rapidly, reaching a marketable size at about ten weeks of age, and is grown by practically all the big duck farms. If you will study the advertising columns of the Cultivator you will find the names of several breeders who will be glad to sell you eggs. Ducklings are fed a soft ration from the first. Bread crumbs or bread crumbs and bran scattered over a clean board are good for the first meal. After that, when the birds have learned to eat, mix a mash of $\frac{2}{3}$ bran and $\frac{1}{3}$ cut alfalfa, add about 1-5 sand or chick grit, moisten with water till it is crumbly and give on a board three or four times a day. After a week you can begin to add a little corn meal, and by the end of the second week your mixture will be $\frac{1}{3}$ bran, $\frac{1}{3}$ corn meal, and $\frac{1}{3}$ alfalfa or other greens. Never forget to add the sand for the ducklings cannot digest their food without it. After the third week you can add a little beef scrap and increase till it is about 1-5 of the whole.

Colony House Details

I should like a little more information concerning the type of poultry house shown in the Cultivator of November 26, used on the Major Ranch at San Gabriel. How are the roosts and nests arranged on the inside? Is the south side all left open while chicks are brooded? What is used for the support of roofing paper? I cannot figure how it can be built for \$15 when one by three lumber is \$51 per thousand and tar paper costs \$2.50 and \$3 per roll.—Subscriber, Moreno.

I took these questions to Mr. Major who replied that the \$15 the house cost him did not include labor, for he did the work himself. The lumber cost him \$35 per thousand and the tar paper \$2 per roll. The roosts are not over 18 inches from the ground and extend clear across the rear of the house, while the nests are along the front. Roofing paper is supported by wire. The south side was left open when chicks were brooded except for a curtain that could be rolled down when necessary. Mr. Major will not brood by this method again, however, because the labor involved is considerably greater than when the chicks are brooded in large flocks around a brooder stove.

Roupy Hens

One of our hens has been ailing for six weeks. Her throat is filled with a yellow substance; she swallows with great difficulty and sometimes gasps for breath. Is this trouble contagious, and how can it be cured? Our roosting house is open to the sun and air all day and closed at night and is cleaned daily.—Subscriber, Del Mar.

There is not much use trying to cure a hen that has had roup so long. Better kill and bury deep. You might swab out her throat with a 2½ per cent solution of creolin and glycerine, or with silver nitrate or peroxide of hydrogen, but your flock will be better off with her out of it. Should another case appear remove the bird from flock at once and swab out her throat, but if she does not improve immediately put her out of the way. Roup is contagious to a certain extent, but isolated cases sometimes occur in healthy flocks. If the roosting house is closed at night that probably accounts for this case and may cause others. Sunshine and daily cleaning are good as far as they go but as long as you force your flock to breathe and re-breathe the same air all night you will have roup.

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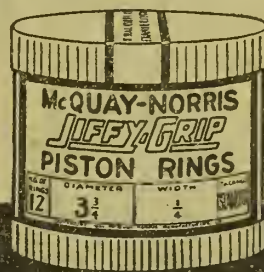
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\$1.00 Supercyl — to control oil. Its special reservoir collects excess oil from the cylinder wall on each down stroke, emptying on each up stroke, which ordinary grooved rings cannot do. Install one in top groove, regardless of which compression rings are used in lower grooves.

50c JIFFY-GRIP — a lower-priced, one-piece ring that has proved its efficiency within the limits of one-piece design. Has an improved non-butt joint — and velvet finish that "seats in a jiffy." Always install in combination with one Supercyl Ring in top groove of each piston.

Snap Rings — of the highest grade. Raised above the ordinary level of "bulk" rings by the care and uniform accuracy of McQuay-Norris manufacturing methods. Packed twelve rings to the carton — and rolled in waxed paper which preserves them from rust and breakage.



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BUCKEYE "Colony" Brooders are foremost because of merit. They have revolutionized chick raising. Literally they make three chicks grow where one grew before; reduce the labor to a fourth and cut the expenses to half. These brooders have entirely removed the great mortality that made brooding so hazardous. Burn coal, oil or gas.

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Practical, dependable, all-metal incubators. 50-egg size, \$10.20. Simple, safe, inexpensive to run, hatch more and better chicks. Catalog free.

CYCLE SALES CO.

Box 51

Visalia, Cal.

Los Angeles Markets

Los Angeles, February 1, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 42 cents.

Jan.....	25	26	27	28	30	31
'22.....	42	42	42	42	42	42

CHEESE

Brokers' prices:
California firsts, 23@25.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 36; case count, 34; pullets, 33.

Jan.....	25	26	27	28	30	31
'22.....	42	42	42	42	42	42

POULTRY

Price to producers: Hens, 27; colored, 32; broilers, 36@39; roasters, 32; old roosters, 16; fryers, 35; ducks, old, 20; ducklings, Pekin, 3½ up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, Jan. 31.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 8.75; 175 to 225 lbs., 9.25.

Cattle (on foot, gross weight): Steers, good, 7.00; medium, 6.00; cows, good, 5.50; medium, 5.00; calves, 125 to 150 lbs., 8.50; 150 to 225 lbs., 7.50. Sheep: Ewes, 4.00@4.50; lambs, 8.50 @9.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 31, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market weak.

Lugs, 90@1.00. Stocktons: Burbanks, per cwt., best, mostly 2.40@2.50; few 2.75; poorer, 2.00@2.25. Idahos: Russets, best, mostly 2.50@2.65; bakers, 3.00@3.25. Sweet potatoes: Movement moderate, market steady. Locals: No. 1, best, per lug, 1.10@1.25; poorer, 75@1.00 per lug; No. 1, 3.00@3.50 per cwt. Onions: Demand moderate, market steady. Stocktons: Per cwt., White Globes, best, mostly 8.50@9.00; browns, best, mostly 7.00; poorer, 6.50; lugs, whites, best, 2.75@3.00; browns, 2.10@2.25; Lompoc browns, 7.25@7.50 per cwt., in small lots. Garlic: 8@10 lb.; poorer, 5.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, January 31, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

The supply of vegetables on the local produce market has been limited by the recent freeze and several commodities were scarce and higher in price yesterday. Cauliflower averaged 50 cents a crate higher than Monday and sold from 2.75 to 3 a field crate. Celery was also high, the best local stock selling from 6.25 to 6.50 per crate. Cabbage prices were unchanged and much poor stock was offered. Lettuce was firm, but a good deal of the offerings were only of poor quality.

Artichokes: Doz., 1.75@2.00. Brussels sprouts: 17@18 lb. Sacked vegetables: Beets, 2.75; carrots, 2.50@2.75; turnips, mostly 1.25@1.50; parsnips, 2.00@2.25.

Bunched vegetables: Per doz. bunches: Turnips, 50@60; carrots, 75@1.00; beets, 80@1.00; radishes, 25; parsley, 20; spinach, wide range in quality, 45@50.

Cabbage: Market stronger. Per field crate, mostly 2.50@3.00.

Cauliflower: Market stronger. Wide range in quality. Per field crate, mostly 2.75@3.00; few best, 3.25@3.50.

Celery: Market stronger. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Cucumbers: Market steady. Hothouse, mostly 1.00@2.50. Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50. Chicory: 90@1.00 crate. Lettuce: Demand moderate, market strong. Locals: Too few sales to quote. Imperial Valley: Best, 1.00 per dozen heads; 2.75@3.00 field run shipping crates; 3.75 packed crates. Parsnips: 75@1.00. Onions: Green, 15 bunch. Peppers: Mexican chili, 16@20; Bell, fancy, 40. Rhubarb: Box, 2.25. Tomatoes: Market steady. Mex., lug, repacked, 4.00@4.50; original crate or lug, 3.75; crate, 3.75.

FRESH FRUITS

Apples: Demand and movement moderate, market steady. Locals: Winesaps and Romes, mostly 4@5; few 6; Delicious, 5@7; few 8; B grade Delicious, 2.25@2.75; fancy, 2.75@3.25; few 3.50; Winesaps, fcy., 2.50@3.00; B grade, 2.25@2.50; Romes, fcy., 2.50@2.75; B grade, 1.75@2.00. Watsonville: Fancy, 3½ and 4 tier Bellefleurs, 1.60@1.65; few best, 1.70@1.75; poorer, 1.40@1.50; 4½ tier, 1.30@1.35; loose, per lb., 3@4; Pearmain, 4 tier fcy., 2.00@2.25; Yellow Newtown Pippins, 4 tier fcy., 2.00 @2.25. Northwestern: Spitzenburgs, medium to large, extra fcy., 3.00@3.25; fcy., 2.75@3.00; Winesaps, extra fcy., medium sizes, 3.00@3.25; fcy., 2.75@3.00; Romes, extra fcy., 2.75@3.25; Yellow Newtowns, extra fcy., 2.75; fcy., 2.50. Avocados: Lb., 50@75.

CITRUS FRUITS

Grapefruit: Movement moderate, market steady. Californians: Northern: Packed box, 3.00@3.25; market pack, 2.75 @3.00; small, 2.25@2.50. Imperial Valley, 4.00@5.00. Arizonas: Seedless, 4.00@5.00, according to size and quality.

Lemons: Demand and movement moderate, market strong. Locals: Loose boxes, mostly 2.25@2.50.

Oranges: Demand limited, market steady. Navels, special brands, 1268-1768, mostly 5.00@5.50; 2008-2168, 4.50@5.00; market pack, 2.50@4.00, according to size and quality.

Tangerines: Demand and movement light, market steady; mostly 7@9; poorer, 5@6 lb.

GRAIN

Prices on L. A. Grain Exchange:

Milo, 1.60.

Barley, 1.32½@1.35.

HAY

Alfalfa Growers of California report: Business was active during the week and unusually large in volume for this time of the year. In Los Angeles the receipts by rail of alfalfa and grain hay were over 220 cars, of which much the larger part was alfalfa.

There were 2,250 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending January 28, with 480 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, February 1, 1922.

BUTTER

Extras, 40.						
Jan.....	25	26	27	28	30	31
'22.....	41½	41½	41½	40	40	40

CHEESE

Dairy Exchange quotations:
California Flats.....26½
California Y. A.....27
Oregon Trips.....27
Oregon Y. A.....27½

EGGS

Dairy Exchange quotations:
Extra.....37
Extra Pullets.....35
Jan.....25 26 27 28 30 31
'22.....38 34½ 26 35½ 37

POULTRY

Prices furnished by the state department of agriculture, division of markets. Sales to retailers: Below are listed the averages of actual prices obtained between 7:30 and 9 o'clock this morning by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Broilers: 1 to 1½ lbs., 36@37 per lb.; 1½ to 1¾ lbs., 35@37; 1¾ to 2 lbs., 35@37.

Colored Fryers: 2 to 3 lbs., 33@35.

Colored Young Roosters: 3 to 4 lbs., 29@31 lb.; over 4 lbs., 29@31; staggy, showing spurs, 20@25 lb.

Colored Old Roosters: 18@20 lb.

Leghorn Old Roosters: 16@18 lb.

Leghorn Hens: 2½ to 3 lbs., 24@25 lb.; 3 lbs. and over, 25@26 per lb.

Large Colored Hens: 28@30 per lb.

Ducks: Young, 25@28 per lb.; old, 23@24 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 36@38 per lb.

Dressed Turkeys: Young, 44@46 lb.; off stock, 35@40 lb.

Belgian Hares: Live, 17@20 per lb.; dressed, 25@28 per lb.

Squabs: Live, fancy, 55@65 per lb.; 3.00@4.00 per doz. for common.

Old Pigeons: 2.50@2.75 per doz.

Guineas: Young, 6.00@8.00 per doz.

Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. quotes:

Weighted off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7¼@7¾ per lb.; do. strong quality, 6@6½ lb. Cows and heifers, No. 1, 5@5½ per lb.; do. second quality, 4½@5 lb. Bulls and stags, 3½@4

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The No. 283 Oliver Plow is built especially for orchard or open field work. It is low, rigid and well braced; has no levers; will not injure low branches of trees. The power life feature is positive and durable. The front furrow wheel is set well ahead of the front bottom and the rear land wheel set within the cut of the rear bottom. Both axles are equipped with depth regulating stops. Also made in 2 and 4 bottoms.

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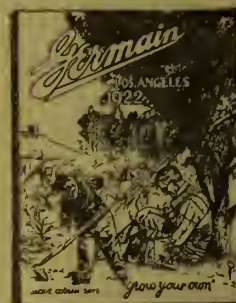
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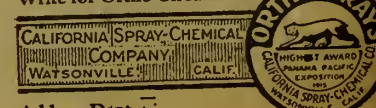
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Address Dept. C

S2	202	9.25
28	227	8.70
4	390	7.05
3 1/2 cars, 35 consignors, \$5,085.68.		
McFarland, January 27		
81	171	9.30
104	159	9.25
93	148	9.20
54	183	9.20
87	188	9.15
3	233	8.30
26	234	8.20
36	233	8.00
8	310	7.00
3	363	6.80
8 stags	406	4.00
6 cars, 27 consignors, \$8,106.98.		
Total for the week: 1,620 hogs, 122 consignors, 18 cars, \$26,469.03.		

VEGETABLES

Prices furnished by state department of agriculture, division of markets: Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 14.00@18.00 large crate; poorer, 8.00@12.00 large crate; Nos. 1 and 2, 7.50@10.00 doz.; Nos. 3 and 4, 2.50@5.00 doz. (No fancy.)

Bunched vegetables: Carrots, 50 doz.; turnips, 40@50 doz.; beets, 40@50 doz.; parsley, 30.

Cabbage: 2.00@2.25 per crate, 1 1/2 per lb., 75@1.00 per doz.

Carrots: 90@1.00 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 5.50@7.00 crate; poorer, 3.50@5.00 crate; San Diego, 7.50@8.00 crate.

Cucumbers: Hothouse, fancy, 2.25@2.50 doz.; smaller, 4.00 small crate (2 1/2 doz.); poorer, 1.00@1.25.

Eggplant: Quality poor, 5@10 lb.; Florida, 25 lb.

Endive: 45@50 per lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Unsettled: Iced, L. A., 2.25@3.00; Imperial Valley, 3.25@4.00 crate.

Onions: 5@9 per lb.

Onions: Cold storage, browns, firm, mostly 6.00@6.50; white globe, mostly 7.50@8.00; pickle onions, brown, 4.50@5.00; green onions, 1.85@2.00 per box.

Peas: 10@15 lb.

Peppers: Local bells, 15@20 lb.; chilis, slow, 12 1/2 lb.; Florida, 30@35 lb.

Potatoes: Rivers, fancy, 1.90@2.25; Oregon Burbanks, 2.25@2.50 cwt.; Idaho Netted Gems, 2.50@2.65; Salinas, 3.00@3.25 cwt.

Pumpkins: Per sack, 75@1.00 per 90 lb. sack.

Rhubarb: 3.00@3.25 per apple box; 2.50@3.00 per 30 lb. box.

Squash: Summer Brawley, 3.00@3.50, small crate; cream, 75@1.00 per lug; Hubbard, 1.00@1.50 per 90 lb. sack; 1 1/2 lb.

Spinach: 2@3 lb.; Southern, 2.00@2.75 crate.

Sprouts: 14@15 lb.

Sweet potatoes: Per cwt., 3.75@4.00.

Yams: 4.50; Arkansas yams, 2.10@2.15 per 40 to 50 lb. basket.

Tomatoes: Repacked, Southern, best, 2.00@2.40 cr.; Mex., 4.00@4.50 per L. A. lug; poorer, 2.75@3.50; hothouse, 3.50@4.00 per small crate.

Turnips: 1.10@1.25 sack.

FRESH FRUITS

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Apples: California Newtown Pippins, 4 tier, 2.10@2.25; 3 1/2 tier, 2.35@2.50; 4 1/2 tier, 1.75@1.85; B grade, 1.25@1.65; Langford Seedlings, 4 1/2 tier, 1.10@1.25; 4 tier, 1.40@1.60; Northwestern Newtown Pippins, extra fancy, 3 1/2-4 tier, 2.40@2.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitz-enburg, extra fancy, 2.50@2.75; fancy, 2.20@2.40; Rome Beauty, fancy, 2.00@2.25; choice, 1.50@1.75; Bananas, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fy., 3.50; Winesaps, 3 1/2 to 4 tier, 3.00@3.50.

Avocados: Quality fairly good. Pago-Pago, 2.00@5.50 doz.

Bananas: Eastern, 6 1/2@7 per lb.; red, 7 1/2 per lb.; Hawaiian, 6 1/2@7.

Cranberries: Slow, 4.50@5.50 box; 1/2 bbl. Cape Cod, 15.00@17.50 per bbl.

Pears: Winter Nelis, 2.25@2.75 per box; De Anjou, 1.75@2.50; poor storage, 1.00@1.75.

Pineapples: 5.00@6.00 per doz.

Pomegranates: Storage, 1.50@1.75 per small box; poorer, 1.25@1.50 box.

CITRUS FRUITS

Prices furnished by the state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Grapefruit: California, fancy, special pack, 3.00@3.75 per box; Arizona, 4.25@4.50; Imperial Valley, 4.50@5.00.

Lemons: Firm, unsettled. Special pack, 5.00@5.75 box; choice, 4.00@4.25 box. Lemonettes, 1.75@2.75 box.

Oranges: Special pack, 126s-100s, fancy, 5.00@5.50; 150s, 4.50@4.75; 200s, 3.50@4.00; choice, 2.50@3.50. Tangerines: Choice, 2.50@3.00 per half orange box; fancy, 3.50@3.75.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples	In 50s
Choice	@13 1/2
Extra choice	@13 1/4
Fancy	@15

Apricots

Slabs	In 25s
Standard	@18 1/2
Choice	@22
Extra choice	@23
Fancy	@25
Extra fancy	@26
Mooparks, fancy	@28
Mooparks, extra fancy	@30
Mooparks, extra fancy	@31 1/2

Figs

California Peach and Fig Growers prices:	
White—	
Standard (in 50s)	.07 1/4
Choice (in 50s)	.08 1/4
Fancy (in 50s)	.11
Bricks, 12 No. 10s	.110
Bricks, 24 No. 8s	.180
Bricks, 50 No. 6s	.280
Bricks, 70 No. 4s	.295
Layers, 10 lb., 4 row	.160
Layers, 10 lb., 5 row	.140
Callmyrna—	
Bricks, 24 No. 8s	.205

Peaches

California Peach and Fig Growers prices:	
Slabs (in 25s)	.10
Standard (in 25s)	.10 1/4
Practically peeled, Standard (in 25s)	.11 1/4
Cartons, 30 11 oz., per case	3.10
Cartons, 60 11 oz., per case	6.00
Cartons, 24 2 lb., per case	6.50
Cartons, 10 5 lb., per case	6.60

Pears

Standard	In 25s
Choice	@12@13
Extra choice	@15@16
Fancy	@17@19 1/4

Prunes

California Prune and Apricot Growers prices:	
Size	Basis Price
30-40s	10 @10 1/4
40-50s	8 1/2 @8 1/4
50-60s	7 @7 1/4
60-70s	6 1/2 @6 1/4
70-80s	6 @6 1/4
80-90s	6 @6 1/4
90-100s	6 @6 1/4
100-120s (in 50s, per lb.)	@6
120s up (in 50s, per lb.)	@5 1/4

Raisins

California Associated Raisin Company's prices:	
Seeded—	
Sun-Maid, 16 oz.	14 1/2
Bakers (in 25s)	13
Loose Muscatels—	
4 crown (in 25s)	15
3 crown (in 25s)	13 1/4
2 crown (in 25s)	12 1/4
1 crown, recleaned (in 25s)	13 1/4
Seedless—	
Thompsons, 16 oz.	---
Thompsons, bulk (in 25s)	---
Thompsons, bakers (in 25s)	---
Sultanas, bulk (in 25s)	13 1/4
Bleached Thompsons—	
Choice, sulphur (in 25s)	---
Fancy, sulphur (in 25s)	19
Extra fancy, sulphur (in 25s)	22

Soda dipped (in 25s)	---
Oil dipped (in 25s)	15 1/4
Bleached Sultanas—	
Soda dipped (in 25s)	---
Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points	---
Black grapes (in 25s)	16 1/4
Layers—All grades withdrawn	---

BEANS

Below California Bean Growers Association shippers' prices choice recleaned:	
Large Whites	5.25
Small Whites	5.20
Pinks	5.20
Mexican Reds	4.70
Red Kidney	6.40
Henderson Bush	6.40
Cranberries	6.50
Bayos	5.10
Blackeyes	4.50

HAY AND FEED

A. W. Scott & Co. says: Arrivals past week, 953 tons. Receipts continue light and demand steady, with prices firm. Most of the receipts have been for direct order or export purpose, so that stocks have moved smoothly without accumulation and prices have been maintained. Good grades particularly have been readily disposed of at firm prices, although a poor quality is not in demand and sells slowly at prices considerably below those of the No. 1 grade. Alfalfa has been dull and uncertain. The week's transactions have been in Nevada hay, California holders anticipating better figures in the near future.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the markets in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added, according to conditions).

Wheat hay No. 1	17.00@19.00
Wheat hay, fair grade	14.00@17.00
Tame oat hay	15.00@18.00
Wild oat hay	11.00@13.00
Alfalfa hay	13.00@16.00
Stock hay	7.00@10.00
Rollod Barley	29.00@30.00
Ground Barley	30.00@32.00
Oats, Rolled Feed	34.00@35.00
Bran and Millrun	25.00@28.00
Middlings	40.00@42.00
Coconut Meal	22.00@25.00
Alfalfa Meal	21.00@23.00
Cottonseed Meal	23.00@26.00
Sugar Beet Pulp	27.00@29.00
Molasses Tanks	17.00 Barr 25.00
Milo	35.00@38.00
Cornmeal and Cracked Corn	33.00@36.00
Scratch Feed	39.00@41.00

RICE

Rice Association prices:

Bag, 2.40@2.55 f. o. b. points.

GRAIN

Sales on Grain Exchange:	
Barley: Feed, 1.22 1/2@1.27 1/2.	
Wheat: Mill, 1.90@1.95; feed, 1.85@1.92 1/2.	
Red Feed Oats: 1.40@1.55; seed, 1.75@2.10.	
Corn: California yellow, 1.35@1.40; 1.25@1.27; No. 3 kafir, in bulk, 1.44@1.46;	

red milo, 1.52 1/2@1.57 1/2; do Eastern, 1.50@1.53.

Citrus Markets

Los Angeles, February 1, 1922.

Prices for oranges are advancing in the Eastern markets because of reports of frost damage to California fruit. At the time of the frost there were 1,500 cars of oranges shipped and unsold in the Eastern markets with several hundred more in the packing houses ready to go and prices on these are still advancing. The previous estimate of the Fruit Growers' Exchange on this damage is 40 to 50 per cent on oranges and 35 per cent on lemons. Florida is shipping around 100 cars each of oranges and grapefruit daily.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 4,667 cars; lemons, 1,423; total, 6,090. To same date last season: Oranges, 4,375; lemons, 1,332; total, 5,707. From Central California to date this season: Oranges, 4,148; lemons, 73; total, 4,221. To same date last season: Oranges, 3,973; lemons, 66; total, 4,039. From Northern California to date this season: Oranges, 268; lemons, 7; total, 275. To same date last season: Oranges, 301; lemons, 3; total, 304.

AT THE AUCTIONS

January 27
New York: 8 cars Nav. 2.95@5.25.
Boston: 2 Nav. 4.30@5.50.
Pittsburg: 1 Nav., 1 lem. Nav. 4.20@4.95, lem. 3.90@4.50.
Cleveland: 3 or., 1 lem. Nav. 3.15@5.50, lem. 5.80@6.40.
St. Louis: 5 or., 1 lem. Nav. 2.66@4.70, lem. 5.05@5.70.
Cincinnati: 1 lem. 5.25@5.95.

January 30
New York: 20 or., 1 mixed, 12 lem. Nav. 3.00@6.15, lem. 5.50@6.70.
Boston: 15 or., 1 lem. Nav. 3.05@5.30, lem. 4.65@6.70.
Cleveland: 5 or., 2 lem. Nav. 2.70@5.10, lem. 4.75@5.95.
St. Louis: 4 or., 1 lem. Nav. 2.30@4.45, lem. 5.00.
Pittsburg: 5 or., 1 lem. Nav. 3.45@4.90, lem. 4.35.
Philadelphia: 1 or., 1 lem. Nav. 4.20@4.85, lem. 6.10@6.45.
Cincinnati: 1 lem. 5.70.

January 31
New York: 16 Nav. 3.70@6.05.

WEATHER REPORT

San Francisco, Cal., Jan. 23, 1922.

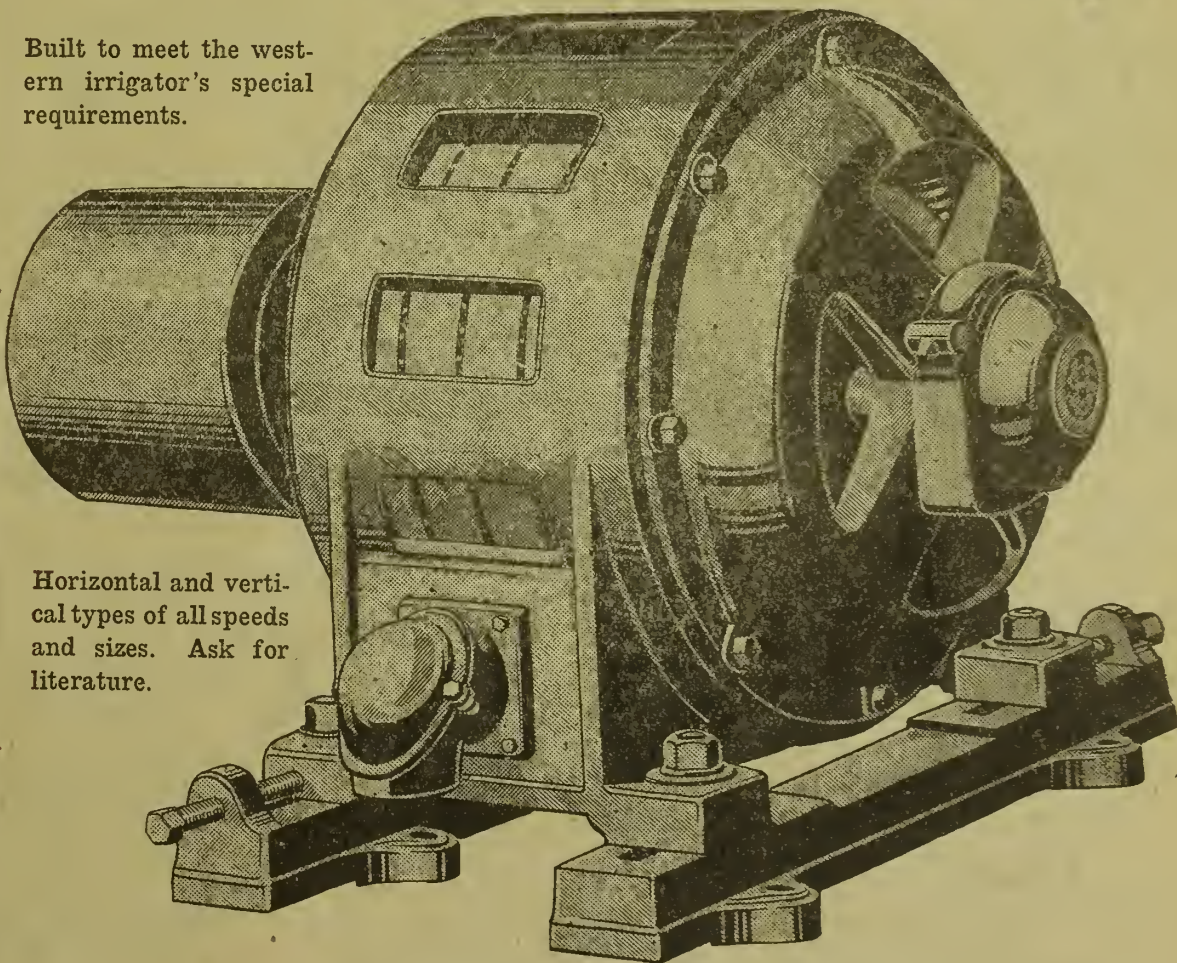
Stations	Rainfall	Temp.
	Week Season Norm.	Max. Min.
Eureka	1.05 14.92 23.73	54 32
Red Bluff	.0 10.16 13.69	60 26
Sacramento	.06 7.38 10.42	58 30
San Francisco	.20 10.13 12.21	59 36
San Jose	.36 8.20 8.83	62 26
Fresno	.02 5.90 5.02	60 32
San Luis Obispo	.06 9.53 10.01	70 38
Los Angeles	.0 10.74 7.65	76 42
San Diego	.01 12.95 4.95	64 32

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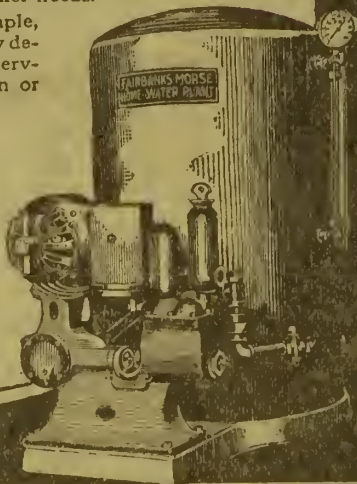
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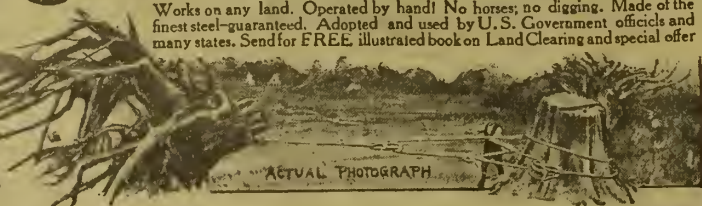
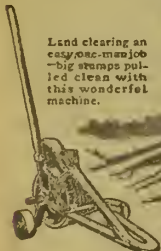
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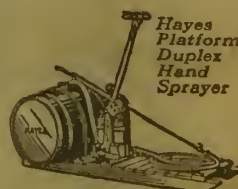
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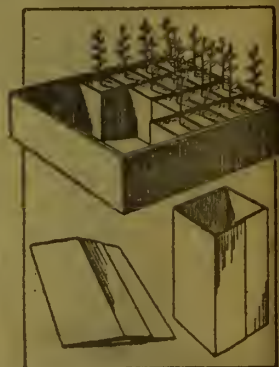
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CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

February 11, 1922

No. 6

Twelfth National Orange Show

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San Bernardino, California
February 17-27



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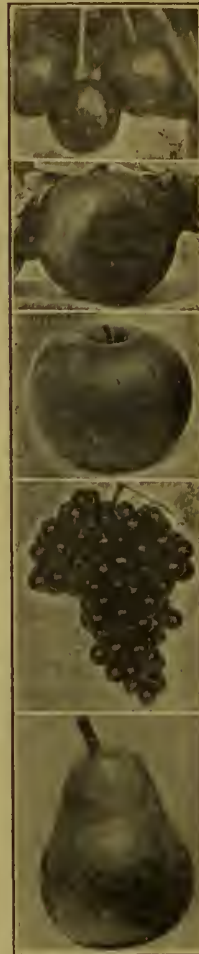
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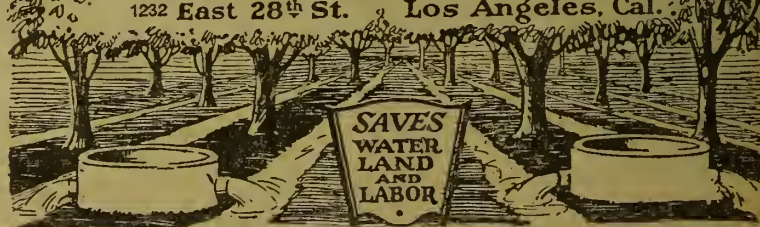
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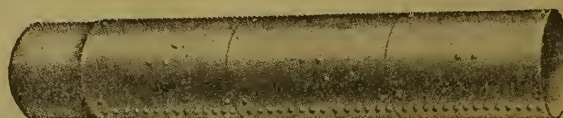
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California Cultivator

Vol. LVIII, No. 6

Los Angeles, February 11, 1922

One Dollar Yearly

Distance Apart

AS there are varying conditions of soil, of habit of tree, of sufficiency of water, etc., there are varying opinions as to distances apart in planting. Recently this question as to peach trees came to the Cultivator and in order to have the best information from those most competent to give it we wrote producers and others in peach growing districts. Many of these have replied and their letters are quoted below.

First, however, a word as to "systems" of planting. We imagine that today 45 per cent of new orchard plantings are under the "square" plan. There are, however, four of these systems, namely, the square, triangular, hexagonal and quincunx. The square system gives the fewer trees to the acre at the same distance apart. It is claimed that theoretically the hexagonal system gives the same distance apart, the same room for root development and for top development and allows of setting nearly 20 trees more per acre than the square system. As a practical fact of growth, however, we do not think that roots or top recognize the slight advantage.

In any case, as noted, common practice is now almost exclusively to use the square planting, and, if anything, greater distance apart is given, especially to the stronger growing varieities of trees. From the letters quoted below it may be seen that the favorite distance apart for peach trees is still 20 feet, though some prefer 22 and even 24.

Fred C. Brosius, Horticultural Commissioner, Sacramento County:

Peach trees in this county are planted all the way from 16 to 24 feet apart. However, the consensus of opinion is that 22 feet is the proper distance.

Fred P. Roullard, Horticultural Commissioner, Fresno County:

The usual distance for peach tree planting in Fresno County is 20 by 20 feet. This is, in my opinion, the best distance for average plantings.

Fred K. Howard, Fresno:

Peach trees need not be planted farther apart than 20 by 20, except in very rich subirrigated soils which will promote a vigorous growth. Under those conditions 22 by 22 is preferable.

A. D. Poggetto, Manager California Canning Peach Growers:

It is very seldom that the trees are planted less than 20 feet. In fact, 20 feet is the usual planting distance, giving 108 trees to the acre. Some growers, however, plant 22 feet; but in this section (Yuba City), considering the extensive cultivation and complete irrigation systems, the 20 foot planting space gives excellent results.

C. K. Turner, Horticultural Commissioner, Placer County:

The most general practice in Placer County is to plant peach trees at 20 feet apart, either on the square system, giving 108 trees to the acre, or on the hexagonal system, giving 124 trees to the acre. Probably most of the peach orchards are planted on the

former system, and personally I think this is the best plan for our soils.

Charles F. Collins, Horticultural Commissioner, Tulare County:

Peach trees in this county are planted at various distances, many being 20 by 20 feet, some 20 by 22, and 20 by 24. More recent plantings are giving more room, as 24 by 24, which to my mind is a better distance on good peach soil.

A. E. Beers, Horticultural Commissioner, Merced County:

Formerly peaches were planted 20 feet apart. At present 24 feet is the popular distance, although some plant 22 feet apart in sandy land.

H. J. Ryan, Horticultural Commissioner Los Angeles County:

In this county peach trees are usually planted 22 feet apart, and from my own observations I believe that this is the best distance. According to our January reports we now have in bearing in Los Angeles County 5,981 acres and non-bearing 1,137 acres.

A Princess

The cow Princess Maida Veeman, No. 467343, owned by Earl Graham, Compton, has just finished her year's test with 29,631.2 lbs. milk and 1154.7 lbs. butter. This is a new world's record for milk by a margin of 1431.5 lbs. The record formerly held by



Princess Maida Veeman

Creamelle Topsy Ormsby Tobe was 28,199.7 lbs. milk. She is the daughter of Sir Veeman Korndyke Pontiac, a son of Sir Veeman Hengerveld, who is proving to be a wonderful sire.

She freshened on December 19, 1919 as a junior two year old and started on long time test January 1, 1920.

During her two year old record she worked under many difficulties, namely that she was moved around several times and was milked only three times a day. Still she made the excellent record of 20,274.1 lbs. milk with 760.5 lbs. butter. She was tested seven days, 11 months after calving, and made 15.36 lbs. butter from 402.2 lbs. milk as junior two year old.

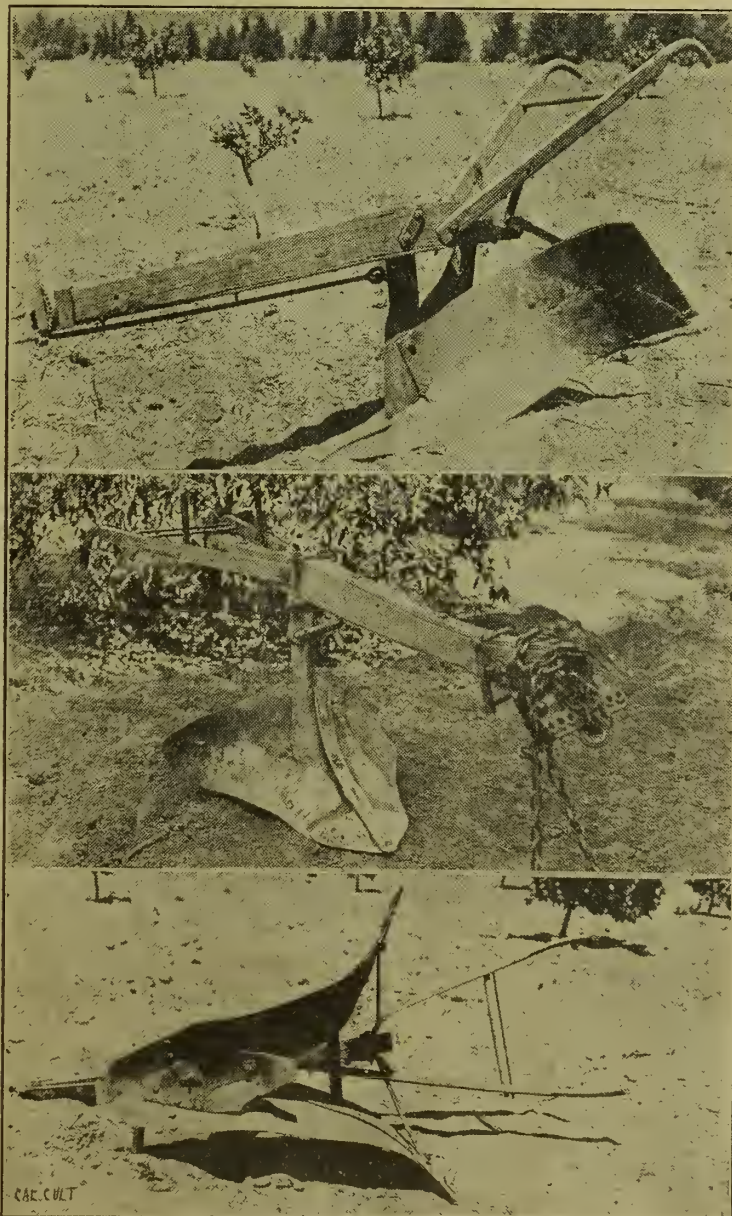
As a junior three year old she freshened on January 25, 1921, being dry only 25 days and started on test February 1, 1921. She made in seven days 33.056 lbs. of butter from 666.6 lbs. of milk, her average test being 3.97. This gives her the remarkable record of 49,905.3 lbs. milk and 1915.2 lbs. butter made in 25 months. This in itself is another world's record.

During the year she has had 14 test periods one of which was a retest and another a verification. During her yearly test there have been eight different supervisors conducting her test.

Earl Graham has developed Princess and personally milked and fed her during the year, seldom being absent for even one milking.

Furrow Manure Treatment

By A. D. Shamel



Some of the Implements of Deep Furrow Manure Application

Upper photo: Home made horse drawn furrowing out plow for making manure furrows. It is an old subsoil plow fitted with wings made from well casing by blacksmith.

Center: Another type of home made horse drawn furrowing out plow for making manure furrows.

Lower: Under side of furrowing out plow showing details of construction.

In answer to the following letter from Norman K. Evans of the Valermo Orchard Company: "Your recent article in 'The California Cultivator' relative to furrowing manure into orchards has interested me greatly and I am anxious to try it on our orchards this year. But we cannot use tractors here, so I am writing to ask you whether you can tell me the name of a firm which makes plows suitable for this furrowing, which can be drawn by horses." Mr. Shamel sends to the Cultivator these photographs with explanation:

In reply to your question with regard to the furrow manure treatment, will say that many of the citrus growers who are using this method apply it without the aid of tractors. Several different ways of making the furrows with horse drawn implements are being used. One of these is a home made furrowing out implement, an adaptation of the ordinary subsoil plow for this purpose. Such implements have been made by blacksmiths who have used pieces of well casing or other suitable steel which have been bent and arranged so as to make a furrowing out plow of the middle buster type. I believe that if you will present your problem to your local blacksmith he will be able to take an ordinary subsoil plow and pieces of well casing or other suitable source of steel sheets and make a plow which will be, to all intents and purposes, satisfactory for your needs and which can be drawn by work animals.

Photographs show detail of the method of construction of a home made furrowing out plow. If it is not feasible to have made the kind of plow shown in these illustrations, it is entirely possible to make a satisfactory furrow for the manure, ordinarily, by making two rounds with an ordinary breaking plow. Therefore, I suggest that if you do not find it feasible to make or buy a horse drawn plow for your purpose that you use an ordinary plow and make two complete rounds in order to secure a furrow of satisfactory depth and width.

Agricultural News Notes of the Pacific Coast

Northern California

Price of jute bags has been fixed by the prison board at 7 cents till April 1.

Completion of the Los Molinos-Red Bluff highway will be celebrated by Red Bluff February 14.

W. H. Cudabalk will assist County Agent McCollum of Placer County in peach twig borer control studies.

Reports of frost damage to potatoes in the ground in the delta district resulted in sending up the San Francisco market.

Yuba County supervisors have been making strong representations to the state highway commission favoring the Tahoe-Ukiah highway.

Purchase of site of the Colusa plant of the California Prune & Apricot Growers has been authorized but construction will not start at once.

In 1921 there were received at San Francisco 795,068 cases of eggs from California points, 8,378 cases from Oregon and 7,302 cases from Washington.

The new Napa plant of the California Prune and Apricot Growers will handle fruit not only from Napa County but also lower Solano and Sonoma Counties.

Members of the Gold Hills farm center of Placer County are planning a good roads day when they will all turn in and put their roads in first class shape.

At the Pear Growers annual in San Francisco Frank T. Swett was re-elected president and manager; P. J. Huth, vice-president; F. A. Edinger, secretary-treasurer.

Asparagus growers of the delta section have completed their marketing organization, electing W. C. Kessner of Ryde president. Directors are: George W. Peltier, John S. Brown, Thomas McCormack, W. C. Kessner, E. L. Shelley, F. W. Wesley and J. W. Gardiner.

Central California

American Fruit Growers' Association has opened a branch office in Bakersfield.

The Manteca Cheese Company will build a cheese factory at Ceres, Stanislaus County.

Orange Cove, Fresno County, citrus association returned to growers \$3.51 per box on navels.

The Tulare Cooperative Poultry Association reports business for December totaled \$17,000.

Riverdale irrigation district is planning a bond election for \$125,000 to purchase canal property.

Reedley, Fresno County, has increased its quota of county farm bureau membership from 20 to 360.

The Stanislaus County Fair Association has decided that it would not be advisable to hold the usual fair at Modesto this fall.

F. A. Seymour has been made general manager of the Sun-Maid Raisin Growers and C. A. Murdoch assistant general manager and secretary.

The East Side Canal Company has distributed to irrigators near Bakersfield its 1922 schedule. Water will be delivered in not less than 24 hour periods.

Sun-Maid Raisin Growers, anticipating problems of marketing the 1922 crop, have sent special trade representatives to the East, Canada and Europe.

Delano is stepping out as a producer of fine lettuce. Several carloads were shipped early in January. It is estimated that 130 cars will be shipped within a few weeks.

The melon growers of the Turlock district of Stanislaus County have made a firm resolve that they will not sell another melon on consignment. Everything must be sold f. o. b. Turlock, for cash.

Southern California

The annual Iowa picnic reunion will be held at Lincoln Park, Los Angeles, February 22.

Santa Barbara County walnut growers are suggesting the next field meet be held in their county.

A tractor school will be held at the citrus experiment station, Riverside, February 27 to March 4.

The railroad commission has granted some slight concessions to commuters in the P. E. rate fight.

At the annual dinner of the Lankershim farm bureau (Los Angeles County) 225 gathered at the tables.

A Coachella Valley farmer says he received 35 cents a pound for string beans which he picked just before the freeze.

Report comes from Imperial Valley that within 30 days more than a million grape cuttings and rooted vines will be set out.

A farmers' tractor and gas engine repair school will be held under auspices of the farm bureau at El Centro high school, February 13-18.

Livestock clubs at Holtville, El Centro and Brawley are already planning to send judging teams to the Southern California fair at Riverside.

The Southern California Pure Bred Livestock Association will meet at Oxnard February 11. The local chamber of commerce will give a barbecue dinner in their honor.

Riverside district orange growers are feeling more optimistic daily over the frost damage situation. Shipments of oranges to January 21 for that section totaled 714 this year against 417 last year to same date.

Standardization officials have made several arrests of shippers of citrus fruits, charging them with having sent out fruit that has been condemned by the inspectors of the state department of agriculture.

The Coast and General

The broccoli crop of Clackamas, Oregon, was damaged by the cold weather.

Washington state fair closes its accounts for 1921 with balance of nearly \$22,000 available for 1922 activities.

Linn County, Oregon, farmers have voted to pay an annual membership fee in the county farm bureau of \$10.

The cheese output of Tillamook County, Oregon, in 1921 was 94,133 boxes. Twenty-five factories sell cooperatively.

Wellington, New Zealand, has a municipal milk distributing plant. It is planned to buy and operate the dairy farms to furnish their own milk supply.

The Washington Wool Growers Association held its annual meeting at Yakima, January 13 and 14. One important decision taken was to establish at Seattle a bonded warehouse to store 5,000,000 pounds of wool.

Argentine wheat for January and February shipment is being offered to Europe at prices 8 to 10 cents cheaper than American hard winter via the gulf. Germany is reported to have bought 7,250,000 bushels of this wheat in the last two weeks.

At the first meeting of the board of directors of the National Live Stock Producers Association, in Chicago, the following officers were elected: President, John G. Brown of Indiana; vice president, C. E. Collins of Colorado; secretary-treasurer, E. H. Cunningham, Des Moines, Iowa.

The Washington Growers Association, composed of growers of prunes in Clarke County, and which handles the crop on a cooperative basis, recently sent out checks totaling more than \$165,000 for part of the 1921 crop. The balance will be paid when the crop has been disposed of and the money collected. All expenses to date have been taken out of money already collected.

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Los Angeles

Avocado Growers Have Field Meeting

By V. F. Blanchard

AVOCADO growers held true to their regular form in attending in large numbers a field meeting on avocado culture on Wednesday, January 25, at Duarte. Frost injury to avocado trees apparently did not discourage growers, for the large attendance and the great interest shown indicated that it takes much to dampen the enthusiasm of an avocado grower.

The meeting was held under the auspices of the Monrovia-Duarte-Sierra Madre farm bureau center and was held at the Spinks avocado grove at Duarte. A terraced lawn above a leveled place made an ideal place for the meeting. Ralph Densmore, director of the farm center, presided and introduced Mr. Braunton, one of the pioneers in the avocado industry. His address in part follows:

"The ultimate consumer and the orchardist must both be considered in a general talk on avocados. Those who eat the fruits will first have flavor, for if flavor does not please they will not buy. The most enthusiastic advocate of the avocado must admit there are those who never will eat avocados, for not all persons find oily foods palatable and with our favorite fruit, as with olives, they will have nothing to do. It must be then that flavor is the first consideration. Granting that all varieties now generally planted are of good flavor, we may dismiss the subject, for those who eat many will in time learn to discriminate between the named varieties as to which most pleases the palate.

"The matter of per cent of fat content, relative size of seed, appearance of fiber coloring, size, form, color, all will be subordinated to flavor on the part of the ultimate consumer, though, like all fruits the avocado will sell on appearances and colored fruits will be given preference over those of any shade of green. In the end I believe a round or egg shaped fruit of about a pound weight with a black or nearly black skin or shell will prove most popular. Size of seed and per cent of fat will be considered by very few indeed.

"From the grower's point of view the chief consideration must be shipping quality, which is, of course, keeping quality; for whether marketed at home or shipped eastward the fruits must keep in good condition for several days after being picked and they must not be picked until mature. Not all the varieties we now grow will meet this requirement. In the case of purple or black varieties, picked after being colored and placed upon the local market where they are subjected to much handling, varying temperatures, etc., few will last more than two or three days in prime condition, especially if the weather be warm. The heavy shelled Guatemalans do, of course, keep best. It is in vain that some urge that because we ship fresh strawberries to New York City, all avocados will be considered equal. All strawberries are alike in protective covering, but if one of equal value could be found that would keep even one day longer than the other varieties, only that one would eventually be shipped.

"In planting it is essential to get balled trees having lots of soil about the roots, much more than is taken up with citrus trees of the same age. If not so furnished when offered for sale it would be better to plant seeds of the hardy Mexican type where they are to grow, two or three seeds to each tree location, bud one or two of the strongest and then leave only the one most vigorous or the only one upon which the bud has taken, for not all buds inserted will form a union. This method is a last resort as it incurs orchard expense from the beginning and young trees may be much more economically cared for in the nursery.

"A compromise measure and one somewhat followed is to plant seeds in large deep paper pots and plant out pots and all, either before or after budding the seedling. Of course the safest plan is to bud first and wait until assured the bud has taken before planting. It is known, however that we have nurserymen who dig balls sufficiently large and the only

admonition necessary is to advise planting of young trees rather than those two or three years from the bud.

"Regarding varieties it is better not to say much at present. So many good ones are coming to light that the list of the best half dozen or so will be constantly changing, and precedence in the list will also remain unstable. It is of doubtful wisdom to publish an official preferred list, and in the future I believe our committee on varieties will confine their reports to giving the good and bad points of those studied, for they will each year be confronted with a greater number of named and numbered varieties. This will not lessen their labors or the value of their recommendations so we must always have such committee and none are more competent for the work than the three now in

harness, Messrs. Adams, Hertrich and Barbour. In my own opinion I am doubtful, even now, of the leadership, in practically frostless places, of the Fuerte. It is much harder than the pure Guatemalans and recent low general temperatures assure it more general planting than that class. But in favored spots it is not the most vigorous tree or the surest annual cropper of those officially recommended."

Following Mr. Braunton's address requests came from the audience for talks from several prominent avocado growers. Their talks added much towards making the program a success. Numerous questions were asked on various problems pertaining to the avocado.

Mr. Densmore introduced the last speaker, Mr. Spinks, the host and owner of the grove. Mr. Spinks' part in the program was especially interesting, for he conducted the crowd over the place, showing points of interest. His grove has the reputation of being the most successful one from a financial standpoint in California.

He was one of the very first men to get into the industry. His success was assisted by the selection of an ideal site, for it is several hundred feet above the floor of the San Gabriel Valley on a small plateau, making it practically frost free. The grove contains over 1,700 trees, the greater portion of which are now old trees in full bearing.

Mr. Spinks led the crowd first through his wonderful plantings of ornamentals to a deep pond containing numerous black bass which were imported from the East, and then through a plot containing tropical trees. The fact that many of these were hardly touched by frost shows what an ideal place it is for avocados.

All were much interested in observing the experimental plot of avocado trees which were planted for Wilson Popenoe, the investigator for the United States department of agriculture. Most of these trees are not as good as the standard varieties, but a few are of good quality. They were of particular interest because of the

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Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
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C. B. Messenger, Editor.
Ernest Branton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
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Saturday, Feb. 11, 1922

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If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

No person ever entered more fully and faithfully into solving the difficult problems of the day than did Abraham Lincoln. It is well that on February 12 we Americans stop for a moment at least and consider the life of one of the world's most faithful workers. We, of this twentieth century, may be able to look upon those more accomplished and more polished but never upon a truer or greater.

* * *

Fred Maskew is ill at his home in Long Beach. Thousands of Californians who know of his long and faithful service in the state's plant quarantine work are all uniting in wishing for him early recovery. Nearly all of Mr. Maskew's life has been spent in either county or state quarantine work.

* * *

An inmate of San Quentin recently became so reformed and even gentle that he was paroled and went to his home. He quarreled with his wife and became so emphatic in his argument that she died because of injuries she received. A pardon board may be essential to the comfort of criminals and possibly at times necessary even to secure justice, but certainly indiscriminate pardoning of hardened criminals is resulting in contempt for California's method of law enforcing.

CRIMINAL WASTE

When the city of Los Angeles passed from pueblo days and became a small city it proceeded to build a conduit for disposal of its sewage. While the surrounding acres were short of both fertility and irrigation waters yet the city felt sufficiently rich to justify the waste of carrying the riches in water and fertility and dumping into the Pacific. The sewer was enlarged and again enlarged and is now bursting because of insufficient capacity. The food demands of the city have also increased and waters have been brought 250 miles and a limited quantity has been used for irrigation. Others brought over mountain and desert have been used and charged with fertility and then sent with the waters of the earlier day into the Pacific ocean. Now there are those who are moving for still further enlargement of the carrying capacity of the pipe.

The use of other waters has made of the county in which that city is located the greatest crop producer in the United States according to the census of 1920. And out of the abundance of its riches the city may feel justified in wasting these waters into the ocean. To those of us who know of the thousands of acres crying for more water and promising still greater return of crops if the water is supplied this suggestion of increasing our wasting abilities sounds criminal. Modern methods of handling sewage through septic tanks or reservoirs or of precipitating the fertility by chemical means make it possible to save and use the purified water and the fertility and at a profit. Why then should the voters of any great city burden themselves with twelve million dollars indebtedness in order to perpetuate this great waste?

SAVE OUR GOOD NAME

On January 21 citrus growers met and resolved to do no shipping of fruit picked after the cold wave of January 19 until the sixth day of February. February 6 growers met in Los Angeles and resolved almost unanimously to stand by the state department of agriculture in the regulations established by its standardization service. Some shippers have felt that opportunity for disposing of a crop at a fair price is to be lost if these rigid regulations are enforced, but it is most fortunate that the majority of the growers insist on protecting California's good name and the sending of only such fruit as will create a demand amongst consumers for more.

Since the above was written the announcement is made that a court action against orange shippers of Redlands has resulted in a ruling of the superior court of San Bernardino County in effect that the state department of agriculture has exceeded its authority in establishing its regulations. The shippers set up the claim that the department's regulations are altogether too arbitrary and that it will cost shippers large sums because of lost opportunity. However, the lesson of former years when shipments of frozen fruit have destroyed the market will be of value. It may be recalled that those shipments of inferior stuff completely destroyed the market so that later shipments of sound and attractive first grade fruit resulted in disaster. While it is probable the rigid enforcement of the department regulations may result in loss to a few the benefit to the state is incalculable.

AVOCADO GROWERS' MEETING

(Continued from Page 149.)

differences in degree of frost resistance, for some were not injured at all, while others were touched.

To those growers who have hoped for a profitable grove Mr. Spinks' grove of old trees of the Spinks variety was a sight to behold. It is perhaps the most uniform grove of good bearing trees in California. The trees are of good size and are in a healthy condition. They bear excellent crops year after year, which is indeed evidence of their being prolific and profitable.

Other varieties were also observed, some of which were in fruit while others already had their crop harvested. Avocados ready for sale were seen packed in boxes. Mr. Spinks is careful with packing fruit for sale.

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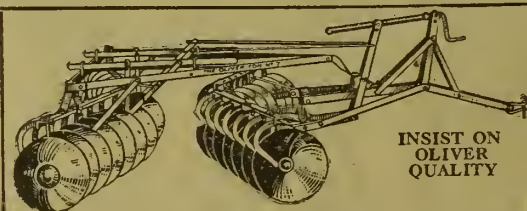
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HARMONY IN CITRUS CIRCLES

LEADING citrus growers of the south met with state and county "enforcement" officials February 6 in the rooms of the California Fruit Growers Exchange to discuss the regulations of the state department of agriculture regarding shipment of frost injured oranges and lemons. It appears little or no fault was found with the state regulations, but some inspectors failed in proper interpretation of same.

Mr. Lyons of Redlands presided and stated the purpose of the meeting to be to find out what rulings the state department of agriculture proposed to make in regard to future shipments. Director Hecke was the first speaker. He has just returned from Washington and Florida. He said he was astounded at the citrus output of Florida during 1921, of 11,000,000 boxes as against 22,500,000 for California, and predicted that in the near future Florida will equal the latter figure. But they have no fruit standardization and lots of purple scale and other fruit-disfiguring pests. We must look well to keeping our standard of shipped fruit as high as possible in order to maintain our present fine reputation for the best oranges in the world. He stated he was in Washington during recent cold snap and F. W. Read of the standardization department made the provisional rulings and regulations sent out by the state department of agriculture. He further said the state had no end in view but the greatest good for all concerned and if the majority of those present would approve of other and better tests and rules he would adopt them.

F. W. Read then explained the regulations and called on Dr. Hills of the federal bureau of chemistry to state the government's ruling, made in 1913 and still in force. This is the same as adopted by the state and is the basis on which shipment of frosted fruit is restricted to 15 per cent or less showing cell injury through freezing. Dr. Hills said two cars shipped from here were intercepted and condemned at destination. One, at Kansas City, showed 26 per cent of injury and one at Little Rock, Arkansas, showed 20 per cent frosted. "If by any subterfuge your damaged fruit gets by us here we wire to destination and it is held up there, so why ship unsalable oranges." Mr. Chase of the National Orange Company, Mr. Brown, of Redlands, E. M. Chace, government chemist, and others spoke. A resolution, the last of many offered (and not voted on) finally passed almost unanimously, in effect that until some reasonable substitute is found the present regulations of the state department of agriculture should be upheld.

CITRUS INSTITUTE AT SAN BERNARDINO

The annual session of the California Citrus Institute will be held at San Bernardino in connection with the Twelfth National Orange Show on Tuesday, February 21. The program announced by President J. T. Barrett of the citrus experiment station includes papers on subjects of importance to the citrus grower at this time.

The institute date will make it possible for those attending to remain over for the holiday, Washington's Birthday, following to further view the displays at the Orange Show.

The sessions will begin at 9:30 a. m. and 1:45 p. m., and in addition to an address of welcome by Mayor S. W. McNabb, appointment of committees, reports and the election of three directors for full terms, the program will be:

Citrus Fertilization—A Résumé of Our Present Knowledge, by W. P. Kelley, citrus experiment station, Riverside.

Physical Problems in Soils, H. J. Wilder, county agent, San Bernardino.

Fertilization Experiments at Chaffey Junior College, C. J. Booth, Ontario.

In the afternoon session the addresses will include:

Scaley Bark of Orange Trees, H. S. Fawcett, citrus experiment station, Riverside.

Individual Tree Care, M. B. Rounds, Azusa Citrus Fruit Company.

Some Important Citrus Fruit Troubles, W. J. Ramsey, field department, California Fruit Growers' Exchange.

All sessions will be held in Elks' Hall.

YOU'LL USE PRUNES OFTENER ONCE YOU Know



A famous food authority [and he doesn't grow prunes, either] comes out with this sweeping statement: "Every well-regulated family should come to prunes in some form at least once a day." Why? Because he knows that prunes supply something you can get in no other way.

All these years you've been eating prunes—but how often? Chances are, not nearly often enough. Just because you live in California—the home of the prune—isn't the only reason why you should eat more prunes. The real reason is a selfish reason: the more prunes you eat the better your health will be!

You can't beat Nature at her own game. Nature creates. Nature regulates. Nature's way is *always* best. Nature intended prunes for a purpose. Let Nature point the way!

Once you realize how essential prunes are to the health of your household you'll *want* to use them oftener. And once you realize how many *new* dishes can be made from them, you won't stop at stewed prunes. You'll *start* there—as most folk do every morning—but you'll learn to use them in other ways—for puddings, for pastries, for unusual desserts. Our new Recipe Packet shows you how—and it's free! Send for it today!

1

PRUNES are just coming into their own. And with good reason: people are just awakening to their health-importance. Your diet demands some good fruit every day. And prunes fill the health-bill more completely, more economically, than any other fruit.

2

PRUNES are a natural food to begin with. They contain more digestible natural sugar than any other fruit. And this fruit-sugar is quickly turned into energy for the body.

3

PRUNES, so food authorities tell us, contain tonic iron and other mineral, "vitamin" and laxative elements that help to give the proper "balance" to every diet.

4

PRUNES have certain salts and organic acids which improve the quality of the blood and counteract the acid-elements in meat, eggs, cereals and other "high-protein" foods.

5

PRUNES are so essential to good health and right living that physicians, dietitians, domestic scientists the country over are urging: "Eat more prunes! Know them better! Serve them oftener! They're good for you!"

California

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IN ANSWER to requests for
information as to feasibility
of commercial canning of
marmalade juice:

We have prepared several
hundred cans of the product in our
own commercial laboratory at the uni-
versity. We use equal quantities of
lemons and oranges. We slice these
and boil them with water for about 45
minutes. We then press out the re-

sulting juice and concentrate it by
boiling to a Balling degree of about
10. The concentration will vary some-
what with the condition of the fruit
used. In some cases it may be as low
as eight degrees Balling and in others
as high as 12. The object of the con-
centration is to increase the pectin
content to such a point that two cups
of sugar may be added to one cup of
the juice and the mixture boiled ex-
actly two minutes for the production
of a stiff jelly or marmalade. We
then slice orange peels very thinly
and boil them in water until tender.
We add enough of these thinly sliced
boiled peels to the juice described
above to give a proper proportion of
peels to the juice for marmalade. If
the peels are very thin this will cor-
respond to about ten per cent by
weight. If the peels are relatively
thick it may require as much as 15
to 20 per cent by weight. Very thinly
sliced peels are the more desirable.
Primary trials of one or two pints of
the mixture should be made by boil-

ing with two volumes of sugar and
one of the mixture. We believe that
the pectin should be rich enough to
give a jelly with this proportion of
sugar. The mixture is then heated
to boiling and filled into lacquered
cans boiling hot. The cans are sealed
and processed in boiling water for
about ten minutes after which they
are thoroughly cooled in water. In our
estimation any cannery that is
equipped for the manufacture of to-
mato puree or tomato catsup can un-
dertake without very much expense
the manufacture of this new product.

The market for this product would
be among the housewives of the
United States to make it possible for
them to prepare in their own kitchens
in a few minutes time fresh flav-
ored marmalade. I may say that
we have given samples to more than
20 different families in Berkeley and
the opinions expressed by those who
have used the product have all been
favorable. Many of the faculty mem-
bers have signified their intention of
buying one or two dozen cans of the
product as soon as we have sufficient
of it prepared for sale. We therefore
sincerely believe that the product has
commercial possibilities.

It is not necessary that the product
be so highly concentrated that two
cups of sugar can be used to one of
the mixture. We prepare this high
concentration for the reason that it
reduces the chances of failure on the
part of the housewife.

We also believe that this product
could be canned in gallon and five
gallon cans and sold to marmalade fac-
tories throughout the United States.
The additional proportion of lemons
above that ordinarily employed in the
manufacture of marmalade gives a
light colored, fresh flavored and
clearer product and one that is practi-
cally free from the disagreeable stale
orange flavor that characterizes so
much of the commercially produced
marmalade.

These investigations have covered
a period of over five years. We have
utilized not only cull fruit from all of
the orange growing sections of the
state but have also used frozen fruit
successfully.

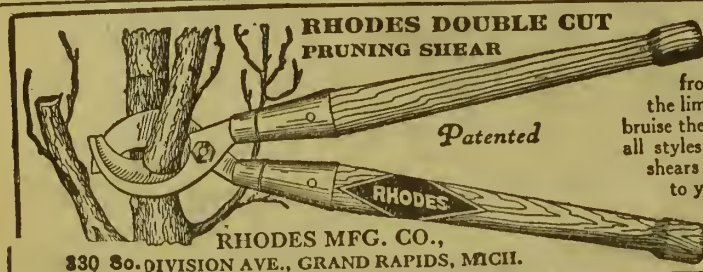
BE NATURAL: SAY "I"

By William M. Bristol



THE CULTIVATOR is a jour-
nal devoted to the practical
things of rural life and I
not supposed to concern my-
self with the mode of ex-
pression of its contributors so long
as they are concise and intelligible.
But the editor has given me permis-
sion to say a word to those bright but
over-modest young men who invari-
ably avoid the use of the pronoun "I".
I have just finished reading the cur-
rent issue of a horticultural magazine
containing a half dozen articles in
each of which the writer speaks of
himself in the third person; and I
am thereby prompted to make this lit-
tle pedagogic suggestion. Not that
I have ever been a pedagogue—it is not
necessary to be a language teacher in
order to notice an awkward expres-
sion. I am sure that none of the writ-
ers I have mentioned, if standing be-
fore and addressing an audience
would refer to himself as "the
speaker," but would use the natural
and proper first personal pronoun, "I".
In ordinary conversation any suc-
cessful avoidance of the natural form of ex-
pression would be sure to attract at-
tention rather than to divert it from
the speaker. And, by the same token,
it is a needless circumlocution to say
"the writer's" opinion or experience
or whatever it may be, when the pro-
noun "my" would answer every pur-
pose. I am sure that none of the
readers of the excellent articles I have
just perused would have accused the
writers of egotism had they addressed
them in the conversational manner
instead of in the stilted phraseology
of the third person. And so—knowing
that I am older than any one of them
and therefore privileged to speak
frankly—I say: Fear not; be natural
say "I".

I trust that none of the boys to
whom I am speaking will refer to the
editor's plural "we" in defense of the
use of the phrase "the writer" in lieu
of "I". The editorial mask was in-
vented in the cave-man days of jour-
nalism, when brilliant and fearless edi-
tors were so frequently ambushed
that the publishers were compelled to



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PRUNING SHEAR**

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RHODES

330 So. DIVISION AVE., GRAND RAPIDS, MICH.

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pruner
made that cuts
from both sides of
the limb and does not
bruise the bark. Made in
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shears delivered free
to your door.
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circular and
prices.

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Established in California in 1888

RELIABLE TREES AND VINES

are essential to the great fruit industries
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Our experience has been gained by 32
years of progression in the nursery and
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Reservations are now being made for
future deliveries.

We offer our services in undertaking
the planting and care of commercial
orchards on large scale.

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Twenty one
propagating plants
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SLIDEWELL COLLARS

Made by Troy's Master Craftsmen, with the two exclusive patented Comfort Features that Save Your Tie, Time and Temper.

Your dealer has Spencer or can easily obtain it.

HALL, HARTWELL & CO., Makers, Troy, N. Y.

PIPE

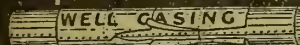


Montague Well Casing and Riveted Steel Pipe for Surface Irrigation.

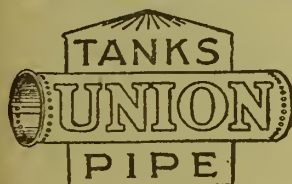
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resort to this method of protecting them. Anyhow the editorial is, properly, the opinion of the journal and its owner and publishers and therefore takes the plural form, the reader usually preferring not to know the personality of the author. But the reader's interest in the contributed article depends in large measure upon the individuality of the writer—and the writer, therefore, should not seek to hide his identity.

Fear not; be natural; say "I".

TWELFTH NATIONAL ORANGE SHOW

By E. M. Gore

Citrus growers of California will reap a rich reward in the displays at the twelfth National Orange Show to be held in San Bernardino, February 17 to 27. The educational values of the exhibits to the producers cannot be too highly estimated.

Each year the progress made in the growing of citrus fruits is recorded at the show. The displays are a barometer of the industry. Each year since the inception of the fair the quality of the fruit has increased. This year much may be gleaned from the various exhibits throughout the fair that will tend to further a desire for better fruit—if any more perfect may be attained.

This year there will be more plate and rack exhibits than ever before. It is these that attract the grower. Although he may be passively interested in the startling feature exhibits which please the untrained eye of the eastern visitor, the quality, quantity and beauty of fruit is what interests the producer. While the tourist may gaze with enraptured eyes upon the color and size of the fruit the judges want to know more about the contents of each specimen.

Each orange, lemon or grapefruit is casually observed for size and color and is then opened to determine the thickness of the skin, the amount of water, sugar, acid, etc., contained. Each specimen is subjected to a rigorous examination, the judging itself being an interesting side light for the grower.

It gives producers of all districts a chance to compare the fruit from their region with that of the other districts.

One of the displays that is expected to be particularly interesting to the growers this year will be that of the citrus experiment station at Riverside. This exhibit will comprise more than 250 varieties of citrus fruits. Officials of the station have been working for years obtaining slips and trees from all parts of the world, breeding and cross breeding, and propagating every known kind of fruit.

Other educational features for the producers will be talks by prominent citrus men upon various phases of production. During the show the California Citrus Institute will be held. Many fine talks are on the program and it is stated that the entire institute will be devoted to educational features of a highly interesting nature.

Throughout the entire industrial section will be found features of interest to the growers. New methods of cultivation, propagation, disease combating and practically everything connected with the industry will be displayed. Every conceivable kind of a by-product will be shown in a mammoth crystal palace. There will also be the automobile section where the prospective buyer may investigate trucks, tractors and automobiles.

FARM MANAGEMENT SCHOOLS

Farm management schools are scheduled for Los Angeles County at Whittier, February 15; Downey, 20; Baldwin Park, 21; Van Nuys, 23; Lancaster, 24. Farm accounts and income tax returns will be given special attention.

A mass meeting of beekeepers is called for February 18 at 10 A. M. at State Exposition Building, Los Angeles, to consider formation of a beekeepers department of the Los Angeles County farm bureau.

A Powerful Foe To Orchard Pests



The General Chemical Company is the West's most powerful foe to the insect and fungus pests of the orchard.

Modern laboratories, skilled chemists, scientific methods, and raw materials of the best grade are all employed by this big concern in its war on the profit-destroying vermin of orchard and vineyard.

This organization specializes in chemicals. Its earnest attention is devoted to producing products that are safe, efficient and uniform—products that can be depended upon to exterminate the pests of tree and vine.

In addition to aiding the ranchers by manufacturing effective fungicides and insecticides, entomologists are employed by the Company to give ranchers counsel regarding the pest problem. Every rancher is cordially invited to take advantage of this service.

Use Orchard Brand Spray Materials

This Company's products are made in the West to conform with Pacific Coast requirements. They have long been used by experienced ranchers who know them to be beyond the experimental stage. It will pay you to use—

- Orchard Brand Lime Sulphur Solution,
- Orchard Brand Bordeaux Mixture,
- Orchard Brand Arsenate of Lead,
- and Universal Oil Sprays.

Write for interesting booklet and learn how to prevent pest troubles which will be sure to occur in time unless precautions are taken.

General Chemical Co.

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Dept. B.

San Francisco, California.

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HAUSER'S ORGANIC FERTILIZERS

TRY OUR SPECIAL
"BIG GUN"
and
Special "8---8"

Best by Test
Results Always

Ask the Growers who use it.

OUR FOUR LEADERS

BIG GUN TANKAGE: 10% Nitrogen, 4% Phosphoric.
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BLOOD, HIGH GRADE: 13 to 14% Nitrogen.

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Mr. S. G. Rossiter, care Rialto Fruit Co., Phone 120 Rialto, California.
Ralston B. Brown, 285 W. Center, Pomona, Phone Pomona 6224.
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For Every Farm Job

No matter how many tractors, or how many types of tractors, you have seen—you'll find the new Cletrac (Model F) astonishingly new and different. So simple in design, so easy to operate and maintain—it has such a decidedly all-year usefulness not ordinarily looked for in a tractor that it will actually cause you to figure tractors all over again.

The new Model F Cletrac is a real all-round tractor. It plows, discs, harrows, seeds, cultivates, harvests and does all kinds of belt work. And consider that it is only 31 inches wide, 50 inches high, 83 inches long and weighs only 1820 pounds.

Its capacity for work is enormous—plows 6 to 8 acres a day—discs 15 to 20—harrows 20 to 25—and withal it is so simple, care-free and accessible.

A few minutes of practice and you have mastered its operation. Every part is easily accessible. An automatic oiling system makes oil and grease cups unnecessary. Chrome steel—the toughest material obtainable—is used for all parts subject to wear, and it is equipped with a sturdy, powerful 4-cylinder kerosene, distillate or gasoline burning motor.

The new Model F Cletrac is without equal for day in and day out, all-job usefulness and dependability. For utility, quality and price it is an unprecedented value.

See your local Cletrac dealer or write our nearest office for full information.

THE CLEVELAND TRACTOR CO.
"Largest Producers of Tank-Type Tractors in the World"
19077 Euclid Ave., Cleveland

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Los Angeles, Cal. San Francisco, Cal. Spokane, Wash.

The New Model F
Cletrac
Reg. U.S. Pat. Off.
**TANK-TYPE
TRACTOR**
\$875

Delivered in California.



Hard this way,
but—



Easy on a track
The Cletrac Way

1. Handles every farm job.
2. Plows 6 to 8 acres a day using any 2-bottom 12-inch plow.
3. Every part subject to wear constructed of chrome steel—weighs only 1820 lbs.
4. Automatically lubricated—no grease or oil cups.
5. Simple, care-free design—burns kerosene, distillate or gasoline.
6. Every working part quickly accessible.
7. Unprecedented value at \$875 complete.

Model "F" Cletrac is made in four sizes: 31 inches wide, with 8 inch clearance; 41 inches wide, with either 8, 14, or 18 inch clearance.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Walnut Leaves for Mulch

Are the leaves that fall from English walnut trees an injury to the trees when plowed under? Do they in any way cause what is called walnut blight? Some of my neighbors are gathering up all the leaves and burning them. I plow them all under thinking they make a good mulch.—Subscriber, Pasadena.

We would surely plow the leaves under. Extensive experiments conducted by Professors Fawcett and Batchelor, and reported by them in the monthly bulletin of the department of agriculture for May and June, 1920, show that where prunings of badly diseased twigs are taken from the tree, carefully gathered and burned, there is but little, if any, lessening of blight over checked plots which were not pruned or sprayed. We believe that by plowing under you would put them so far below the surface that there would be no more spreading of the disease and possibly not as much as from raking and gathering together in piles to burn. Would also suggest that our inquirer write Agricultural Experiment Station, College of Agriculture, Berkeley, and ask for Bulletin 332, "Walnut Culture in California," which may be had without cost.

Burning Stumps

In answering a query some time ago you mentioned burning of stumps to get rid of them. What is the method? I find the piling of brush not effective because nearby citrus trees prevent big fire.—Subscriber, Orange.

The "char-pitting" method is often used. In following this practice it is necessary to excavate at least one side of the stump. If this is done in summer time where there is some drying out prior to the burning it is more effective. When the tree is cut one or more auger holes may be drilled in the top and the holes plugged with saltpeter. Water is poured in to partially dissolve the saltpeter and the upper tissues of the stump become saturated and more combustible as the stump dries out. After the excavation at the side is done a few sticks of wood in the bottom of the hole soon get the stump into a glowing coal. When fire is largely burned out it may be covered as in the making of charcoal and allowed to smoulder until the stump is entirely consumed. If there is difficulty in getting a stump to burn some follow the method of boring a hole down the center, putting in a light charge of dynamite and shattering the stump so that it will then burn readily. There are so many successful stump pullers these days that many prefer to use them and have the land available at once. The "char-pitting" method is fully explained in Bulletin 101, issued by the State College of Washington, Pullman, Washington.

Grading Eggs

What is the best way to grade eggs for market?

Grades established are 14 to 18 ounces to the dozen for pewees, 18 to 22 for pullets, and 22 and above for extras. Of course this is presuming they are clean and uniform in color.

Tree Whitewash

A few weeks ago I read the formula for preparing a whitewash that would remain on the hen house a long time. I think it was in the Cultivator, but am unable to find it in looking over the copies. Could you kindly give me the formula again, so I may try it on our chicken houses this winter?—Subscriber, San Gabriel.

See page 316 of the issue of September 24, 1921, for three different formulas for tree whitewash. In addition, where one wishes the higher grade article for outbuildings, the so-called "government" whitewash may be used. Formula is as follows: Slake half a bushel of unslaked lime with boiling water, keeping it covered dur-

French Prunes

on Peach Root

Size	Each	10	100	1000
4-6 ft.	.75	6.50	48.00	420.00
3-4 ft.	.60	5.00	35.00	320.00
2-3 ft.	.45	4.00	30.00	250.00
6-8 ft.	.85	7.50	65.00	

On Myro root, \$5.00 extra per 100.
Write us for special prices on large orders.

AT SAME PRICES

Peaches—Tuscan, Phillips, Simms, Lovell.

Plums—Wickson, Beauty, Hale, Kelsey
Almonds—IXL, Jordan, Ne Plus, etc.

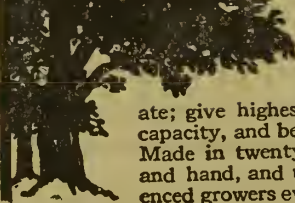
Complete Fruit Tree Price List
Free for Asking

Desk 3

PIONEER NURSERY of Monrovia

There is a good deal of criticism of a giggling girl, but were you ever around a sniveling one?

Cut Spraying Costs



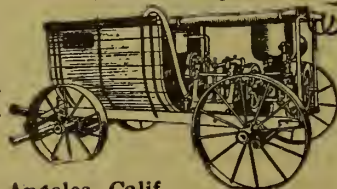
Hardie Sprayers
cost less to buy,
cost less to own,
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ate; give highest pressure, biggest capacity, and best results.
Made in twenty sizes, both power and hand, and used by the experienced growers everywhere.

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Write for the complete
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SURFACE IRRIGATION PIPE

PROMPT DELIVERY
Write for Catalog
and Prices
Manufactured by

Woolwine Metal Products Co.
Eighth St. & Santa Fe Ave., Los Angeles



ing the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in

\$25 to \$50 Spent— in Preparing Your Land THEN WHAT?

It costs you the same whether you plant common or the choicest selected, certified HAIRY PERUVIAN ALFALFA SEED. It is possible for you to pay for Hairy Peruvian and get common seed—BUT IMPOSSIBLE IF YOU ARE SURE TO SPECIFY RED SEAL BRAND WHEN YOU BUY HAIRY PERUVIAN.

**RED
SEAL
BRAND**

---is the
Guarantee
That You
are Planting

**Genuine Hairy
Peruvian Alfalfa
Seed!**

and it will certainly show a much greater profit after deducting your cost of preparing your soil in comparison to common seed! Just take the pains and insist on your dealer selling you the bag with the Big RED SEAL on it—that's the guarantee of GENUINE HAIRY PERUVIAN ALFALFA SEED.

Below you see a reproduction of the bag—and this is the only way you can purchase RED SEAL GENUINE HAIRY PERUVIAN ALFALFA SEED. Ask your dealer for Free Booklet on the Hairy Peruvian Alfalfa Situation.



**Hairy Peruvian
Alfalfa Seed Growers
Association**
ARIZONA—CALIFORNIA

HUBAM

Get a start with Hubam, the marvelous annual White Sweet Clover, greatest money-making crop known. Sure growth, heavy yield. Grows as high as six feet. Wisconsin farmer got \$4200 from five-acre crop. Seed yield brings \$75 to \$300 per acre. Makes excellent Bee pasture. We have only a limited amount of 99% per cent pure Hubam at only \$1.40 per pound. State certified seed. Order from this ad or write for money-saving price list. Full instructions for growing Hubam with every order. Don't wait. We pay the freight.

**\$1.40
Per lb**
World Seed Company
Dept. 172
123 W. Madison St., Chicago, Ill.

**We
Pay the
Freight**

boiling water and boiled to a thin paste; half a pound of powdered Spanish whiting and a pound of clear glue dissolved in warm water. Mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used, put it on as hot as possible with painter's or whitewash brushes. The washes which contain milk, flour or glue are not to be advised for use in damp, interior places, owing to danger of decomposition of the organic matter. For such locations it is better to use one of the formulas containing none of such ingredients. Whitewash is applied with a broad whitewash brush and is spread lightly over the surface, no attempt being made to brush it in as in the case of an oil paint.

Fulfilling Contract

If I take a contract for paying \$20 a month to a company from which I have bought shares will they force me to pay the full amount? I wish to drop it because I cannot meet my payments. I am short of money.—Subscriber, Turlock.

This depends entirely upon the wording of the contract. Presumably, however, the contract can be enforced and also probably provides for continuing payments until the completion of the purchase. However, it is probable arrangements may be made with the company to cancel the contract.

Father's Right to Earnings

In case sons and daughters are earning and making payments on contracts to purchase land or improvement on land which is in the name of the father may they still claim the portion of money they have earned and paid in case of death of the father if he should make no will? Or could the eldest son take possession of the land?—Subscriber, Turlock.

Legally the property stands in the name of the father and in case of his death would pass to all the heirs unless those who have advanced money could furnish definite proof that the amount advanced was their own separate property. Strictly legally also earnings of minor children may become the property of the parent. If the parent so wishes he can protect the rights of those who are earning the money making a just division of the estate by will.

Lost Use of Windmill

If a neighbor has a row of eucalyptus trees so close to the line that they prevent my windmill from operating can he be compelled to remove them?—Subscriber, Ceres.

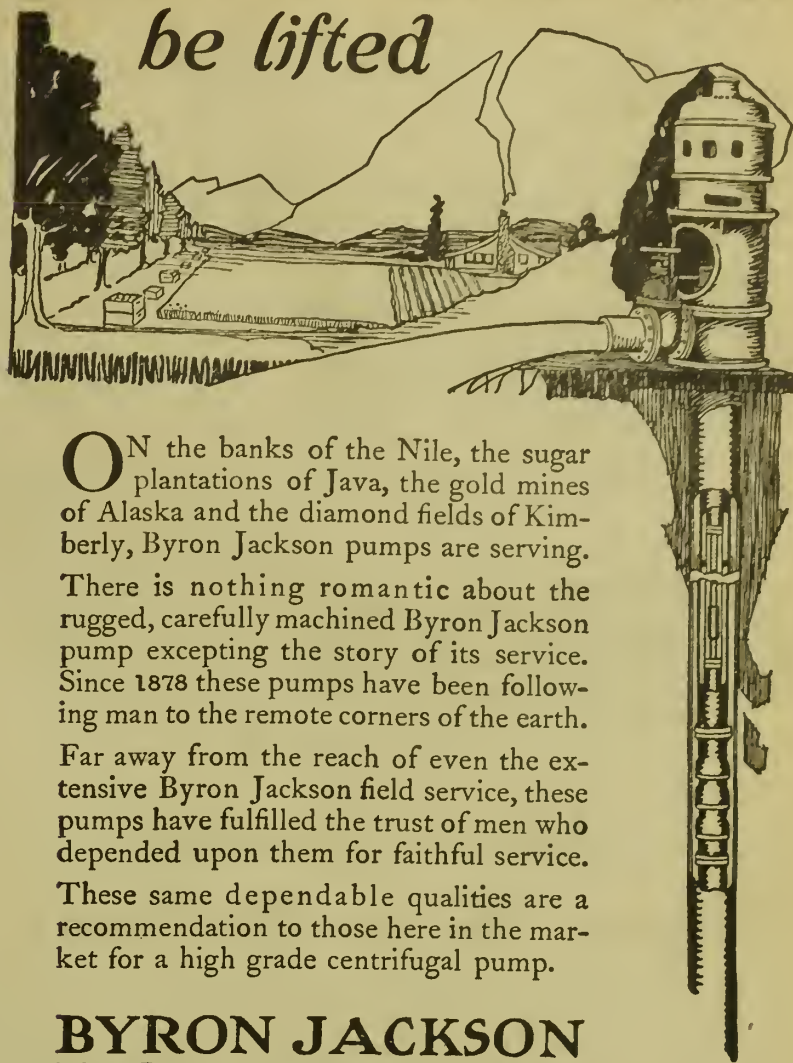
Since the windmill will operate we fear that strictly legally it would be impossible to secure removal of these trees. The best way would be to arrive at an agreement with the neighbor. However, there have been decisions in the matter of trees near the line where injury from roots and shade has caused loss to adjoining land and the courts have held the owner of the trees responsible and assessed damages. In addition decisions have been rendered that such trees are a common nuisance and ordering their removal. But this we believe has been in cases where actual damage to the crops or to the soil has occurred. This matter of loss of the use of windmill has, so far as we know, never been tested.

Poinsettias

Please tell me a few things about poinsettias. I have a young plant in a pot and the leaves have dropped off. Is it the right time for pruning? If so, how should it be done? I have considered planting it out in the open ground when warmer weather comes. What exposure should it have? Should it be where it would get the morning sun, or afternoon, or must it have sun all day?—Subscriber, San Marcos.

Potted poinsettias may be pruned when in the present condition of yours, but usually pruning is deferred until warm weather, say April 1. Then the cuttings are planted either in boxes of sand or in the positions they are wanted permanently. The plants do best in the hottest places and in full-sun.

Wherever water is to be lifted



ON the banks of the Nile, the sugar plantations of Java, the gold mines of Alaska and the diamond fields of Kimberly, Byron Jackson pumps are serving. There is nothing romantic about the rugged, carefully machined Byron Jackson pump excepting the story of its service. Since 1878 these pumps have been following man to the remote corners of the earth.

Far away from the reach of even the extensive Byron Jackson field service, these pumps have fulfilled the trust of men who depended upon them for faithful service.

These same dependable qualities are a recommendation to those here in the market for a high grade centrifugal pump.

**BYRON JACKSON
IRON WORKS-INC**

408 Sharon Building, SAN FRANCISCO
Wherever water is to be lifted

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**Deciduous
Citrus
and Ornamental
Vines and Roses**

**We exercise great care in the selection
of both Root and Budwood**

**CATALOGUE
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Write today for our 65 page fully Illustrated Fruit and Ornamental Tree Catalogue. Contains much of interest to planters.

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Wagner's Giant Winter Rhubarb and all varieties of Berries. Also a general line of Fruit Trees and Nursery Stock. Write for Catalog and Prices.

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Had Your
Iron Today?

More Raisins When Work Slackens

—a Good Rule on the Farm



Another Luscious Way

Another way to get the benefit of raisins is to serve them stewed, with cream as a regular breakfast dish.

Try this way, too, and note the results in ten days.

Sun-Maid Raisin Bread

3 cups flour, 4 teaspoons baking powder, 1 teaspoon salt, $\frac{1}{4}$ cup sugar, 1 cup Sun-Maid seeded raisins cut in pieces, 1 egg, 1 cup milk.

Soak raisins in boiling water for 15 minutes. Drain and dry. Sift flour, baking powder, salt and sugar together. Add raisins. Mix beaten egg with milk and add to flour, stirring constantly. Pour into greased bread pans. Let stand for 10 minutes and bake in moderate oven for 40 to 45 minutes.

This makes two small loaves or one large loaf.

All measurements for this recipe are level.



Blue Package (Seeded), best
for Pie and Bread.

IT'S very easy when you bake to put raisins in the bread. And there's double reason for it when farm work is slack.

For raisins have a mild laxative effect and are rich in food-iron, which helps build up the blood.

Daily exercise is Nature's best way to keep you in condition. Lacking exercise her next best method is the use of well chosen foods.

The sugar of the raisin and the bulk and roughage of the skins are of real aid in avoiding constipation.

Then Nature has put into raisins the eight most needed mineral salts—phosphorus and iron particularly.

So in this delicious fruit food you have incomparable flavor and a health value that no one should overlook.

We print a simple recipe for luscious raisin bread. Try it next time you bake bread. See how good it is—and how good for you.

SUN-MAID RAISINS

Always ask for Sun-Maid Raisins, made from California's finest table grapes, yet costing no more than ordinary raisins. Seeded, blue package (seeds removed) best for pie and bread; Seedless, red package (grown without seeds) best for stewing; Clusters (on the stem), a luscious, quick dessert.

Raisins are 30% cheaper than formerly. See that you get plenty in your food.

FREE BOOK

Send the coupon and we'll mail you more than 100 tested recipes for raisin foods in a valuable free book. Send for it now.

California Associated Raisin Co.
Membership 13,000 Growers Dept. B502, Fresno, California

CUT THIS OUT AND SEND IT

California Associated Raisin Co.,
Dept. B-502, Fresno, Calif.
Please send me copy of your free book, "Sun-Maid Recipes."

Name.....

Street.....

City.....State.....

Household Department

THE FARM GIRL'S VALENTINE

By May Brown

He—
If I were a singer with voice divine,
And I sang, in melting accents, "Be
mine,"
Would you deign to look, as I knelt
at your feet,
And give to me one little smile, my
sweet?

If I in the writer's Who's Who could
shine,
And rake in the shekels, a dollar a
line,
When I tried to depict how lovely
you are,
Would you grant me a single
thought, oh my star?

If I were an artist whose glowing
brush
Could enshrine your eyes and your
dear cheek's blush
In the heart of a canvas, so all might
see
Would you give just a word to
humble me?

She—
Oh pshaw, Henry Jones, you are blind
as a bat,
If you haven't been able to see where
you're at.
In jumper and overalls, milking a
cow,
You're the man I love, and I'll marry
you now!

UPSTAIRS

(Continued from last week.)

Then as the seconds passed and no further sound was heard, the first start of nameless fear and dread that swept over him subsided, and he told himself that there could be nothing of which to be afraid, that perhaps something stored away had fallen to the floor or a heavy laden bough had dumped its burden of snow on the roof. To suppose anything else was nonsense.

Yet it took courage to put his foot upon the next step. For the first time he noticed, with a feeling of uneasiness, how dark and gloomy it was within the close shuttered room. And in the opening overhead this twilight darkness was even more intense. As he reached the third step, the stairs creaked beneath his weight. Then a cold draft struck his face, and the unmistakable shuffle of feet came from overhead.

He stopped short. There was no doubt now but what he was not alone in the cabin. His hand reached mechanically for his hatchet helve; his gun was back in the kitchen. The footfalls came swiftly across the floor, and his weapon was hardly in his hand before the outline of a catlike head and shoulders appeared at the opening, and a pair of savage eyes threw back the reflection of the greater light below.

For a long moment they stood thus facing each other, the mountain cat and the boy. Then the boy stepped slowly backward. Cold fear clutched him. He had not lived months alone in the mountains without learning something of the ways of the big cats that made their home among them. While he knew that often a mountain lion will show itself a coward, he knew, too, that there were times when the beast will openly take a stand for its rights, and when it does, there is nothing like it in all nature for strength and power and fierceness.

Rael retreated. But at the first backward move, the cat uttered a low warning growl, and thumped an angry tail against the boards. Another step, and the signs of disapproval grew more threatening. Should he stand and fight, or make a dash for his gun? Mentally he traced each detail of the course to the point where he had left the weapon, and weighed his chances of success.

As he hesitated, he heard the rasp of the sharp claws as they sank deep into the wood; the creature was crouching for a spring! At that a sort of panic seized Rael. He was at the very breath of leaping sidewise from

the stairs in a rush for his rifle, when another angry growl this time from behind, froze him to his tracks.

Watching the glowing eyes above, he saw them shift their gaze and focus on some object to his rear. Not daring to move, he stood there, though his ears caught the sound of stealthy creeping at his back. Then came the growl again, rising and falling in wrathful intonations as cat answered cat, lashing themselves to the fury of assault.

Two cats in the same building! The cabin must be their den, and Rael had escaped one death only to meet another. He could see the fierce form above crouching for its spring.

Rael never knew quite how it happened, it was all so instantaneous, but as the big cat in front of him unleashed itself, he half dodged, half fell, from the stairs, and the plunging cat soared above him.

Despite his fall, he saw the other, with jaws extended, rise to meet the jumper. They came together breast to breast, the impact bringing them to the floor with a force that shook the building. It broke them apart, too, but quicker almost than eye could follow, they closed again, and the cabin was filled with their screaming as they bit and tore and leaped and tumbled. All over the place they fought their battle, while the boy hugged the wall beneath the stairway, not daring to move. A single sidelong spring would carry one or the other halfway across the room. Sometimes they rolled together in a clinch upon the floor, revolving so fast that it was hard to say which might be uppermost. At other times, reared on hind legs, they tussled like two wrestlers in a ring, till one would lose his balance and they would go to the boards again. A table leg snapped like a toothpick as their combined weight came against it, and all movable things were like straws before a whirlwind. Once one of the furry warriors toppled over backwards almost at Rael's feet, and the other was at his throat before he could rise. Yet even as the gleaming fangs would have closed, stout hind legs tore into the attacking party's vitals.

It was a deadly conflict, with quarter neither asked nor given. Fascinating it was in its power and terrible, yet frightful and abhorrent. To see two splendid beasts ripping and clawing each other, and making the air resound with their shrieks of rage and pain, is not a pleasant spectacle. Only a savage heart can find enjoyment in it.

To Rael, crouched beneath the stairway, against which the heavy bodies sometimes thudded, there was nothing of pleasure in the sight, yet perhaps little of repulsion, for his dominant emotion was fear. As the combat continued to rage, however, and no harm came to him, he began to take more interest in it and to plan for his escape. The fight could not last forever. And when it was finished, then it would be his turn. He could not wait till that happened.

Two possible ways of escape lay open to him—the stairway and the kitchen. Had he known what he afterwards knew, it would not have taken him long to decide in favor of the stairway. But he feared he might only put himself into a trap, and so he chose the kitchen. It was just as he saw one of the big fellows fairly break the neck of the other with a terrific sweep of the paw, and close for the finish, that he made his dash and safely reached his gun.

From the other room came a spasmodic thumping sound, and he knew that one of the big beasts was beating out its life upon the board floor. At once he pushed the curtain aside, and clutching his gun firmly, stepped into the blood splashed arena.

The victor lay licking the wound of battle, almost within paw's reach of the vanquished. At sight of his new foe, one of those strange contradictions of animal nature seemed to possess the cat, and with a single powerful bound it gained the stairway, and almost reached the top when Rael fired. The shot hit its mark, but did not prove fatal, for the cat reached the top and vanished.

Rael waited for some time, listening, but hearing no sign from above, it fin-

ally occurred to him that there might be some means of entrance that he had not yet discovered. He would see, anyway. He approached the stairway and went cautiously up. He found the broken window and sagging shutter, and could see the cats trail upon the snow, where it had leaped to the roof and thence to the eubankment, for the cabin was backed close up to the slope of the hill, and from this pitch it was possible to leap to the low roof of the kitchen. A window from the chamber over the living room opened out on this roof. The heavy branch of a tree, thrown against it in some storm, had knocked loose the shutter and worked considerable havoc. One of the prowling cats evidently discovered and made use of so convenient an entrance to ideal winter quarters. The other cat, a stranger, had doubtless arrived by accident, coming in through the open window, either on the fresh man trail and in general search of what he might find, or enticed within by the smell of cooked food.

The second cat, after entering the building, might have slunk away and left him entirely alone had it not been for the presence of the first. But scenting the other cat and then coming upon it ready to fall upon her prey, was little short of a challenge to a hungry stomach. Hence it was that each, though interested in the boy, gave attention to the other.

He made the place secure against any further invasion, and there spent the winter. Mountain lion steaks may

I dreamed last night you promised
To be my Valentine!
If ev'ry dream were just like that,
Say! Wouldn't dreams be fine?

not be particularly tender and appetizing, but when frozen at least served to stave off hunger until the storm abated and more palatable game could be secured. Of the big cat that had made its escape he never saw further trace unless the tracks he found about the cabin one morning a few days later belonged to the cabin's late tenant. He rather hoped they did, for the animal's defense of its home had been most gallant.

HINTS FROM HOUSEKEEPERS

Orange Marmalade
This is the only recipe for orange marmalade I have seen that will not grow bitter:

Five pounds or 6 large oranges, 5 quarts cold water, 5 pounds sugar. Slice fruit, using all the orange except the ends. Let stand in water, uncovered, 24 hours. Boil five minutes after coming to the boil. Let stand again 24 hours, then add the sugar and boil until thick enough. Put in glasses and cover with paraffin or tops.—Mrs. H. E. B., Galt.

Lemon Pie
1 cup sugar, 1 tablespoon butter, 1 tablespoon cornstarch, 1 cup hot water, juice and grated rind of 1 lemon. Cook this part until it thickens, then pour over the beaten yolks of 2 eggs. Pour this mixture into a baked crust and place a meringue on top made of the 2 egg whites beaten with 4 table-spoons sugar, and bake until brown.—Subscriber, Lompoc.

My Favorite Cake
½ cup butter, 1 cup sugar, 2 cups flour, 3 eggs, 3 level teaspoons baking powder, ½ cup milk, ½ teaspoon flavor. Cream butter well, add sugar and beaten egg yolks, milk, extract, flour and baking powder, and lastly the beaten egg whites, reserving the other two for the icing.—Subscriber, Lompoc.

"Chicken Fried My Way"
Cut up the chicken as for frying and roll each piece in flour. Have the pan and shortening (lard and butter) on the stove and fry the chicken in it until it is nice and brown. Then on the back part of the stove have a stew pot ready with a little butter in it, and as you take the chicken out of the frying pan put it in the stew pot. When all is cooked put a little water in the pot to keep from sticking or burning, and season it with salt and pepper and let steam for about half an hour. But as the water dries up keep putting more in it until ready to serve, then take the fried pieces of chicken up and thicken the gravy. Have

mashed potatoes to serve with this.—Subscriber, Lompoc.

Prune Cake and Prune Pie
We use a great many prunes in our family, especially at this time of the year. They are so rich and satisfying. We seldom have them for breakfast as so many do, but prefer them for dinner or supper. In the morning we like grapefruit or oranges or some acid fruit better. I really think mothers make a mistake in urging their children to eat stewed prunes for breakfast with cereal and cream and milk or hot chocolate to drink. We like them better as a dessert at the later meals in the day when we are all hungrier.

Prune Cake—1 cup sugar, ¾ cup butter, 3 eggs beaten separately (save the white of 1 egg for frosting), ½ cup prune juice, 1 cup chopped cooked prunes, 1 teaspoon soda, 1 teaspoon baking powder, 2 cups flour, 1 teaspoon cinnamon, 1 teaspoon allspice, pinch nutmeg. Add ingredients in the order given.

Prune Pie—1 cup sour cream, 1 cup chopped prunes, ½ cup sugar, 2 egg yolks, 2 tablespoons flour, 1 teaspoon each nutmeg, cloves and cinnamon. Mix ingredients and cook until thick. Pour into baked shells and cover with meringue made of whites of 2 eggs.

HOUSEHOLD QUERIES

That Salami Recipe
Many thanks for the recipe on the "sausages." That is not what I wanted, but thank you just the same. The

recipe that I want calls for wine, salt-peter, cinnamon, cloves, salt and other spices. They are very good. Will watch your columns very closely. I am sending you a few of my favorite recipes. Hope they will do some one good.—An Old Subscriber, Lompoc.

We hope that some of our Cultivator housewives will be able to furnish the recipe called for. Ask your friends and tell them that in return for such a recipe the Cultivator will send them one year's subscription, which is the very best dollar's worth they will ever get. Mrs. C. M. Throop of Santa Rosa sent us a salami recipe which was published in last week's Cultivator, which is excellent, but our Lompoc subscriber wishes to know particularly about proportion of spices to use.

PETER AND MARJORAM MAKE A SONG

PETER had been over to tell the man next door about his first trip to the dentist. "Marj'am," he giggled, "guess what the man next door said? He said if he was running things he'd take every boy and girl and pull out every other tooth, so when they wanted to clean them they could just take some water in their mouths and whoo-sh it around and their teeth would be clean and they'd never have to go to the dentist ever."

"Ugh!" said Marj'am, "I think he's horrid. Don't you think he's horrid, Mother? And Peter is, too! Ugh!"

"Aw, he was just joking," said Peter. "Wasn't he, Mother?"

"I think," said Mother, "what he really meant was that you need to keep your teeth clean, outside and inside and in between and all around, and then the dentist won't have to pull out your teeth ever."

"Outside, inside, every in-between-side," chanted Marj'am, who was always making up songs about everything. "It does make a song, doesn't it, Mother?" And she hopped up and down and skipped around the room, singing "Outside, inside, every in-between-side."

Peter's hand went down in his pockets and on went Peter's thinking cap. And pretty soon Peter's perky grin announced that the thinking cap was working nicely.

"I know a song, too. Listen, Mother, see if it isn't:

"Brush 'em brisk, brush 'em clean,
Use a lot of lathery cream."

"Of course it is," said Mother. "Why don't you and Marjoram put your two songs together and see how that sounds?"

"Outside, inside,
Every in-between-side;
Brush 'em brisk, brush 'em clean,
Use a lot of lathery cream."

Evidently Mother had on her thinking cap, too. "And you could call it 'The Brushing Song.'"

"Oh, let's call it 'The Peter-Marj'am Brushing Song,'" cried Marj'am, "because it's our own song, isn't it, Mother?"

And then Peter went off into a per-



In keeping the dairy and farm buildings sanitary—the orchard and fields free from insects and plant diseases, extreme care must be taken to select the right cleansing agents and spray materials.

Likewise in caring for the teeth, progressive farm families, through their dentists and physicians, have learned that the most desirable dentifrice is one which "cleanses" naturally. They select one that doesn't "scratch" or "scour" the teeth with soapless grit.

COLGATE'S CLEANS TEETH THE RIGHT WAY

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So, if your teeth are "on edge" from using a harsh, gritty, soapless tooth paste, try a safe, common sense dental cream. Try Colgate's Ribbon Dental Cream with its delicious flavor that makes tooth brushing a pleasure—there's no disagreeable "druggy" taste.

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fect gale of laughter. "B-but we can't sing it when we're brushing our teeth b-because our mouths'll be busy."

Marj'am looked disappointed because she does so like to sing things. Then on went her thinking cap and

pretty soon she was hopping and skipping again and singing:

"Outside, inside,
Every in-between-side;
Brush 'em brisk, brush 'em clean,
Use a lot of smelly cream."

"We can sing it out loud now, and when we brush our teeth it'll just sing itself inside our heads."

"But it isn't 'smelly cream,'" protested Peter, "lathery cream."

"You can sing 'lathery cream,' if you want to," said Marj'am, "but I'm going to sing 'smelly cream,' because I just do like things that smell nice."

POEMS ASKED FOR

"Father Calls Me William—"

I am anxious for the remainder of two poems I used to know when a school girl. Do not remember the name of either. One starts like this: "Mother calls me William, Father calls me Will, Sister calls me Willie, but the fellers call me Bill," etc. The other: "Pa and Ma are Methodists, and all us children, too." Also if you can suggest to me some book that has a goodly collection of live pieces that take well to give as readings I would certainly appreciate it.—Subscriber, Perris.

The first poem requested is Eugene Field's "Jest 'Fore Christmas." "Pa and Ma are Methodists" the librarian expects to be able to find for us later. General collections for readings the librarian suggests are: "Pieces for Every Occasion" (holidays, anniversaries), Le Row; "Classic Selections," Curry; "Recitations, Dramatic and Humorous," Hasluck; "Choice Readings for Public and Private Entertainments," Cumnock. These may be found in most public libraries. Riverside has a county library, and no doubt you could secure them through it.

JEST 'FORE CHRISTMAS
By Eugene Field

Father calls me William, sister calls me Will,
Mother calls me Willie, but the fellers call me Bill!
Mighty glad I ain't a girl—rather be a boy,
Without them sashes, curls, an' things that's worn by Faunteroy!
Love to chaw'nk green apples an' go swimmin' in the lake—
Hate to take the castor-ile they give for bellyache!
Most all the time, the whole year round,
there ain't no flies on me,
But jest 'fore Christmas I'm as good as I kin be!

Got a yeller dog named Sport, sick him on the cat;
First thing she knows she doesn't know where she is at!
Got a clipper sled, an' when us kids goes out to slide,
'Long comes the grocery cart, an' we all hook a ride!
But sometimes when the grocery man is worried an' cross,
'He reaches at us with his whip, an' lar-rups up his hoss,
An' then I laff an' holler, "Oh, ye never teched me!"
But jest 'fore Christmas I'm as good as I kind be!

Gran'ma says she hopes that when I git to be a man,
I'll be a missionarier like her oldest brother, Dan,
As was et up by the cannibuls that lives in Ceylon's Isle,
Where everly prospect pleases, an' only man is vile!
But gran'ma she has never been to see a Wild West show,
Nor read the Life of Daniel Boone, or else I guess she'd know
That Buff'lo Bill an' cowboys is good enough for me!
Excep' jest 'fore Christmas, when I'm good as I kin be!

And then old Sport he hangs around so solemnlike an' still,
His eyes they seem a-sayin', "What's the matter, little Bill?"
The old cat sneaks down off her perch an' wonders what's become
Of them two enemies of hern that used to make things hum!
But I am so perlit an' tend so earnestly to biz,
That Mother says to Father: "How improved our Willie is!"
But Father, havin' been a boy hisself, suspicions me
When jest 'fore Christmas, I'm as good as I kin be!

For Christmas, with its lots an' lots of candies, cakes, an' toys,
Was made, they say, for proper kids an' not for naughty boys;
So wash yer face an' bresh yer hair, an' mind yer p's and q's,
An' don't bust out yer pantaloons, an' don't wear out yer shoes;
Say "Yessum" to the ladies, and "Yes-sur" to the men,
An' when they's company don't pass yer plate for pie again;
But, thinkin' of the things yer'd like to see upon that tree,
Jest 'fore Christmas be as good as yer kin be!

European Sycamores

THE EUROPEAN SYCAMORE (Platanus orientalis) is beyond question one of the best shade and avenue trees in California. The tree is perfectly hardy and cannot be injured either by heat or frost and is practically free from any injurious insects and such pests. It is a very long-lived tree and is adapted to a wide variety of soil conditions. The Sycamore will thrive with very little water if it is only given the proper care in becoming established. It can be allowed to go untrained into an enormous tree or it can be pruned down into almost any form desired. It does not sucker from the roots as some other trees do. Its shade is very dense on account of its natural compact growth.

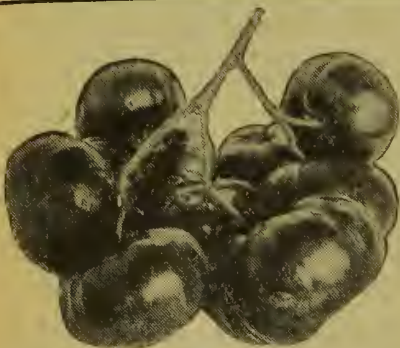
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You can't get any plants more profuse in worth-while bloom, nor can you find any flowers superior for cutting. Spikes placed in water will bloom for weeks at a time; those in the garden will flourish over a long period. To acquaint you with some of our varieties, we make the following special offer:

A collection of 15 of our world-famous named varieties (our own selection) \$1.50.

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Get letter into the first mail. Color: Navy blue only. Sizes: Women's sizes, 32 to 46 bust; Misses' sizes, 14 to 18. STATE SIZE.

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Duval Paste Rouge is blood color and guaranteed harmless. Sample 10c. All postage prepaid.

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94% Air

Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal-oil).

The inventor, V. S. Johnson, 31 N. Fifth St., Portland, Ore., is offering to send a lamp on 10 days' FREE trial, or even to give one FREE to the first user in each locality who will help him introduce it. Write him today for full particulars. Also ask him to explain how you can get the agency, and without experience or money make \$250 to \$500 per month.

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Gombault's Balsam relieves sprains, rheumatism, bruises, cuts, sores and burns. At your druggist's or by parcel post, \$1.50 per bottle. J. Lawrence-Williams Co., Cleveland, Ohio.



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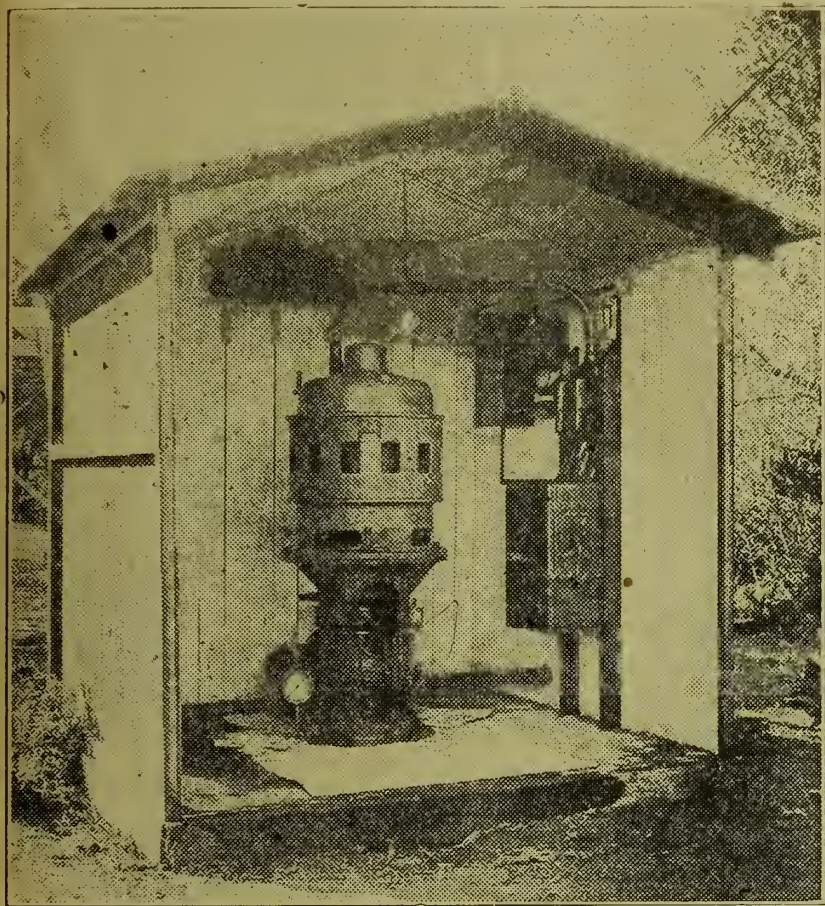
SIMPLE AND DEPENDABLE

Throughout the agricultural sections of the West, and especially in California, where water development is such an important factor, the powerful, economical, direct connected to electric motor deep well turbine is winning a host of advocates.

The Byron Jackson Iron Works, pioneer producer of deep well turbine pumps, reports that the volume of business in this particular type of pump indicates that the time is not far distant when the deep well turbine will be regarded as the standard pump on the average farm.

The accompanying illustration shows a typical Byron Jackson deep well turbine installation in Santa Clara Valley. The average depth of these plants is anywhere from 50 to 200 feet, the horsepower varying from 20 to 100.

This view is of particular interest, showing as it does the Byron Jackson direct connected head and the method of wiring to conform to the "safety first" regulations of the state industrial accident commission. This method of pumping is rapidly winning because of its simplicity, dependability and the little attention required.



BERYLWOOD FARM ENTERTAINS STOCKMEN

The Berylwood Stock Farm of Hue-neme will entertain the breeders of purebred livestock of Southern California at luncheon today, Saturday, February 11. This luncheon will be served in the splendid modern dairy barn at the Berylwood Farm and the

Chamber of Commerce and Rotary Club of Oxnard will join in entertaining the visiting stockmen.

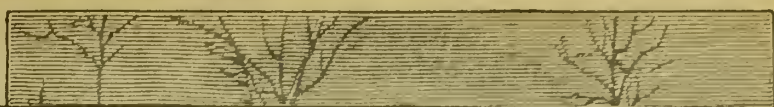
A great interest is being taken in the work of the recently organized Southern California Purebred Livestock Association. A definite program was outlined at a recent meeting of the organization held in Los Angeles, to interest the farmer and small rancher in the introduction of at least purebred males; the enactment of some needed legislation in the interest of the breeder and the installation within the organization of a selling program which will tend to facilitate the more general sale of blooded stock.

The agricultural development of Southern California hinges upon the successful development of the livestock industry and, in turn, the successful development of the livestock industry hinges very decidedly upon whether or not the class of livestock introduced and raised is of the character which will yield the best product in the shortest time and with the least feed. Therefore, the success of the livestock development depends very materially upon the general acceptance of the purebred animal on the farm.

TOP GRAFTING DEMONSTRATIONS

A series of five field demonstration meetings on top-grafting of deciduous and walnut trees has been arranged for by the agricultural extension service for Los Angeles County. February 27, 10 A. M., Baldwin Park, place of B. R. Dix; 2 P. M., Pomona, 1671 S. Park St. February 28, 2 P. M., Van Nuys, Vanowen and Woodman Sts. March 1, 2 P. M., Athens, place of Mrs. M. N. Jackson. March 2, 1:30 P. M., Littlerock, Sheldon-Lancaster Ranch.

At these meetings the importance of top grafting certain deciduous varieties such as plums and pears to secure cross pollinations and eliminate boarders will be discussed. The latest methods of top grafting will be shown, the demonstrations being conducted by Farm Advisor Hodgson. It is hoped to have representatives of the citrus experiment station for handling the walnut grafting.



STEADY SAWING—AND GOODYEAR BELTS



"In my twenty years of farming, twelve years of it with different kinds of belting, the only belt I have ever had that would drive a saw resistlessly through two-foot box elder and ash is the Goodyear Klingtite Belt. The one I have, has been performing faultlessly for four years now."—J. W. CURTIS, Farmer, Little Sauk, Minnesota

"Say nothing, but saw wood" is the motto of the farmer who has a Goodyear Klingtite Belt. His belt troubles, from slippage and shrinkage and breakage, are over. He has a powerful, close clinging, long wearing belt.

The Goodyear Klingtite Belt is efficient and economical because it is specially designed and constructed for farm power service. It is built sturdily to stand the sudden stresses to which farm belts are subjected. It is built to endure changing weather conditions.

It needs no breaking in. It requires no belt dressing. It runs with a loose, free action that favors the engine bearings. It does not stretch or shrink so as to require frequent re-setting of the engine. It wears evenly, without a trace of ply separation, and lasts a long, long time.

You can get Goodyear Klingtite Belts from your Goodyear Dealer for any farm power drive. For further information about Goodyear Klingtite Belts write to The Goodyear Tire & Rubber Company, Akron, Ohio, or Los Angeles, Calif.

GOODYEAR

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What is more annoying—to the milker and to the cow—than trying to get a full milking from udder or teats that are tender and sensitive or hard and congested.

Prompt application of Bag Balm, the great healing ointment to any cut, scratch, chap or inflammation quickly heals and keeps the tissues soft and pliable, so that milking time is a pleasure to the milker and comfort for the cow.

Use Bag Balm for Caked Bag and all abnormal conditions of the udder tissue. It penetrates quickly and restores healthy circulation. Valuable in treating Cow Pox and Bunches.

Big 10-ounce package, 60c. at feed dealers, general stores and druggists. Write for free booklet, "Dairy Wrinkles."

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We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

State Dairy Cow Competition

List of cows producing 50 pounds of butter fat or more during December: Arden Dairy, grade Holstein, 982—1,178 pounds milk, 60.08 pounds butter fat.

Anita M. Baldwin, Holstein—Lady Lilith Walker De Kol, 2,099 pounds milk, 74.73 pounds butter fat. J. A. Genzoli, grade—Dollie, 784 pounds milk, 53.31 pounds butter fat.

Nate Hauck, grades—Red, 787 pounds milk, 58.24 pounds butter fat; Speck, 840, 53.76; Lily, 675, 51.98.

C. D. Hayworth, Jerseys—Harriet of Rico V, 795 pounds milk, 51.07 pounds butter fat; Lorna of Rico V, 739, 52.05.

Peter Iversen, grade Holstein—Holstein heifer, 784 pounds milk, 54.10 pounds butter fat.

Palo Alto Stock Farm, Holstein—Kiatta Pontiac Pride, 2,337 pounds milk, 65.43 pounds butter fat.

M. L. Pontoni, grade Jersey—Klam-

ath, 877 pounds milk, 66.65 pounds butter fat.

The reports for December so far received show that 225 cows in milk during the full month produced an average of 547 pounds milk and 30.08 pounds butter fat (average number of days in milk at the beginning of the month, 253). The highest producing cow for the month was a pure bred Holstein, Lady Lilith Walker De Kol, owned by Anita M. Baldwin (2,099 pounds milk, 74.73 pounds butter fat, at 195 days from freshening). Three cows produced between 60 and 70 pounds fat during the month and seven between 50 and 60 pounds.

The prize offered by the California Cultivator for the highest average production by five grades for December was won by Peter Iversen of Grizzly Bluff, Humboldt County. The average production of his five highest

Completed Ten Month Records, December, 1921

No.	Name of Cow	Age Yr.-Mo.	Days in Milk at Beginning of Record	Milk Lbs.	Butter Fat Per Cent	Lbs.
1—	Princess Maida Veeman, H.	3-5	7	26,119	3.06	798.15
2—	C-170, gr. G. (1)	-	5	9,515	4.10	389.87
3—	C-392, gr. G.	-	10	7,697	4.97	382.33
4—	Buttercup, gr. G.	-	5	7,120	5.32	378.70
5—	C-459, gr. G.	2-6	6	7,433	4.80	357.36
6—	C-461, gr. G. (2)	2-8	5	6,232	5.46	341.95
7—	C-457, gr. G. (3)	2-8	5	6,081	5.55	337.26
8—	C-8, gr. G.	-	5	7,542	4.02	302.88
9—	C-468, gr. G. (4)	2-2	5	5,884	4.74	279.13
10—	No. 58, gr. H.	-	31	13,751	3.57	490.66
11—	No. 249, gr. H. (5)	-	5	10,711	4.04	432.77
12—	No. 35, gr. H.	-	15	11,457	3.74	428.31
13—	No. 225, gr. H. (6)	-	21	8,890	4.32	383.67
14—	No. 188, gr. H. (7)	-	26	9,300	4.13	383.66
15—	No. 220, gr. H. (8)	-	24	9,864	3.98	383.27
16—	No. 54, gr. H.	2-6	5	8,412	4.42	371.44
17—	No. 222, gr. H. (7)	-	52	7,540	4.36	328.74
18—	No. 28, gr. H. (7)	-	8	8,941	3.16	282.59
19—	Fay Tritomia Heng. W., H.	2-7	5	9,882	6.20	612.71
20—	Shortie's Best, gr. J.	6-	5	11,735	5.15	603.88
21—	Rachael, gr. J.	6-	8	11,305	5.33	602.66
22—	Brownie, gr. J.	6-	5	8,170	6.84	558.68
23—	Rosalie, gr. J. (9)	5-	24	9,597	5.68	545.04
24—	Midget, gr. J. (10)	6-	5	9,756	5.58	544.52
25—	Twinnie, gr. J. (9)	4-	17	8,553	5.98	511.07
26—	Hannah, gr. J. (9)	4-	16	10,405	4.63	581.50
27—	No. 1910, gr. J. (9)	11-	6	7,901	5.98	472.45
28—	No. 62, gr. J. (11)	7-	5	8,167	5.47	446.98
29—	Ruby, gr. J.	6-	9	8,097	4.86	393.54
30—	Dottie, gr. J. (12)	11-	13	7,437	5.16	383.62
31—	Judy, gr. J. (7)	5-	19	6,663	3.95	263.52
32—	Aralia Walker, gr. H.	2-1	5	9,604	5.82	559.01
33—	Olga Fern's Olga, J.	6-6	5	8,202	5.79	475.19
34—	St. Heller's Mabel D., J.	2-10	5	7,763	5.61	435.85
35—	M. rigold of F., J.	9-0	5	7,394	4.38	324.14
36—	Brindle, gr. J. (13)	4-9	5	14,227	3.35	476.14
37—	Lady Silver DeK. Kornd., H.	6-3	5	14,496	3.23	467.55
38—	Roseland G. Walker, H.	6-9	5	13,970	3.05	426.41
39—	Sadie Creamcup DeK., H.	4-0	5	10,778	5.28	569.54
40—	Little Darling, gr. J.	6-	8	9,316	5.66	527.28
41—	Lineback, gr.	M.	5	8,823	5.45	480.42
42—	Creamcup, gr. J.	3-	5	10,201	4.57	465.84
43—	Pet, gr. J.	4-	5	7,734	5.93	458.67
44—	Jack Rabbit, gr. J.	-	5	11,874	3.82	454.13
45—	Little Rose, gr.	4-	5	7,817	5.62	439.13
46—	Buck, gr. J.	M.	5	9,484	4.62	438.04
47—	Cripple, gr. J.	M.	5	7,881	5.34	420.83
48—	Tell Tale, gr. J.	-	5	8,596	4.85	417.02
49—	Brindle, gr.	-	6	4,844	6.54	316.97
50—	Blue Belle, gr. J.	2-	5	12,642	3.34	421.84
51—	Mechthild, Aralia W., H.	4-11	5	10,331	6.39	660.49
52—	Jill, gr.	5-0	5	11,791	5.18	610.77
53—	Sarah, gr.	5-1	5	9,566	6.05	578.79
54—	Brownie, gr.	7-9	9	10,233	5.55	567.87
55—	Pansy, gr.	4-9	8	9,370	5.80	543.44
56—	Princess, gr.	5-11	5	8,651	6.04	522.29
57—	Maggie, gr.	5-0	6	9,073	5.48	496.89
58—	Josie, gr.	4-0	5	9,828	5.06	496.85
59—	Star, gr.	6-0	5	7,276	5.52	401.74
60—	Raleigh's Frankie Tulip, J.	3-2	6	6,569	6.17	405.37
61—	Brindle, gr. J.	M.	63	22,629	3.31	748.87
62—	May Altoona Pont., H.	6-11	5	19,038	3.69	702.77
63—	Mutual DeK. Joh., H.	7-10	5	10,359	5.26	544.94
64—	Slow, gr. J.	4-	5	7,363	4.19	308.69
65—	Hollie's Dot, J. (14)	4-7	1	6,798	4.43	301.07
66—	Dollie, gr. (15)	-	18	20,834	3.47	720.99
67—	Alta Papoose, H.	4-0	5	10,125	5.24	530.07
68—	Christina, gr. J. (16)	11-0	5	9,557	5.53	528.26
69—	Annie, gr. J.	4-0	5	10,832	4.86	526.11
70—	Laura, gr. J. (17)	8-0	5	8,979	5.84	523.93
71—	Amy, gr. J.	-	5	9,000	5.04	453.57
72—	Lucy, gr. J.	4-0	5	8,310	5.37	446.46
73—	Ethel, gr. Sh. (18)	4-0	5	6,842	6.39	436.96
74—	Edna, gr. J. (19)	4-0	5	7,477	5.28	394.62
75—	Dinah, gr. J. (7)	2-3	12	6,869	5.65	387.86
76—	Friday, gr. J. (2)	8-0	5	7,536	5.11	385.43
77—	Lina, gr. J.	13-0	5	10,444	3.63	379.26
78—	Pale Face, gr. H. (20)	11-2	5	7,189	5.27	378.70
79—	Babe, gr. J.	3-1	5	7,072	5.34	376.54
80—	Monday, gr. J.	3-0	5	8,053	4.64	373.71
81—	Evelyn, gr. H. (21)	11-1	5	6,067	5.90	358.17
82—	Yellow, gr. J. (22)	-	5	9,747	4.15	404.47
83—	Amy, gr. H.	1-11	5	6,552	5.87	384.29
84—	Gaylord, gr. (6)	-	17	13,477	3.41	460.89
85—	Miss Floa Juliana, H.	3-8	5			

When Writing Advertisers Please Mention the Cultivator.

grades was 48.62 pounds butter fat during the month (average milk 706 pounds, test 6.88 per cent, average distance from freshening, 250 days). The production of the individual cows ranged from 43.1 to 54.1 pounds butter fat. These cows stood first among similar groups of five grades in 13 dairy

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W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

herds in different parts of the state that competed for the Cultivator prize the past month. The average production of only one other group came above 40 pounds, viz., grades owned by M. L. Pontoni of Arcata, whose production averaged 45.64 pounds butter fat for the month.

The following cows completed the record period of ten months (305 days) in the competition during the past month. They are given in the order of their owners, alphabetically arranged, except for the record cow for the month, which is placed first:

(1) 294 days, (2) 283 days, (3) 303 days, (4) 275 days, (5) 289 days, (6) 273 days, (7) 245 days, (8) 295 days, (9) 285 days, (10) 266 days, (11) 272 days, (12) 276 days, (13) 261 days, (14) 244 days, (15) 243 days, (16) 304 days, (17) 293 days, (18) 299 days, (19) 302 days, (20) 271 days, (21) 255 days, (22) 300 days.

Owners of Cows: No. 1, Earl Graham, Compton; 2-9, Adohr Stock Farms; 10-18, Arden Certified Dairy, El Monte; 19, Berylwood Stock Farm, Hueneme; 20-31, Eug. Blondini, Ferndale; 32, J. M. Christen, Pacheco; 33-35, J. W. Coppini, Ferndale; 36, S. J. Damon, Ferndale; 37-39, L. A. Driver, Nicolaus; 40-50, W. F. Early, Grizzly Bluff; 51, M. J. & B. A. Edwards, Ripon; 52-59, J. A. Genzoli, Loleta; 60, H. G. Gross, Eureka; 61, J. A. Harbers, Waddington; 62-63, Fred Hartsook, Lahkershim; 64, Nate Hauck, Alton; 65, C. D. Hayworth, Modesto; 66, S. A. Mitchel, El Monte; 71, Palo Alto Stock Farm, Palo Alto; 68-82, Walter Terkelsen, Ferndale; 83-84, R. H. Walrath, El Centro; 85, Warne & Sons, Holtville.

As previously announced, the competition closed January 31, after having been in progress since September 1, 1920, a period of 16 months. The awards of the prizes offered will be announced and the presentation of cash prizes, silver trophies, etc., will take place at the evening session, February 23, of the Dairy Farmers' Conference during Stockmen's Week held at the university farm, Davis. Farmers and breeders who have participated in the competition, as well as donors of prizes in the competition and the general public, are cordially invited to be present at this and other sessions of the conference. An excellent program with addresses and discussions by leading dairy authorities will be offered at the conference, insuring all dairy farmers who attend a highly interesting and profitable meeting. The same holds true as regards all who attend the meetings of the stockmen during the entire week. University farm, Davis, will be the Mecca of California livestock men and dairy farmers during the last week of February.

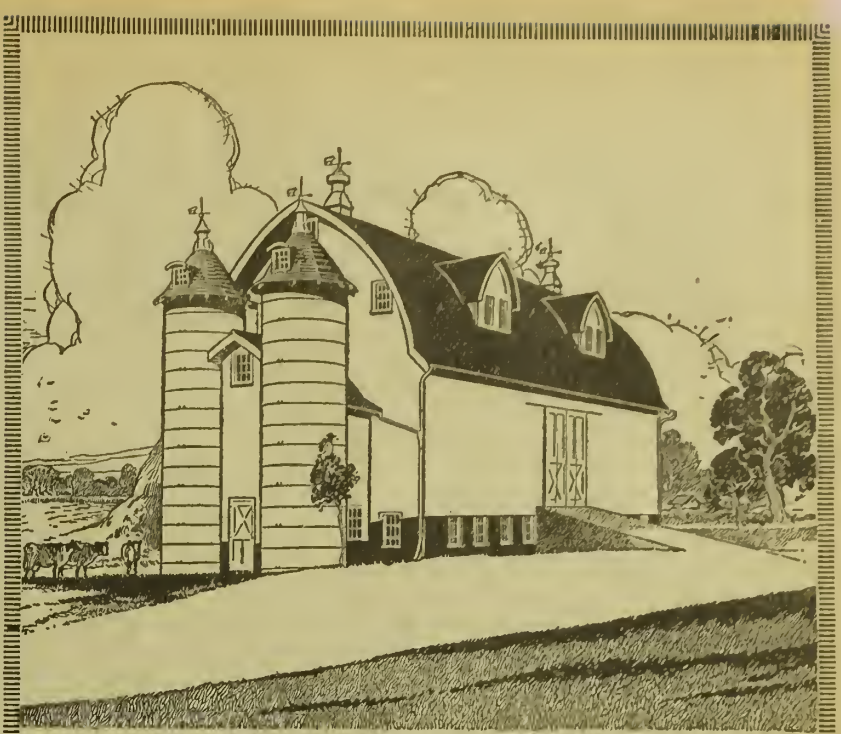
This is the last monthly report of the competition that will be issued. The compilation of records made in the competition are not likely to be completed much before the Davis meeting and the list of prize winners will be made public through the press at that time. It is planned to give the history, main results and teachings of the competition in a bulletin of the college of agriculture, to be published as promptly as practicable on the completion of the competition.

DAIRY MEETINGS

A series of dairy meetings under auspices of the farm bureau will be held in Los Angeles County at Van Nuys high school, February 13; high school Lancaster, 14; County Farm, 15; Pomona (I. C. Hostetler place), 16.

General program: Dairy Equipment and the Handling of Market Milk, Dr. J. J. Frey, state department of agriculture. Economical Feeding of Dairy Cows, Prof. E. C. Voorhies, University of California. Tuberculosis, Dr. J. P. Bushong, dairy inspection, Los Angeles. Contagious Abortion and Sterility, Dr. J. A. Woodside.

Sam H. Greene, manager of the California Dairy Council, will discuss the council's method of securing greater profit for the dairymen. Dairymen attending will be given the opportunity to bring up other questions. There will be specimens and demonstrational material used in connection with the discussion on disease work in dairy cattle, and dairymen should not lose this opportunity to get firsthand information on the above mentioned subjects.



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Walter Hogan Stock White Leghorn Chicks. December and January chicks come from winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. **Lyon Hatchery, Gardena, California.**

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the **Vineburg Hatchery**. All baby chicks guaranteed safe delivery. **Vineburg Hatchery, Vineburg, California.**

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Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.**

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. **Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.**

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live vigorous chicks guaranteed. Prices on request. Reliable since 1898. **MUST HATCH INCUBATOR CO., 433 Seventh St., Petaluma, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. **Model Poultry Farm, W. C. Smith, Prop., Corning, California.**

White Leghorn Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Barred Plymouth Rocks—"Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Vodden, Los Gatos, California.**

Better Be Safe Than Sorry and order your chicks from the **Stevenson Hatchery (Always Reliable)**, 19 Center Street, Watsonville, California.

Anconas, Our Sixth Year—Cockerels, single birds, \$3.50 and \$5.00. Satisfaction guaranteed. **A. S. Wilkinson, Winton, California.**

POULTRY

Baby Chicks—Are you looking for chicks that will grow into good layers? We have been supplying this kind to our customers for several years. All our hatching Eggs are from carefully selected Hoganized stock. Our record of 1918 eggs from 10 Rock pullets for 12 months proves that our Rocks are the best bred-to-lay stock in the West. Customers report Reds laying at 4 months and 15 days. Write us at once for dates; or better still, send in your order, as we are heavily booked for 1922. Every Sunday we have a hatch of Rocks, Reds, Anconas, and White Leghorns. Prices for chicks delivered, Parcel Post: Rocks, Reds, Anconas, 25-35; 50-100; 100-200; 500 Reds, \$90; Leghorns, 100-116; 500-775. Circular free. Established 1915. **Hargett & Son, Route 2, Box C, Compton, California.**

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guineas \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

Our Prices Are Right For SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? **White Leghorns Only**—the laying strain.

Custom Hatch—2c per egg

We have the capacity for you.

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. 1, San Diego, California.**

BABY CHICKS LAYERS AND PAYERS

Ours pay. Chix and Hatching Eggs from hens tested and mated for egg production. **R. I. Reds, Barred Rocks, Black Minorcas, White Leghorns.** Prices correspond with egg prices. Special reduction on lots of 500 to 3500. Express prepaid on February deliveries.

DENTON POULTRY YARDS, Box 3, Campbell, California.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. **White and Brown Leghorns, R. I. Reds, Barred Rocks.** Safe arrival guaranteed. Order early. Write for circular. **Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Penn's Quality Barred Ply. Rocks and **Ferris heavy-egg-type White Leghorns.** Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM, Porterville, California.**

Chicks, Eggs—Hoganized **White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians.** Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. **Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas.** Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Hatching Eggs from well Hoganized Walter Hogan strain White Leghorns. Will run 96% fertile, \$1.50 for 15 or \$3.00 a 100. **C. M. Bradford, Hemet, California.**

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred **White Leghorns**, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 198a, Sunnyvale, California.**

POULTRY

NOTICE

Note the similarity of the names, **Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from 1921 record pen. Sittings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.**

Capacity 200,000—For 20 years superior, reasonably priced chicks from our 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, ducks, turkeys have supplied foundation flocks and filled repeat orders for hundreds. Reasons: Electric hatched, vigor, size, winter-laying, profit. Book February below pre-war prices, for delivery any week. Most weeks open for 10,000. Profitable Poultry, 13 N. Fair Oaks, Pasadena.

Quality Chicks—Western Washington leads the world in high egg producing birds. We can furnish a limited quantity of Tanager strain Trap-Nest White Leghorn chicks from 200 egg females and better, mated with 250 egg cockerels and better, at \$20.00 per 100, f. o. b. Seattle. We also hatch R. I. Reds, Barred Rocks, Black Minorcas and Anconas. **QUEEN HATCHERY, SEATTLE, WASH.**

Hudson White Leghorns—More years of official 200 egg records than any other California breeder. Records made by our pullets in Oregon, three Washington and last Missouri contests. Booking orders now for cockerels, eggs and chicks. **Hudson Poultry Farm, ESCONDIDO, CALIFORNIA.**

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. **J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.**

Pullets—Three months old S. C. White Leghorn, from closely culled and carefully mated pens with high egg records. Orders now booked for April and June delivery. Visitors welcome. **El Dorado Pullet Farm, 803 N. Spadra Rd., Fullerton, California.**

Baby Chicks that are hatched right from our heavy laying strain of **Ferris and Hollywood Farm White Leghorns**, also **Brown Leghorns and Barred Rocks.** Our prices are right. **Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.**

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. **Bonnie Brae Farm, Burbank, California.**

Parks P. R. Pedigreed Cockerels and eggs for hatching (230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania). Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. **San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.**

Beautiful R. I. Red and Brown Leghorn prize stock. Eggs, per setting, \$2.00 to \$5.00 per 15. Fertility guaranteed. **Persian Kittens** from prize stock. **Mrs. Eva V. Conklin, 1445 Portola Avenue, Los Angeles, California. Phone Garvanza 3034.**

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. **S. H. Evans, Chowchilla, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

Ancona Hatching Eggs—Select laying stock. Mated for heavy egg production. Settings or hundreds. Write for mating list. **R. Baugh, 3534 Allendale Ave., Oakland, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Baby Chicks—White Leghorns from our own stock, well selected and Hoganized. We are taking orders now for spring delivery. **Gercia & Sarich, R. F. D., Box 346, Sonoma, California.**

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

For Sale—Standard bred **Brown Leghorn cockerels**, \$2.50 each. Baby chicks in season. **Mrs. B. J. Wadlington, Route 1, Box 213E, Chico, California.**

Light Brahmas—A few young cocks. Setting eggs, \$5.00 per 15. **Keys Ranch, El Monte.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$3.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. **Pause Pheasantry, Fair Oaks, California.**

Buff Orpington Eggs, \$2.50. **Mrs. P. Bone, Route B-57, San Jose.**

Pt Games—Old and young trios. **R. H. Crane, Santa Rosa.**

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We Are Experts. Your next roll developed and six prints 30c. Send negative and 40c for 8x10 Art Enlargement. **Wagar, Ukiah, California, Dept. E.**

SEEDS AND PLANTS

Berries and Small Fruit Plants. Grown and shipped Direct from my large **Berry Farms and Nurseries** here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

Cory's Thornless Blackberry—Selected, well-rooted tips, \$2.40 per dozen, \$15.00 per 100, \$120.00 per 1,000. 50 at 100 rate or 500 at 1,000 rate. **Black Zante Currant Grape (Panarit),** heavy 2 year old vines, \$5.00 per 100. Packed free. **Sylvan Nurseries, Lincoln Highway, Roseville, California.**

For Sale—Thompson Seedless, Malaga and Muscat one year old grape rootings. Cuttings came from the finest producing vineyards of Tulare County and are guaranteed A No. 1. Reasonable prices for 1,000 lots or over. **J. Murray, 7050 Kester Avenue, Van Nuys, Los Angeles County, California.**

For Sale—500 pounds **Klondike Watermelon seed**, best brown varieties at \$2.00 per lb. 100 pounds black seed **Chilcans** \$1.00 per lb. All seed guaranteed to grow if planted at proper time. **Sam Oskey, 2005 Audrey Street, Los Angeles, California.**

The Senator Dunlap Strawberry has them all beat for quality of fruit and yield per acre; 2c each; 1,000, \$15.00. Also **Gardena Dewberry**, the earliest blackberry on the market; 10c each, \$1.00 per dozen, prepaid. **W. C. Metcalfe, R. F. D. No. 1, Ontario, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest, Standish, California.**

Carolina Strawberry Plants bear a full crop the first year, beginning 7 weeks after planting; large, firm berry, ripens evenly. Strong plants \$2.00 per 100, \$14.00 per 1,000. Write for prices in large quantities. Now is the time to plant. **Olive Ranch, Lakeside, San Diego County, Cal.**

200,000 Grape Rootings—Thompson, Malaga, Muscat, Emperor, Sultan, most all kinds of cuttings. Full line of nursery stock. Farm, garden seeds and plants. Write for circulars. **Box 501, Fowler, California.**

Berry Plants, Grapevines, Rhubarb, Roses, Annual and Perennial Flowering Plants. Sent postpaid. Special price list. **Hopkins Nursery, 153 So. Hartwick Ave., Eagle Rock, California.**

Cory's Thornless Blackberry Plants, extra fancy, 15c each, or rates by the thousand. **Corner Inglewood Ave. and Arborvitae, Inglewood, California. C. C. Bryson.**

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas E. Mortensen, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. **Wm. Mortenson, Route 1, Lodi, California.**

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.**

For Sale—Rooted **Grape Vines**, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 936, R. 2, San Gabriel.**

Cory's Thornless Blackberry—Well-rooted plants, \$1.50 per dozen. **Loganberry, \$1.25 per dozen. C. E. Jenkins, 127 Luther, Riverside, California.**

For Sale—Government tested alfalfa seed, dry land Chilean variety. Prices and samples on request. **O. L. Divens, Dos Palos, California.**

Thornless Blackberry Plants now ready; fine plants, 8 for \$1.00. Also common blackberry plants, bargain. **Chas. McNeely, Alpaugh, California.**

Save Work—Plant **Iris and Perennials**; a \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurtt, San Bernardino.**

Alfalfa Seed—Certified **Halpy Peruvian, Smooth Peruvian, Common.** Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, San Jose.**

For Sale—Selected **Mebane Cotton Seed**, 5c per pound. **Walter E. Scott, Box 174, Blythe, California.**

Strawberry Plants, Harris and Gold Dollar, 60c hundred, \$4.00 thousand. **D. R. Bannister, Oakdale, California.**

For Sale—Japanese Pear seed, new crop. Imported direct from Japan. **W. C. Whitney, Healdsburg, California.**

Florida Sour Orange Seed for sale. **Milo Hunt, Whittier, Phone 250.**

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. **The Kruckeberg Press, 236 Court St., Los Angeles.**

TREES

Walnut Trees grafted on Northern Cal. black. Placentia, Eureka, Chase and Payne. HACHIYA PERSIMMONS locally grown on Lotus root bench grafted; also seedlings ready to plant. ROYAL APRICOTS on apricot roots, standard varieties Apple, Peach, Pear, Plum and Nectarines, Rooted Grape Vines, Berries. All stock strictly first-class; prices reasonable. Los Nietos Valley Nursery, Downey, Calif. Phone 692.

Citrus Trees, 1 and 2 years. Supply Co. and performance record bud selection quality trees, Valencia, Navel, Eureka, Lemon, Grapefruit. We think we know how to handle trees. Try us. We have a good line of stock. Prices right. Orchards planted to order. WANT TO BUY 50,000 sour seedlings. Cyrus W. Willhite Citrus Nurseries, P. O. Box 164, Glendora, California.

For Sale—Concord grape vines and cuttings. Kadota and Black Mission fig trees. Kadota cuttings. Hachiya Japanese persimmons, walnuts, peaches, plums, apples and general assorted fruits. Good trees at reasonable prices. Fred W. Kelsey, South Rosemead Avenue, near Valley Blvd., 2 miles west El Monte. Phone Alhambra 919-J-3.

Prune Trees—We offer planters a few thousand Petite, Imperial and Sugar prune trees, on both peach and plum roots, at very close prices while they last. Also have a complete line of other nursery stock at attractive prices. Quality guaranteed. Send us your want list today. Benedict Nursery Company, 185 E. 37th Street, N., Portland, Oregon.

Cirol Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVEL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Nursery Stock at bargain prices. Prune, 12c each; grafted walnuts, \$1.00 each; pears, 20c each; Blackcaps, \$20.00 per 1,000; other stock at bargain prices. Submit your want list and send for planters' list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

Persimmon Trees—2,000 fine Hachiyas on Lotus (Manchurian) roots, the best commercial persimmon on the best possible root. Alcorn's Nursery, R. 1, Fullerton, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale: Valencia Late, Washington Navel, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Walnut Trees—4 to 12 ft. W. W. Pearmain apples, Bartlett pears, peaches, apricots and figs. Bassett Nursery, Puente, California.

For Sale—Fine lot Florida sour stock orange seedlings, budded orange trees, grafted walnut trees. A. G. Snow, Oxnard, California.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 8294.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

Placentia Walnut Trees on Northern Black root; 4 to 10 ft., \$1.00 to \$1.50. A. E. Nelson, El Monte, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. W. Irwin, Lindsay, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena.

Quality Trees—Cheap. Send list for prices. Cash Nursery, Sebastopol.

WANTED

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

Want to Hear from owner having farm for sale, give particulars and lowest price. John J. Black, 116th Street, Chippewa Falls, Wisconsin.

Wanted—Purebred Newfoundland pup, 3 to 4 months old. State color and price in first letter. Chas. McNeely, Alpaugh, California.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

DUCKS

Mammoth Pekin Ducklings and Eggs—Ancona chicks and eggs, fine winter layers. Mrs. Walter E. Gould, Orland, California.

Mammoth White Pekin Duck Eggs for hatching, \$1.00 per dozen, \$8.00 per hundred. A. Surtman, Petaluma, California.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

MACHINERY

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

Tractor Bargain—Almost new Sandusky tractor; plowed less than 100 acres. Taken back on foreclosure. Will sell for less than half the cost of new tractor, and arrange easy terms. 1121 Charles C. Chapman Bldg., Los Angeles, California. Phone 64191.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

MISCELLANEOUS

Bargain—We have taken over a large stock of hose, absolutely new, and will ship any quantity you may desire. This hose is manufactured by the most reputable hose factory in the country. 10,000' 3/4" seven-ply hose @ 14c per foot. 80,000' 3/4" five-ply hose @ 10c per foot. 40,000' 5/8" five-ply hose @ 9 1/2c per foot. This shipment of hose will be ready for distributing February 5th. Send for sample. American Machinery Co., 518 Fourth Street, Oakland, California.

Tobacco, Natural Leaf. Sweet and melon hand picked chewing or smoking; 5 lbs., \$1.50; 10 lbs., \$2.50. Smoking, 10 lbs., \$2.00. Furnish free receipt for preparing. Quality and delivery guaranteed. FARMERS' TOBACCO EXCHANGE, Sedalia, Ky.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1. If ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Ripe for Builder, 18 lots—6 blocks from Barbara Worth Hotel, El Centro, for sale or exchange for run down orchard or unimproved. Box 101, Ramona, Calif.

For Sale—5 hole wood and coal range cook stove, good as new, \$12.50. A. H. Neigebauer, Arcadia, Rd. 1, Box 84. 2nd Ave. near Valnett.

Hemstitching and Picoting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Tobacco—Kentucky Homespun natural leaf chewing and smoking. 10 lbs., \$3; 20 lbs., \$5. Maddox Bros., Dept. 24, Mayfield, Kentucky.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25 delivered by mail. Coffin Fish Co., Seattle, Washington.

FARM LAND FOR SALE

20 Acres—19 alfalfa, rooted vines for one acre. Plenty shade, all water want year round, close to good town; \$1,000 down handles this. 40 acres rich level silt land, close to town, plenty water all the year; 5 acres alfalfa, has all been in alfalfa; priced below market. \$400 down, no other payment on principal for 4 years, no interest charged first and second year. Investigate this. Chas. McNeely, Alpaugh, California.

WE WANT "GO-GETTERS"

Sutter Basin is ready for "Go-Getters." It is a practical farming project in crops today. Deep, rich soil with irrigation and drainage system, river and rail transportation. In the heart of the Sacramento Valley. Very liberal terms to men who know how and will work. Write today. Sutter Basin Company, California Fruit Building, Sacramento.

For Sale—1,070 acres. Good house and out buildings and barns. 250 acres alfalfa. Bottom land will raise any kind of grain. Balance is rolling pasture land, good pasture all year round. Lots of timber and acorns; finest stock and hog ranch. Mrs. Belle de Legh, 1246 E. Weber Ave., Stockton, Calif. Price \$90.00 acre.

For Sale—10-acre apple orchard, Yucaipa, twelve year old, standard varieties. Fully equal to best in the valley. Extra water stock. Eighty acres irrigated land, Delta, Utah, exceptional bargain. Experienced farmer can double value in two years. Address the owner at Room 2, 5619 Pasadena Avenue, Los Angeles.

For Sale—Some of the Finest Orchard Land in Southern California, in a rapidly growing community, \$10.00 to \$50.00 per acre. Water available if desired. Call or address Adelanto Fruit Co., Adelanto, California.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. F. M. Dyke, Real Estate.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

BERKSHIRES

Berkshire Glits—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred glits and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

HORSES

For Sale—Good young work horses, 1,400 to 1,600 lbs. R. F. D. No. 1, Box 133, Tracy, California.

CATTLE

GUERNSEY HERD FOR SALE My foundation herd of pure bred Guernseys, representing the most popular blood lines of the breed, is for sale. It includes such animals as Rebecca of Sunnyview, the state champion cow in BB Class, and Veda of Chiconia, whose son sold for \$10,000. Both cows are in calf to a son of the great Itchen Dalsys May King of Langwater, who has a number of high record daughters. The herd consists of 14 mature females fresh or safe in calf; 3 heifers and 5 young bulls sired by Masterpiece of Edgemoor, Pen-coyds Golden May Secret and Itchen Dalsys May King of Langwater. They combine show type with high production. All animals tuberculin tested and guaranteed breeders. Will be sold singly or a specially attractive price will be made on groups.

Dr. J. A. Woodside, Rita and Fulton Aves., Van Nuys, Cal. Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and glits, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords. Chose bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

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Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Farm, R. 2, Box 88A, Merced, California.

For Sale—3 fine Bronze toms, one a 1st prize yearling, the other 2 May hatched, for \$15.00 each. You cannot duplicate these for double the money. I have sold all females but one small select flock, so have no use for these toms. Mrs. D. T. Wieland, P. O. Box 21, Valley Home, California.

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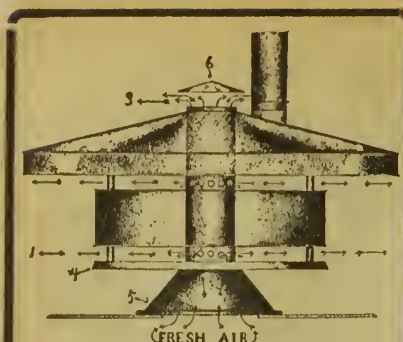
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That Please the California Fruit Grower. G. J. Streicher, Napa Co., Cal., writes: Jan. 7-22. Received strawberry plants today in fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.

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anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be, write us for our

Literature on KRESKY STOVES

Ask for Literature No. 70, which describes all sizes.

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Petaluma, Cal.

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Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 30, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, nothing like it anywhere. Perfect ventilation.

We are exclusive hatchers for spring of 1922, for F. L. Richardson, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

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Box K. Van Nuys, Calif.



Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

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The Redwing Hatchery

Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY,
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Try the Coulson System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars.
Coulson Co., Petaluma, Cal.

Free-Conkey's Poultry Book

80 pages chock full of information about the feeding and rearing of chicks, culling of hens, etc. Tells how to keep chickens healthy and how to make them pay. Whether a beginner or a professional, Conkey's Book is worth dollars to you. Sent for 6 cents in stamps to pay postage.
THE G. E. CONKEY CO. 6586 Broadway, Cleveland, Ohio

After the First Week

By Jean A. Koethen



THE first week has been called the critical time in the life of the baby chick, but this statement must be made with reservations. As far as the vigor and vitality of the chick itself are concerned it is true. A few days of warmth and quiet establish the little creature in its hold on life, which is very insecure at first. If it lacks the vigor to pull through the first week and make a start at growing the sooner it drops out of the race the better. When it has learned to eat and has become hardened to the cooler air of the brooder it is ready for a rapid and most interesting development. Whether it is able to go on as it has begun depends entirely on the environment which is thrown around it.

Nature's Way

Study the life of a chick on range with a hen mother for a minute. It has fresh air from the day it is hatched, unlimited opportunity for exercise, a warm place to sleep, bugs and worms and green things to eat, new interests to keep it running and playing from morning till night. If its coop is kept reasonably clean, and its mother free from lice, such a chick will thrive on almost any fare. It

Green Range

Limited green range is possible for even the largest flocks. Nearly all poultrymen plan to have a yard of growing barley ready for the chicks as soon as they are ready for it. The chicks are not allowed out of the playroom the first week. The second week they are kept in a small yard where they can easily be controlled. By the end of the second week, unless the weather is severe, they are ready for the barley field, and wonderful growth they make, nibbling the tender green and picking the bugs and gnats in its shade. If the barley is not pretty well grown it will not last long; the taller it is before the flock is turned in, the longer it will last and the more good will the chicks get from it. The size of the barley patch will depend, of course, on the ground that is available. The bigger it is the more nearly will natural conditions be approached.

Chard, kale, lettuce, cut barley and any other available greens should be fed in the yard in addition to the barley that is pecked off the growing grain. Limiting green feed is very poor economy.

POULTRYMAN'S CALENDAR—FEBRUARY, HATCHING THE CHICKS

February is the best hatching month in the year in California. Chicks may be hatched in any month, but fall layers must be hatched early, and those hatched in February make rapid growth and reach laying maturity at just the right time.

Brooders and coops should be ready to receive the chicks at least two days before the hatch comes off. The brooder stove should have been lighted 48 hours and heat kept at a steady temperature. When the eggs begin to pip on the 19th day sprinkle them with warm water then close the incubator door till the hatch is over. If mothers should be kept quiet on the nest these last 48 hours, preferably in a darkened place.

Chicks should not be removed from incubator or from under hen till they have been out of the shell 48 hours. This resting time is very important. When they are removed all possible care should be employed to prevent chilling.

Chicks are not fed until they are 60 to 72 hours old. Charcoal, grit and sour milk or fresh water are kept before them from the time they are put in the brooder. The morning of the third or fourth day fine commercial chick feed is placed before them in trays.

Warmth, cleanliness, exercise and simple food are the essentials in successful chick raising.

does not overeat of mash and chick grain, because more palatable feed is always before it and exercise keeps its digestion working normally.

How different is the life of a brooder chick, one of several hundred or perhaps of a thousand or so! It has no interest in life outside of eating and quarreling with its brothers and sisters, no chance to exercise save in limited quarters and always in a crowd, far less than its normal supply of oxygen. Worst of all, its food is set before it all prepared, and it has nothing to do but stuff it down. To overcome these handicaps and raise 90 to 95 per cent of the chicks that go into the brooder is no easy task. That it is done every year by hundreds of poultrymen speaks volumes for their intelligence and devotion.

It is impossible in commercial chick raising to surround a flock of chicks with its natural environment, but it is possible to approach in some degree that environment and to mitigate the handicap which growing up in a large flock places upon every chick.

First, brooder or brooder room can and must be kept clean—just how clean depends on circumstances. When chicks are under a hover at night droppings should be cleaned out and fresh litter put in every morning. When they are brooded without a hover around a stove it may be impossible to change the litter every day, but it should be done as often as cleanliness demands it. Chicks cannot sleep night after night in the foul odor of neglected droppings without suffering.

Second, overfeeding can be guarded against by a very gradual change from the grain ration of the first week to the grain and mash of the month old chick. The poultry division makes this change by putting the growing mash before the chicks for only two hours a day at first. This is from 10 to 12 a. m. Chick grain is thrown in the litter night and morning, and greens are given in the middle of the day. If sour milk is available it is kept before them in fountains. The time the mash is left before the flock is very gradually increased till by the end of a month they have it all the time.

Avoid Overcrowding

Brooder stoves have almost solved the problem of overcrowding. The brooder room contains far more air space than is needed when the chicks are first hatched, and they gradually grow up to it. If good sized outdoor runs are provided, a room 12 feet square, with playroom the same size, will accommodate 500 chicks till the cockerels are removed at the age of six weeks. Many poultrymen keep the pullets in such a house till they are ready for the laying house, but they do better if they are removed to colony houses and kept in flocks of not over 50 through the summer. Where colony houses are not practicable, the pullets may be removed to the laying house after the cockerels are sent to market.

When brooders are used, in which flocks of 100 chicks or less are kept under a single hover, the overcrowding problem is more acute. A chick doubles its size in about three weeks. If its brooding space is not also doubled the chick will be stunted. It is therefore necessary when this type of brooder is used, to have three times as much brooder space as is needed at the start, and divide the flocks every few weeks as the chicks increase in size.

Changing the Ration

The change from chick grain to whole grain is one that the beginners sometimes find difficult. This change is most easily effected by mixing a little whole wheat and Egyptian corn with the chick feed almost from the first, and gradually increasing the amount. It is surprising how soon the chicks will begin to eat whole grains and how soon they prefer it to the chick feed. I had one brood that would never eat chick feed. Having no chick feed for them at first, I threw them whole wheat, and before I could get the chick feed for them they had grown accustomed to the whole wheat and refused the other. This experience convinced me that there is no need of keeping chicks on chick feed very long. Certainly there is nothing to be gained by feeding chick feed to chicks that will eat whole grains. Cracked corn should be a part of the grain ration of all growing stock.

ing to be gained by feeding chick feed to chicks that will eat whole grains. Cracked corn should be a part of the grain ration of all growing stock.

"PIONEER" Valveless Blue Flame Brooder

So Good You Can Write Your Own Guarantee
54-Inch Size Only \$25.00



Send today for circular. If interested in incubators ask for 48-page Pioneer Incubator Catalog.

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The E. Z. CLOVER CUTTER



For the small Poultry Plant. Will cut Dry or Green Alfalfa. Made of the best material. Weight 15 lbs., crated. Why pay more when you can get a good cutter for \$8.50? Postage extra. Send for circular.

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"Pioneer" Baby Chicks

We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination. Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

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320 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"

Cycle Hatchers

Practical, dependable, all-metal incubators. 50-egg size, \$10.20. Simple, safe, inexpensive to run, hatch more and better chicks. Catalog free.

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Box 51 Visalia, Calif.

Chickens Sick? Hens Not Laying

There's no excuse for roup, colds, cancer, sore head, chicken pox, skin disorders, cholera, indigestion, bowel trouble and such ailments. **GERMOZONE** positively will rid your chickens of disease and keep them healthy. For over 50 years the dependable remedy and preventive. Get Germozone and Lee's FINE BLOOD-LETTERS, which explain proper feeding and care and how to keep hens laying regularly the year round. At drug or seed stores. If no dealer, order by card. 75c and \$1.50 sizes. Send no money—Postman will collect. No extra charge.

SEO. H. LEE CO., Dept. F-30 Omaha, Neb.

The Cause of White Diarrhea

White Diarrhea is caused by the bacillus *Bacterium Pullorum* transmitted through the yolk. There is scarcely a hatch without some infected chicks. The germs multiply very rapidly and one infected chick may infect the entire brood. The germs can be killed by the use of preventives. Intestinal Antiseptics to kill the germs should be given as soon as the chicks are out of the shell. It is much easier to prevent than it is to cure.

How to Prevent White Diarrhea

Dear Sir: I have raised poultry for years and have lost my share of little chicks from White Diarrhea. Finally I learned of Walker's Walko Remedy for this disease, so sent for two 50c packages to the Walker Remedy Co., Dept. 596, Waterloo, Iowa. I raised over 500 chicks and never lost a single one from White Diarrhea. Walko not only prevents White Diarrhea, but it gives the chicks strength and vigor—they develop quicker and feather earlier. I have found this company thoroughly reliable and always get the remedy by return mail. Mrs. L. L. Tam, Burnetts Creek, Ind.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send 50c for box on our guarantee—money back if not satisfied. **Walker Remedy Co., Dept. 596, Waterloo, Ia.**

When Writing Advertisers Please Mention Cultivator.

Wheat, Egyptian corn and milo may be mixed with it, and wheat should always be a portion of the mixture. Given wheat and cracked corn as the foundation of the scratch feed, it does not much matter what else is used.

A good growing mash is used from the second week till the pullets are ready for the laying mash at about five months of age. If rolled oats are added to this mash at first there will be better development of frame and muscle, and ground oats should be a part of it. Whole oats may be sprouted and fed at noon after the chicks are three weeks old. Oats are one of the best feeds for bulding frame.

The gradual accustoming of the chicks to the dry mash is for the purpose of avoiding coccidiosis, which many poultrymen believe is the result of overfeeding mash at first. The digestive organs of a young chick cannot handle an unlimited amount of mash; it sours in the crop, and an unhealthy intestinal condition results,

which can only be overcome by the use of sour milk.

Cleanliness Vital

The importance of cleanliness to the growing chick cannot be overestimated. Clean ground to run on, clean air in the brooder, a clean place to sleep at night, clean water, clean food, freedom from all kinds of insect pests—these are the sine qua non of successful chick raising. It would be impossible to estimate how many birds are lost to the poultry industry every year through the depredations of mites alone. Brooders and coops are clean when the hatch goes into them, and the novice, thinking they will remain clean, goes on his way unheeding. Sooner or later, unless insecticides are used, mites breed in corners, under unsuspected bits of filth, and the chicks begin to droop. Only the most rigorous measures will eliminate mites that have once taken possession of a brooder. The blood of the growing chick is meat and drink to them, and daily cleaning and painting with carbolineum or with kerosene and crude carbolic acid is necessary to get rid of them. When insecticides are used it should be in the morning, so that the fumes may evaporate before night.

Keep a Cow

Milk is so important a part of the diet of a growing chick that progressive poultrymen advocate the keeping of a cow as a necessity. Not only does milk contain the protein that is needed to build up the tissues of the chick's body, and the vitamins which all young life requires, but sour milk is distinctly medicinal in character. It prevents white diarrhoea and is the only known cure for coccidiosis. Various milk preparations are recommended when fresh milk cannot be had, but there is nothing quite so good as whole milk, either sour or sweet. Every poultryman who can possibly manage it should have an alfalfa field large enough to feed a cow as well as to provide greens for his flock, and should keep milk before his growing chicks. Milk will not lessen the depredations of mites and lice, but it will largely do away with digestive disturbances and insure rapid growth.

Poultry Queries

Conducted by Jean A. Koethen

Hens are Loafing

My 250 hens and pullets gained up to 140 eggs per day during the latter part of December and the first half of January, but now average only 90 eggs per day. Egg mash is before them all day, and mixture of two parts rolled barley, one part cracked corn, one part milo in evening for scratch, with wheat in litter when lights go on at 4 a. m. Hens have free range and plenty of green.—Subscriber.

Perhaps you are turning on the lights too early. Their excessive use is said to throw hens into a spring moult. You do not say how much grain you feed. If it is too large a proportion of the ration the hens will put their feed into fat rather than into eggs. A quart of grain daily to 16 hens is now considered sufficient.

Culling Pullets

What months are best for culling out pullets?—Subscriber, Oakdale.

Most poultrymen cull every month in the year, but culling for early molting is done in June, July and August, while culling according to color of shanks, beak and vent is done in late spring and early fall. Birds that show bright yellow in shanks and beak in May have not laid heavily during the winter, and those that show bright yellow in September and October have already completed the molt. Pullets that go broody or stop laying for any other reason before July are removed from the flock at once.

Grain in Hoppers

What is your opinion of feeding gain in hoppers? From my own observation a hen will eat no more grain than just what she wants. If feeding in hoppers is all right for a small flock would it be just as good for a large one?—Subscriber, Oakdale.

(Continued on Page 167.)



Forty-three years ago Alexander Graham Bell, the inventor of the telephone, wrote this inspired forecast: "It is conceivable that cables of telephone wires could be laid underground or suspended overhead, communicating by branch wires with private dwellings, country houses, shops, manufacturers, etc., and a man in one part of the country may communicate by word of mouth with another in a distant place." At the right, an old print of Bell lecturing on telephony, 1877.

Foresight

More than forty years ago, when the telephone was still in its experimental stage, with but a few wires strung around Boston, the men back of the undertaking foresaw a universal system of communication that would have its influence upon all phases of our social and commercial life.

They had a plan of organization capable of expansion to meet the growth they foresaw; and their wisdom is borne out by the fact that that plan which they established when telephones were numbered by dozens is efficient now when telephones are numbered by millions.

This foresight has advanced the scientific development of the art of telephony to meet the multiplied public requirements. It has provided for funds essential to the construction of plant; for the purchase of the best materials on the most advantageous terms; for the training of employees to insure skilled operators; for the extension of service in anticipation of growth, with the purpose that no need which can be foreseen and met will find the Bell System unprepared.

The foresight of the early pioneers has been developed into a science during the years which have elapsed, so that the planning of future operations has become a function of the Bell System. This is why the people of the United States have the most efficient and most economical telephone service in the world.

"BELL SYSTEM"

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy, One System, Universal Service, and all directed toward Better Service



TARX

SOLIDIFIED COAL TAR



A Better Disinfectant and DIP in a Handier Form

Tarx is a money saver for every user of dips and disinfectants. Just drop one small cube in a gallon of water and you have one gallon of the best dipping and disinfecting solution. You pay nothing for bottles, barrels or cans, nothing for waste or breakage or leakage. No freight on factory water which you can just as well add at home.

Easily Shipped Anywhere
by Parcel Post. Takes up small space. Will not freeze. Keeps indefinitely. Won't lose its strength. Makes any strength solution you need. Tarx positively destroys lice, ticks and other vermin.

Comes in 6 lb. package divided into 160 cubes—enough to make 160 gallons of strong solution. Ask your druggist for Tarx or write for Free Book and money-saving prices. Agts. wanted.

TARX CHEMICAL CO. (1)
Dept. 12
Peoples Gas Bldg.
Chicago



A 40 Lb. PACKAGE MAKES 1200 GALLONS

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BETTER GARDENS EASY TO KILL WEEDS AND MULCH THE SOIL

Don't do garden work the slow, backbreaking way. The BARKER makes the finest gardens possible—quickly, easily. Simply push along rows (like lawn mower) —3 blades revolving against underground knife destroy the weeds and in same operation break the crust into a level, porous, moisture-retaining mulch. Aerate soil. "Best Weed Killer Ever Used." Has leaf guards, also shovels for deeper cultivation. A boy can run it—do more and better work than 10 men with hoes.

Write for FREE BOOK

Illustrated book, postpaid, gives prices delivered to your station, contains valuable information on gardening, letters from users, etc. A card brings it. Write today.

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Peach Spraying

Use ORTHO LIME-SULPHUR for brown rot, scab, curl leaf, blight, etc. One gallon of ORTHO is equal to any 5 pounds of dry lime-sulphur. Put your spraying problems up to us.

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CALIFORNIA SPRAY CHEMICAL COMPANY

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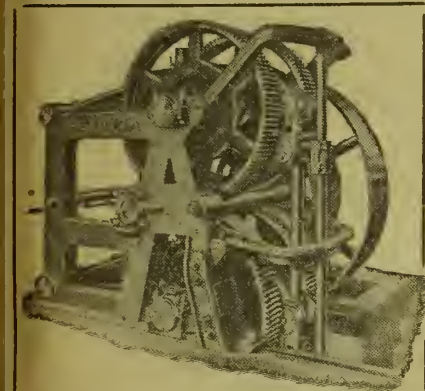
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Engine Size	Price
14 H.P.	\$35.50
2 H.P.	\$38.50
3 1/2 H.P.	\$54.50
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Smashed on direct from factory. Smooth's trial Easy Terms. Write for Engine BOOK and Sale Prices Today.

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THE POMONA

Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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"More Potatoes"

From ground planted secured by use of The KEYSTONE POTATO PLANTER than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc. to A. J. PLATT, MFR., BOX 8, STERLING, ILL.

ADAMS PIPE WORKS

New and second hand pipe and casings. Riveted steel pipe, valves and fittings. Mail orders given prompt attention. Write, phone or call.

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Auto Trailer Co.
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Trailers like this \$35 to \$600
2 and 4 Wheeled

One Man Pulls 'Em Easy

Get New Reduced Prices on Hercules, the fastest, easiest operating "One-Man" Hand Power Stump Puller made. Simple, double, triple, quadruple power—4 machines in one. Moves like a wheelbarrow. \$10 down. Easy payments.

Send for Catalog No. 515
HERCULES MFG. CO.
CENTERVILLE, IOWA



MORE WEIGHT, QUALITY, PROFITS

That is What a SHORTHORN Bull Will Do!

Cattle profits are largely measured by low production costs. A good pure bred Shorthorn bull will increase the weight of your steers at any given age; will improve their quality and increase your profits. The scrub bull won't do in 1922!

THE ANNUAL SPRING SALE

California Shorthorn Breeders' Association

University Farm, Davis, February 22

60 BULLS

In selecting the 60 bulls the committee has kept in mind the type of bull most sought after by range operators. They are outstanding in size, quality, constitution, fleshing and bone. Furthermore, a lot of them will be sold in lots of five to a full carload, thus making it possible for buyers to fill their needs at their own price. A few bulls are included that can fill the bill as herd headers. Some are straight Scotch, others are Scotch topped.

Remember: The Better the Bull the Better the Steers

20—CHOICE FEMALES—20

The farmer or breeder in search of foundation females will find among the 20 head cows and heifers of correct breeding and type. Why not start a small herd now?

The consignments have been drawn from the best herds in California. Every animal guaranteed a breeder.

For Catalog and Particulars, Address

Howard Vaughn, Sales Manager, Dixon, Calif.

Use Shorthorn Bulls on Your Range Herd
Start a Shorthorn Herd—It is a Profitable Business

The Range Man's Opportunity to Increase His Cattle Profits

Annual Spring Sale

Pacific Coast

Hereford Cattle Breeders Assn.

University Farm, Davis

Tuesday, Feb. 21, at 1 P.M.

Bulls in Carload Lots

Hereford Facts:

405,582 Reg. Herefords in U. S.



159,126 Reg. Hereford bulls in service.



19,264 more Hereford bulls in service in U. S. than registered cattle of any beef breed.



25 states have more registered Herefords than other beef breeds.



Herefords won every prize in Short Fed classes, 1920-1921 Internationals.



Grand champion steer over all breeds, Denver, 1922.

This sale affords the first opportunity in California for buyers of range bulls to buy them in groups suitable for the carload buyer.

There will also be at least 20 bulls sold individually, to take care of the buyer who wants only one or a few head.

There will also be about 25 cows and heifers of good breeding for the man who wants to increase his she stuff.

Every Animal Registered, Transferred Free of Charge, Guaranteed a Breeder, and Tuberculin Tested

These choice registered Herefords are consigned by fifteen leading Pacific Coast breeders under auspices of

Pacific Coast Hereford Cattle Breeders Assn.

J. I. Cazier, Pres., Wells, Nev. J. A. Bunting, Sec., Mission San Jose, Calif.

For catalog of sale write to sale managers
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

Los Angeles Markets

Los Angeles, February 8, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 47 cents.

CHEESE

Brokers' prices:
California firsts, 24@26.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 31; case count, 30; pullets, 29.

POULTRY

Price to producers: Hens, 29, colored, 32; broilers, 36@39; roasters, 34; old roosters, 16; fryers, 39; ducks old, 20; ducklings, Pekin, 3½ up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, Feb. 7.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 8.75; 175 to 225 lbs., 9.25.

Cattle (on foot, gross weight): Steers, good, 7.00; medium, 6.00; cows, good, 5.50; medium, 5.00; calves, 125 to 150 lbs., 8.50; 150 to 225 lbs., 7.50.

Sheep: Ewes, 4.00@4.50; lambs, 8.50 @9.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 90@1.00. Stocktons: Burbanks, per cwt., best, mostly 2.35@2.50, few 2.75@2.85; poorer, 2.00@2.25. Idahos: Russets, best, mostly 2.50@2.75; bakers, 3.00@3.50. Sweet Potatoes: Movement moderate, market weak. Locals, No. 1, best, per lug, 1.00@1.10; poorer, 60@90 per lug. Arkansas: Nancy Halls, per bu., 2.25@2.50; per lb., 5.

Onions: Demand moderate, market strong. Stocktons: Per cwt., White Globes, best, mostly 9.00; browns best mostly, 7.00@7.50; lugs, whites, best, 2.75 @3.00; browns, 2.10@2.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, February 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

The supply of vegetables on the local produce market has been limited by the recent freeze and several commodities were scarce and higher in price yesterday. Cauliflower averaged 50 cents a crate higher than Monday and sold from 2.75 to 3 a field crate. Celery was also high, the best local stock selling from 6.25 to 6.50 per crate. Cabbage prices were unchanged and much poor stock was offered. Lettuce was firm, but a good deal of the offerings were only of poor quality.

Artichokes: Doz., 1.75@2.00. Brussels sprouts: Mostly 20 per lb. Sacked vegetables: Beets, 2.75; carrots, 2.75; turnips, mostly 1.00@1.50; parsnips, 1.75@2.00.

Bunched vegetables: Per doz. bunches: Turnips, 35@40; carrots, 50@65; beets, 50 @65; radishes, 25; parsley, 20; spinach, wide range in quality, 35@45.

Cabbage: Market stronger. Per field crate, mostly 1.25@1.50; few best, 2.00; poorer, 1.00.

Cauliflower: Market stronger. Wide range in quality. Per field crate, mostly best, 2.50@2.75; poorer, low as 1.50.

Celery: Market stronger. Locals: Best, 5.50@6.00; poorer, 4.00.

Cucumbers: Market steady. Hothouse, mostly 1.00@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 80@1.00 crate.

Lettuce: Demand moderate, market steady. Locals, quality poor; field crate, 1.50@1.75; shipping crates, 75@1.00. Imperial Valley, best, 1.10 per dozen heads; 3.00@3.25 per field run shipping crates; 3.75@4.00 packed crates.

Parsnips: 75@1.00.

Onions: Green, 15@20 bunch.

Peppers: Mexican chili, mostly 15; Bell, fancy, 35@40.

Rhubarb: Box, 1.75@2.00.

Tomatoes: Market steady. Mex., lug, repacked, 4.00@4.50; original, 3.75 per lug; per crate, 3.50@3.75.

CITRUS FRUITS

Grapefruit: Movement slow, market dull. Californias: Northern: Packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50. Imperial Valley, 4.00@5.00. Arizonas: Seedless, 4.00@5.00, according to size and quality.

Lemons: Demand and movement slow. Market dull. Locals: Loose boxes, mostly 2.25@2.50.

Oranges: Demand limited, market steady. Navels, special brands, 126s-176s, mostly 5.00@5.50; 200s-216s, 4.50@5.00; market pack, 2.40@4.00, according to size and quality; culls, 1.00@2.00 per field box.

Tangerines: Demand and movement light, market dull; mostly 6@8; poorer, 5@6 lb.

HAY

Alfalfa Growers of California report: There were 1,600 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending February 4, with 360 tons held over.

There were 2,250 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending January 28, with 480 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00
Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00
Barley.....22.00@24.00

Alfalfa, Rabbit.....24.00@28.00
Alfalfa, No. 1 Dairy.....20.00@22.00

Standard 16.00@18.00
Straw 10.00

San Francisco Markets

San Francisco, February 8, 1922.

BUTTER

Extras 46½

CHEESE

Dairy Exchange quotations:
California Flats.....26
California Trips.....25
Oregon Y. A.....27

EGGS

Dairy Exchange quotations:
Extra 33½
Extra Pullets.....31½

POULTRY

Prices furnished by the state department of agriculture, division of markets:

Sales to retailers: Below are listed the averages of actual prices obtained between 7:30 and 9 o'clock this morning by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Broilers: 1 to 1½ lbs., 37@39 per lb.; 1½ to 2 lbs., 36@38 per lb.

Colored Fryers: 2½ to 3 lbs., 35@38.

Colored Young Roosters: 3½ to 4 lbs., 30@32 per lb.; over 4 lbs., 29@31 per lb.

ALABAMA FARMER

BEATS THE H.C.L.

Smokes Meat by Simple, Easy Method
That Saves All Shrinkage

E. Ultseh, Florence, Ala., uses an easy, better method of smoking meat for home use and market. He says: "For years I have been using Wright's Smoke. I tell you it is fine. The meat has such a fine taste and no insects trouble it. I simply won't go back to the old way. This year I smoked eight hogs and the meat is fine—it sells like hot cakes."

Mr. Ultseh simply paints his meat with Wright's Smoke, eliminating all bother and loss. Wright's Ham Pickle is fine for sugar curing—simply mix with 27 pounds of salt and pack meat in it. Get these genuine, guaranteed Wright Pure Food Products from your dealer.

Simply send your name to E. H. Wright Co., 841-D Broadway, Kansas City, Mo., for valuable illustrated book on expert methods of curing meat. Also learn how you can get a complete, highest-grade butchering set at lowest factory cost.

Straloch Farm

Davis, Cal.

(2½ Miles West on Highway)

Shorthorns

Herd Sires:

California Model 635776

Imp. Braywood Collynie 951409

California's latest triumph, the winning of Grand Championship over all breeds in the fat classes at the Chicago International by Lulu Mayflower, sired by Sultan Mayflower, the sire of our senior herd bull, California Model, maintains the reputation won in 1916 by California Favorite, the Grand Champion steer at the same show, whose dam, Glenbrook's Marvel, is the dam of our California Model. Such honors prove the worth of the breeding of California Model.

Visit the farm at any time.

J. I. Thompson C. Harold Hopkins
Manager Owner



BARREN COWS are the result of CONTAGIOUS ABORTION

Prevent this by using ABORNO. Easily administered by hypodermic syringe. Kills abortion germs quickly without harming cow. Write for booklet with letters from users and full details of Money-Back Guarantee.

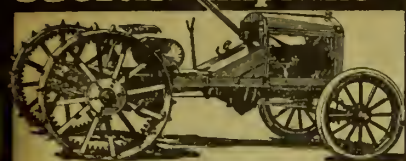
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DIAMOND G HEREFORDS

I now offer 10 extra good open registered heifers, at real bargain price, sired by a son of an International Champion. Start your herd with these.

H. H. Gable Esparto, Cal.

America's Most Useful Implement



THE NEW, PERFECTED Staude Mak-A-Tractor

Clamped to an Ordinary Automobile
Anybody Can Attach and Operate It

MILLIONS of dollars worth of these machines have been in successful use for years on thousands of farms, doing regular farm work—plowing, dragging, discing, mowing, reaping, cultivating orchards, etc. Also used successfully by road builders for pulling road drags, gravel wagons, graders, etc. Used by many golf clubs and city parks for pulling mowers cutting 12-foot swath, hauling dirt, ditching, etc. Converts any used auto into a profit-earning machine. Cheapest power on earth. Has more uses than any other tractor. Won all important events at Famous International Tractor Trials. Every farmer or trucker needs this simple machine. Does the average work of from three to six horses, depending on size and condition of auto.

Write for Special 6 Months' Trial Offer

DON'T BUY NOW. TRY IT FIRST. Among the many machines sold last year, we put out 100 machines under this extraordinary offer, and after six months' actual trial on his own work, every user bought the trial machine and paid us in full, proving complete satisfaction. To prove our confidence in this machine, we are going to extend this wonderful offer to 2000 users this year. All we ask is that you apply the Golden Rule. Pay us for this machine after six months' actual use, if you like it; or send it back, and owe us nothing. You are the only judge.

PRICE READY TO ATTACH **\$146.25**
TO ANY MAKE OF CAR

2½-ton Truck Converter . . . \$32.00
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Send for complete information, telling you exactly what to do to get the use of this wonderful machine for six months, without buying it.

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Coates No. 1403 and No. 1414 Prunes

Very heavy bearers. Fruit graded mostly in 40/50 and 50/60 class. Good growers, dry well. We have some extra fine one year, branched trees for immediate delivery on peach root. Suitable for all soils except extremes of wet and dry. Write for catalog.

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Foreign Domestic

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We Will Send Our Buyer

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CHEAPEST HEAT YOU CAN BUY

The Stiebert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, distillers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. **MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS.** Install it yourself. Write for circular and prices on different sizes. Address Stiebert Oil Burner Co., 710 North Main St., Los Angeles.

staggy, showing spurs, 20@25 per lb.
Colored Old Roosters: 18@20 lb.
Leghorn Old Roosters: 16@18 lb.
Leghorn Hens: 2½ to 3 lbs., 24@25 lb.;
3 lbs. and over, 25@26 per lb.
Large Colored Hens: 28@30 per lb.
Ducks: Young, 25@28 per lb.; old, 23@24 per lb.
Geese: Young, 28@30 per lb.
Live Turkeys: 36@38 per lb.
Dressed Turkeys: Young, 44@46 lb.; off stock, 37@42 lb.
Belgian Hares: Live, 17@20 per lb.; dressed, 25@28 per lb.
Squabs: Live, fancy, 55@65 per lb.; 3.00@4.00 per doz. for common.
Old Pigeons: 2.50@2.75 per doz.
Guineas: Young, 6.00@8.00 per doz.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. quotes:
Weighed off cars at our yards in South San Francisco:
Cattle: No. 1 steers, 7¼@7¾ per lb.; do. strong quality, 6@6½ lb. Cows and heifers, No. 1, 5@5½ per lb.; do. second quality, 4½@5 lb. Bulls and stags, 3½@4 per lb.
Calves: Light weight, 8@9; heavy, 6½@7½.
Sheep: Wethers, 6½@7; ewes, 3½@4.
Lambs: 9@9½.
Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 10½ per lb.; do. 200 to 250 lbs., 9½ per lb.; do. 250 to 300 lbs., 8½ per lb.; light sows, 8½; heavy, 7½ per lb.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:
Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Fancy, 18@20; off grades, 15@20.

Bunched vegetables: Carrots, 50 doz.; turnips, 40@50 doz.; beets, 40@50 doz.; parsley, 15@20.

Cabbage: 2.00@2.25 per crate, 1½ per lb., 75@1.00 per doz.

Carrots: 90@1.00 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 5.50@7.00 crate; poorer, 3.50@5.00 crate; San Diego, 7.50@8.00 crate.

Eggplant: Quality poor, 5@10 lb.; Florida, 25 lb.

Endive: 45@50 per lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Iced, L. A., 2.00@2.50; Imperial Valley, 3.25@4.00 crate.

Olives: 5@9 per lb.

Onions: Cold storage, browns, firm, mostly, 6.50@6.75; White Globe, mostly 7.50@8.00; pickle onions, brown, 4.50@5.00; green onions, 1.85@2.00 per box.

Peas: 10@15 lb.

Peppers: Local bells, 15@20 lb; Florida, 35@40.

Potatoes: Rivers, fancy, 1.90@2.25; Oregon Burbanks, 2.25@2.50 cwt.; Idaho Netteed Gems, 2.40@2.65; Salinas, 3.00@3.25 cwt.

Pumpkins: Per sack, 75@1.00 per 90 lb. sack.

Rhubarb: 3.00@3.25 per apple box.

Squash: Summer, Brawley, 3.00@3.50, small crate; cream, 75@1.00 per lug; Hubbard, 1.00@1.50 per 90 lb sack.

Spinach: Southern, 4.25@4.75 crate.

Sprouts: 12@15 lb.

Sweet Potatoes: Per cwt., 3.50@3.90.

Yams: 4.00@4.50; Arkansas yams, 2.00@2.10 per 40 to 50 lb. basket.

Tomatoes: Repacked, Southern, best, 75@1.75 crate; Mex., 3.00@4.00 per L. A. lug; off grades, 2.75@3.00; hothouse, 3.50@3.75 per small crate.

Turnips: 1.00@1.10 sack.

BEANS

Below California Bean Growers Association shippers' prices choice recleaned:

Large Whites . . . 5.25

Small Whites . . . 5.20

Pinks . . . 5.20

Mexican Reds . . . 4.70

Red Kidney . . . 6.40

Henderson Bush . . . 6.40

Cranberries . . . 6.50

Bayos . . . 5.10

Blackeyes . . . 4.50

RICE

Rice Association prices:
Bag, 2.40@2.55 f. o. b. points.

GRAIN

Sales on Grain Exchange:
Barley: Feed, 1.22½@1.30.

Wheat: Mill, 1.95@2.10; feed, 1.95@2.10.

Red Feed Oats: 1.40@1.55; seed, 1.75@2.10.

Corn: California yellow, 1.35@1.40; eastern yellow, No. 2, 1.28@1.30; No. 3, 1.25@1.27; No. 3 kaffir, in bulk, 1.52@1.55; white Egyptian, 1.77½@1.82½; California red milo, 1.62½@1.67½; do, bulk, 1.62@1.65; eastern red, 1.65@1.67; do, No. 2, 1.30@1.32.

Citrus Markets

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 4,822 cars; lemons, 1,625; total 6,447. To same date last season: Oranges, 5,430; lemons, 1,503; total, 6,933. From Central California to date this season: Oranges, 4,186; lemons, 80; total, 4,266. To same date last season: Oranges, 3,987; lemons, 75; total, 4,062. From Northern California to date this season: Oranges, 368; lemons, 7; total, 375. To same date last season: Oranges, 301; lemons, 3; total, 304.

POULTRY QUERIES

(Continued from Page 165.)

The only difficulty about feeding grain in hoppers is that you cannot control the proportion of grain to mash. Most hens prefer grain to mash, and if they have access to all the grain they want they will eat it to the

exclusion of mash. If you can keep your grain in hoppers and still compel them to eat as much mash as grain there is no objection to hoppers.

Cutting Wing Joint

Would you advise cutting off the first joint of one wing of Leghorn chicks to prevent their flying over

fences? If so, would it not be well to put iodine on the wound to stop bleeding and prevent infection?—Subscriber, Santa Maria.

Many poultrymen adopt this plan. There is very little bleeding and very little danger of infection, but there would be no harm in putting on iodine.

Sir Prince Aaggie Mead



CONSIDER THE TREMENDOUS PRODUCTION AND DEMONSTRATED ABILITY TO TRANSMIT PRODUCTION ON BOTH SIDES OF HIS PEOL-GREE.

His sire, King Aaggie Mead, is a son of the 1,000 lb. foundation cow Aaggie Acme of Riverside, who produced the 1,331 lb. world's strictly official record cow, Aaggie Acme of Riverside, who in turn produced California's only 1,000 lb. junior 2 year old, Miss Aaggie Acme Burke.

His dam, Miss Valley Mead De Kol Walker, with two records above 1,000 lbs. butter in one year, and now making a yearly record that promises to exceed her previous best record of 1,113 lbs., is a daughter of the 1,011 lb. 4 year old De Kol of Valley Mead 2d, who in turn is out of the foundation cow, De Kol of Valley Mead.

HE IS BEING GIVEN HEAVY SERVICE IN BOTH OUR HERDS. KEEP ONE OF HIS SONS IN MIND FOR YOUR HERO SIRE.

Fred Hartsook
LANKERSHIM, CALIF.

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A.W. Morris & Sons Corporation
WOODLAND, CALIF.

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on 1922 Models guaranteed against decline for two years. New low prices and easy terms put Kirstins within every farmer's reach. Write for full details—Land Clearer's Guide—60 page land clearing book—sent free. Write now. **A. J. KIRSTIN CO., 420a Lud Street, Escanaba, Mich.**

One Man Alone Handles Big Stumps

Kirstin One-Man Stump Pullers give you giant's strength. One man easily operates alone. Light, fast, powerful. Clear in time for profitable crops this year—quickly, easily and cheaply. More bushels means more income. Crops from new land more than pay for clearing. Don't send a penny. Try it for 30 days in your stump field. Four easy payment plans. Long terms. Complete line of One-Man and Horse Drawn Pullers to choose from.

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Kirstin One-Man Stump Puller

Compound leverage gives tons pull on stumps from a few pounds on lever. Speed shift gives just the speed and power needed for big, little, green or dead stumps. Three year written guarantee with each machine. Quick delivery and low freight assured by shipment from nearest distributing point. Send for Free Book, etc.

FREE 80-Page Illustrated Book on Land Clearing

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Rooted and Not Rooted, of a Wonderful Resistant Grape Vine which will bear without being grafted

The "MASSON SALVATOR" Grape Vine

The only satisfactory, absolutely resistant direct bearer grape vine now obtainable in America. It is a Hybrid, two-thirds Rupestris, one-third Teinturier—a prolific bearer, tried many years under all soils and climatic conditions. It readily takes root from cuttings and produces a juice of a color intensity far superior to the Alicante Bouchet.

No Order Taken for Less Than 1,000 Cuttings

Price on application to the

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LOOK no further! "National" engineers have mastered the silo problem for every user. "National" big scale production brings silo prices down to where no dairyman or stockman can afford to do without proper silo equipment.

In the three National Silos shown here—the Cyclone, the Ironclad and the Atlas—we have produced a range of silos from the cheapest that's good to the very finest made. It depends upon your particular conditions which of these you want. If you have dairy cattle, beef cattle, hogs or

sheep, there is a National Silo that will earn money for you—that will pay you a return of 25% to 100% a year on your investment, that will increase your milk yield 25%, that will bring your beef cattle, hogs or sheep into condition quicker, and above all, will reduce your feed bill and enable you to make bigger profits.

*United States agricultural reports show that any dairyman who can break even without a silo can show a profit of 25% a year with the proper silo equipment.

We have written a book called "Silos and Silage" which gives you more practical, down to earth information about silos and the feeding of silage than any book of similar size ever published. We will send you a copy of this book free. Just write for it—or mail the coupon.

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CALIFORNIA CULTIVATOR

and *LIVESTOCK* and *DAIRY JOURNAL*

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

February 18, 1922

No. 7

Hegari, One of the Newer Grain Sorghums



Arizona Leads in per acre production of grain sorghums. The 1921 crop was more than double that of 1920. Milo is the principal grain sorghum raised in Arizona, but Hegari has become a close rival within the past two years. Hegari yields practically the same as Milo. The grain is said to be fully as good and the forage is relished more by animals and is more valuable for silage. The photograph shows an Arizona field of Hegari.

Established 1877

Forty-fourth Year

CALIFORNIA CULTIVATOR

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901,
Combined with California Cultivator 1916

Vol. LVIII

No. 7

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Ernest Branton, Associate.
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C. L. Hughes, Associate.
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A. R. Gould E. L. Koethen

Subscription Price.....\$100 per Year

Copy for change of advertisement must be in the office on Saturday preceding date of issue. New advertising copy must be in the office Tuesday preceding date of issue to insure insertion. Advertising rates furnished on application.

The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member Eastern Offices:
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Member Audit Bureau of Circulations.

Entered as second-class matter February 12, 1900, at the postoffice at Los Angeles, California, under the Act of March 3, 1879.

Saturday, Feb. 18, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fall to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Few crops have increased in popularity in Arizona and California more rapidly than the grain sorghum. We began with "Gyp" and have come along down the line with Milo, Feterita and others and now have one comparatively new grain, Hegari, which is illustrated in the photograph on this week's cover. It looks good and has proven wonderfully popular in Arizona.

And Yolo County has now come with still another sorghum. This grain will be fully described and illustrated in the California Cultivator of next week in an article by Prof. G. W. Hendry on White Yolo, a New Grain Sorghum. The illustrations will also give prominence to headers and threshers which have been tested out on sorghum grains at the university farm at Davis.

A Hemet subscriber writes: "I notice in last week's Cultivator you reported 3.20 inches for last week's storm while as a matter of fact it was an even four inches, while this

week's storm has ceased that by 1.70, making for the season 22.28." The trouble with our former report was that the weather won't stay put this year and as we go to press on Tuesday and Wednesday of each week our weather reports get rather stale before our readers get possession of them. The fact of the matter is all of California has had a delightfully wet season and we are surely promised a wonderful crop year.

One thing the abundant rains are doing is the raising of the water table. In areas which have been pumped extensively wells have shown material effect from the drouth of recent years. Old levels are being restored. Irrigators will save many a gallon of oil because of the lessened lift.

The National Orange Show is on. As always has been the case it is better than ever. The citrus people are continually growing, the citrus orchards are continually growing and the National Orange Show must hit the pace.

A noted English lady, Miss Christabel Pankhurst, now visiting in California, is apparently a keen observer and has decided why California is as great a state as it is. At least she has made two observations which are real reasons of greatness. First, the state is agriculturally strong. The lady had hardly reached the state before she learned that some half dozen of the greatest crop producing counties of the United States were within the boundaries of California. "Again," she said, "you Californians must be sure and keep your natural beauty, likewise your created beauty. They are wonderful and are really assets." We appreciate the lady's appreciation. We believe she is honest and also that she is entirely correct in her estimate of our two greatest assets. She did not refer to our wonderful climate, this doubtless because of short time residence. She is booked for a few weeks' residence at least in Los Angeles County. Before she leaves she will add climate to California's great assets.

The Senate has overwhelmingly approved the Capper-Volstead Act which permits freer cooperation on the part of producers. A few minor amendments were made but it is thought it will go through the conference with slight opposition.

Stockman's Week at the university farm at Davis begins Monday morning. Nearly everything of interest to livestock men will be up for discussion, will be on the boards for five full days.

We are assured that this year's orange show will have more of practical commercial lessons than any of its predecessors. There will be exhibited implements, frost fighting equipment, sprays and methods of application and fumigation appliances. Then there will be commercially packed fruit and methods of boxing and shipping exemplified. For the housewife there may be found for inspection scores, we may almost say hundreds, of jellies, marmalades, confections, oils, extracts, cured peel, home cured citron, in fact, almost everything that can be made from citrus fruits.

Some of the citrus orchards will find their earning capacity materially lessened by the "unpleasantness" of January 19, but few of the trees are injured sufficiently to lower the next

year's output. This year's crop may be cut down ten per cent, or possibly 50 per cent, by the low temperatures. The rich ground and the abundant water are still available, especially where trees are not too large. With beans or onions, chili peppers, potatoes, cabbage, strawberries, garlic, or even "punnings," there are possibilities of a little profit and additions to the home table. With liberal use of water and possibly a little fertilizer good crops are possible.

Every dog has his day, and there have also been orange days, apple days, raisin days, onion days, bean days, pear days and other days innumerable. Now the cow has her day, or rather, it is to be called dairy day and is featured by the boosters of Riverside County.

Riverside is getting all dressed up and is making a place for all Berkshire people to go for the entire week of February 27. Geo. Stingle of El Monte is receiving entries for the American Berkshire Congress and Show and he promises a most wonderful showing of real hogs.

Lima bean growers are donning their fighting clothes. "New members and lots of them" is the slogan. The new '22 contract is generally acceptable. The method of campaigning is "every neighbor get a neighbor," and they are getting them. Cooperation is the only salvation of the bean industry and unless the bean growers see it they're gone.

Iowa is agitating for a greater number of cooperative fire insurance associations, and when more of them are organized then let there be a large state federation. Here again is where California leads. A greater number of California counties are now supplied with cooperative insurance associations. They are doing good work and saving to the farmers a bunch of money.

CHANGE OF ADDRESS

As a rule at this season of the year, or until after April 1, more subscribers change addresses than during any other period. To insure receiving your copy of the California Cultivator promptly it is a good plan to write the publishers, addressing California Cultivator, 317 Central Ave., Los Angeles, a week or two weeks in advance of your moving, giving old as well as new address, name, route, box number, post office, etc., and make yourself known to postmaster and carrier at your new address. This will assist everybody and usually insure delivery of your paper without missing any numbers.

DR. WOODBRIDGE

S. M. Woodbridge, a chemist of many years experience in California, at one time at the head of the Agricultural Chemical Works, and prior to his coming to California, assistant to Harvey E. Wiley in the United States department of agriculture, died in San Bernardino last Monday.

Dr. Woodbridge was widely known amongst fruit growers, was frequent attendant at conventions and had thorough knowledge of chemistry.

SUSTAIN THE QUARANTINE

The need of greater effort and greater efficiency in federal and state quarantine was never apparent as now. Renewed activity in American shipping, increased interchange of fruits

and plants and increase in travel make the need for a greater and more efficient inspection force at every port.

California has done her best and as far as possible the federal forces have cooperated. However, the information as to the menace and sentiment favorable to thorough enforcement throughout the country over has not been equal to that in California and the demand for economy has been greater. Inspection at Atlantic ports has been far from as effective as here on the Pacific coast. Even here we need a greater number of men on the job. The Mediterranean fruit fly is only one menace but it is ever present and the preventing of its entrance will be worth many times the cost of our quarantine service for all time to come.

DISARM

We are still toting guns and we fear the time will not come within the lifetime of those of us who are now subscribers of the California Cultivator when peace on earth and good will to men shall be so complete that we may beat up our guns into useful implements. But ultimately it may. In any case, it is the general belief that in this year of our Lord, 1922, one great step has been taken toward giving peace a "fighting" chance.

Nearly every nation on earth is uniting in giving the United States great credit for calling the peace conference. In answer to the invitation came Great Britain, Japan, France, Italy, China, Holland, Belgium and Portugal. Nearly three months were required for the conference to finish its work, but its work resulted in several international treaties.

One was between the United States, Great Britain, France and Japan, in which it was agreed that any differences over affairs in the Pacific should be negotiated.

Another was between the United States, Great Britain, France, Italy and Japan in an agreement to a naval holiday which shall last for 15 years and as a first step to this agreement all capital ships uncompleted are to be destroyed and in addition a reduction of naval equipment now existing.

Between the United States, Great Britain, France, Italy and Japan to subject submarine and poison gas use to established law of nations.

Fourth, between the United States, Great Britain, France, Italy, Netherlands, Belgium, Portugal, Japan and China, agreement to the increase in the tariff that China may levy on imports.

Fifth, between the United States, Great Britain, France, Italy, Belgium, Netherlands, Portugal, Japan and China, agreement as to definitions of "open door" into China and providing for a complete Chinese sovereignty over all of the empire.

Finally, a treaty between China and Japan as to withdrawal of Japan from Shantung. In closing the conference President Harding said:

"I will say with every confidence, that the faith plighted here today, kept in national honor, will mark the beginning of a new and better epoch in human progress.

"In the revealing light of the public opinion of the world, without surrender of sovereignty, without impaired nationality or offended national pride, a solution has been found in unanimity and today's adjournment is marked by rejoicing in the things accomplished. If the world has hungered for new assurance it may feast at the banquet which the conference has spread."

California Cultivator

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One Dollar Yearly

MELAXUMA is a disease characterized by black cankers and exudation of "black sap" on the large limbs and trunks of walnut trees. The disease first attracted attention in Santa Barbara County about ten years ago but is now somewhat prevalent in certain orchards in Los Angeles and Orange Counties.

Investigations by the writer begun in 1913 have shown that the disease is infectious, that the casual agent is a fungus and that the cankers may be checked by cutting out and disinfecting the wounds. In order to have a definite name for this disease the term melaxuma, derived from two Greek words meaning "black juice," was chosen and is now in fairly common use.

Melaxuma of the Walnut

By H. S. Fawcett, Before Walnut Growers Institute

Melaxuma should not be confused with other effects producing a black sappy exudation frequently following sunburning, frost injuries, heart rot, etc. Such black sap may be quite independent of Melaxuma although the sappy ooze itself is similar to that in connection with the latter disease.

Melaxuma results in definite areas of killed bark not only on the trunk and large limbs, but also in severe cases on the smaller branches. Young trees appear to be rarely affected. The cankers found on the larger limbs

are usually sunken areas from a few inches to even a foot or more in length. Both the bark and the wood underneath become black, and during the actively growing period of the tree a considerable amount of the black sap will form just underneath the bark. As the disease progresses the bark shrinks, cracks, and this black sap runs down and stains the limbs below the cankers. The disease may start on a small sized twig and after killing it spread in an oval area to the bark of the branch bearing this twig.

In severe attacks smaller twigs are rapidly girdled, and the whole branch beyond the affected place suddenly withers and the dead leaves remain attached to the branch.

The most common place for the cankers to start is in injuries made by carelessness in cultivating the orchard or at the crotches where the first large branches start out. In the development of these cankers after the bark first cracks and the black sap oozes out, there is a tendency for new tissue to form around the edges and retard the further spread of the diseased area. A few of the cankers may heal up entirely, but this is rare. A canker will often seem to be healing up nicely in the fall and winter, but will start again on one side when the active

(Continued on Page 178.)

Commission on Agricultural Education

By R. N. Wilson

ONE of the most important agricultural developments during the current year will be the report of the commission on agricultural education, since it is expected that much of the future trend of agricultural education in California will be guided by this report.

What are the goals of agricultural education?

Is the present college of agriculture and experiment station meeting our needs?

Are shortcomings to be met by changes in the existing institutions or by the creation of new ones?

Should junior colleges of agriculture be centralized in two or three places or scattered throughout the state?

Should farm school work or sub-collegiate instruction be taught at the same institution in which college work is taught?

Should experiment station work be centralized in a few points or scattered throughout the state?

Should the college of agriculture and experiment station be entirely separated from the University of California?

These and a maze of equally important related questions must be considered by the commission on agricultural education. Who are the members of this commission and what are their qualifications for such an important work?

The seven members were born in six different states, California being the only state claiming two. Practically all have worked as farm hands and six now own farms. Each received his advanced education in a different institution. Some have been teachers, investigators, or have dealt with organizations, finance and administration of agricultural institutions. Practically all of the large groups of agriculture are represented by farmer members, including horticulture, livestock and general farming, while others have dealt with land development, land settlement, cooperative marketing and rural organization.

The membership includes two presidents and one ex-president of county farm bureaus, and several well known books have been written by members. Civil and mining engineering and newspaper work are among other professions followed. One is immediately impressed by the vast area over which these men have operated in one way or another, including many of our states, Alaska, Mexico and Australia. The broad qualifications of these men and their records of achievements throughout the state and nation lend confidence to any report which they may make.

The commission is now gathering data from colleges throughout the United States, eight or ten of which will be visited during April and May. Following the eastern trip hearings will be held at several points in the state. According to the bill authorizing this work a report must be submitted to the governor before the next regular legislative session next January.

Fortunately we are never satisfied with everything on this earth. Amongst other things Californians are dissatisfied with are our educational institutions. We want them better, always better. Some months ago this want generated a spasm of kicking. It ultimately resulted in the appointing of the commission of agricultural education which will investigate in this and other states and later report as to the needs of California's agricultural college.

The personnel of the commission appointed by Gov. Stephens: Upper left, James J. Hollister, Gaviota; next below, Sheridan W. Baker, Santa Rosa; bottom left, Samuel G. Mortland, Fresno; upper right, Dr. Elwood Mead, Berkeley; next below, Wm. S. Guilford, Butte City; bottom, G. Harold Powell, Los Angeles; center bottom, R. G. Sproul, Berkeley.



Agricultural News Notes of the Pacific Coast

Northern California

Retail milk prices in San Francisco have been reduced 1 cent.

An association has been formed to purchase lands at Hay Fork for a permanent Trinity County fair.

The Rice Growers Association last week made sale of 20,000 bags of rice at \$2.65 to \$2.67 on No. 1 paddy.

The Sebastopol Apple Growers' Union is planning to build a packing house at Garbro Station in time to handle the 1922 crop.

A 50,000 sack shipment of rice was sent from Oakland to the East and the Orient last week, together with 100 carloads of raisins.

Rice and rice products are included in the ten per cent reduction in transcontinental freight rates on farm products, in effect the first of the year.

The farm bureau at Corning, in Tehama County, is organizing a cooperative marketing movement of the fruit and vegetable growers of the district.

The Federated Chambers of Commerce of Alameda County has appointed committees to organize every section in the fight against county division.

The Shasta County Fair Association has been incorporated. It will plan for two fairs, one in Anderson, the other, the Intermountain Fair, at McArthur.

The plant of the Ocean Shore Canning Company at Half Moon Bay is being overhauled and new machinery installed to handle spinach, artichokes, peas and brussels sprouts.

Local farm bureau meetings will be held in Shasta County at Redding, February 18; Cottonwood, 20; Palo Cedro, 22; Hat Creek, 24; Fall River Mills, 25; Mountain, 26; Millville, 28.

Florists of San Francisco have a cooperative marketing organization composed of growers, nurserymen and retailers. San Francisco Business says that last year the floral crop brought in \$7,000,000.

The Morris cemetery removal act has been held constitutional. This act was passed by the last legislature and authorizes removal of cemeteries closed for over 20 years in cities of more than 100,000 population.

The chamber of commerce of Willows, Glenn County, will plant 500 black walnuts along the west side of Sacramento Valley state highway. South of Willows 50 trees of different kinds will be planted to demonstrate alkali resistant qualities.

Cherry growers have formed a state association. The following directors by counties were named: Sonoma, L. A. Frei, F. W. Maddocks; Napa, L. F. Coombs; San Joaquin, A. B. Haslach, C. Searie; Alameda, C. Long, Jr. The new officers are F. W. Maddocks, president; A. B. Haslach, vice-president, and C. Long, Jr., secretary.

Quarantine Officer Fleury has recently returned to Sacramento from a trip to Lake County, where, in company with State Quarantine Guardian Sydney J. Stokes, he called upon a number of the postmasters of that county with the view of getting better cooperation from them in the matter of reporting and forwarding for inspection parcel post shipments of plants and plant products.

Central California

Olive growers of Kern County have formed a marketing association.

The Clovis, Fresno County, farm bureau center started recently with 200 members.

Many Turlock, Stanislaus County, farmers are considering putting in cucumbers.

It is rumored that another fruit packing plant will be located at Exeter, Tulare County.

A new cow testing association began its activities in Stanislaus County, February 1.

Petitions are being circulated for the formation of the Kern River water storage district.

The town of Sultana in Tulare County has nine fruit packing houses, one raisin plant and one fig preserving plant.

An industrial show and products exposition is being arranged at Fresno in connection with the celebration of Raisin Day.

The Kern County union high school has a brand new agricultural building. Ninety boys are enrolled in the agricultural classes.

The Stanislaus County farm bureau has outlined a big dairy program for 1922, the chief feature being the testing of 2,000 cows.

Fresno County Historical Society is planning to celebrate next April the 50th anniversary of the coming of the railroad to Central California.

Thousands of lambs have been frozen on the mountain ranges and many sheep starved because they were unable to reach feed through the blanket of snow.

All directors of the Tulare Cooperative Poultry Association were reelected at the annual meeting held January 30. One hundred members were present at the meeting.

At the last meeting of the Delhi poultry council it elected E. A. Nelson, president; William Girdwood, vice-president; Geo. W. Ferguson, secretary; S. G. Warner, treasurer.

The members of the farm bureau exchange of the Stanislaus and Merced Counties north of the Merced River will dissolve the exchange, paying up liabilities amounting to \$35 per member.

Farm bureau meetings in Kern County at Mountain View, 20; Pond, 22; Inyokern, 23; Rosedale, 24; Shafter, March 1; Arvin, 3; directors, Bakersfield, 4.

February 22 is Roadside Cleanup Day in Kings County. The plan is that on that day property owners will attack their premises and rid them of all possible unsightly objects, weeds will be plowed under along roadsides. This will probably be made an annual event.

West Side irrigation district, in process of formation, comprises approximately half a million acres in Fresno and adjacent counties. It is proposed to take over the canal systems of Miller & Lux, the San Joaquin and Kings River, San Luis, Gravelly Ford and Firebaugh canal companies, claiming nearly 10,000 second feet of water, and to acquire storage rights in 538,000 acre feet more.

Southern California

The Orange Show is on at San Bernardino. Closing day is February 27.

Orange County bee keepers expect at least a 60 ton honey yield this year.

Eisimore, San Diego County, has a rainfall this season well up to the 20 inch mark.

The Santa Ana chamber of commerce is laying plans for a walnut show next fall.

State highway engineers have completed survey of the Blythe-Mecca road through the Chuckawalla Valley.

There is talk in Oxnard of securing a creamery. Farm bureau members are seriously considering the proposition.

A carload of buffalos for the Hearst ranch near San Simeon, San Luis Obispo County, has just arrived from Idaho.

Palo Verde Valley of Riverside County closes the cotton ginning season with a record of nearly 10,000 bales.

The Anaheim Citrus Association is arranging to purchase land on which tents may be erected to house pickers during the coming season.

The Irvine Walnut Association of Orange County shipped 784 tons of nuts the past season. A. J. McFadden has been reelected president of the association.

An exhibit of Imperial Valley grapefruit will be made at the National Orange Show at San Bernardino by the associated chambers of commerce of the valley.

At the annual meeting of the Garden Grove Walnut Association directors elected are: W. W. Dugan, Henry Carner, C. C. Vogle, P. D. Brady and Ed Farnsworth.

To conduct an extensive survey of flood, irrigation and reclamation conditions in Imperial Valley the Colorado River Commission will meet in El Centro, March 20.

The annual citrus institute will be held at San Bernardino during the National Orange Show. Date of the institute, February 21. Sessions will be held in Elks' Hall.

May 23-30 have been chosen as the days to celebrate the Valencia Show at Anaheim. Negotiations are being carried on with the National Orange Show Association for use of the big tents.

Formation of three pools of fruit, instead of two as formerly, has been determined on by the Anaheim Citrus Association. The year's crop will be divided among the three pools on a 40-40-20 ratio.

The Imperial Valley Press and the El Centro Progress have been merged under the name of El Centro Press. The new publishers are Harry W. Hammond, Ross L. Hammond and M. J. Westerfield of Riverside.

Two carloads of purebred Berkshire hogs, one from the East and the other from Northern California, will be shown at the Berkshire Congress to be held at the Southern California fair grounds at Riverside, February 27 and 28.

A series of farm management schools will be held in Los Angeles County during February. At these schools Prof. R. V. Wright, farm management specialist of the state college of agriculture, will demonstrate a simplified system of farm record keeping, together with proper making out of income tax returns.

The Coast and General

Cold weather in the Yuma section of Arizona damaged some alfalfa.

Six poultry demonstration farms will be conducted in Clackamas County, Oregon, this year.

A series of freezing nights has killed much of the young grass on ranges of the Salt River Valley of Arizona.

Tomato growers of Angelina County, Texas, have incorporated as a cooperative marketing association.

It is estimated that 200 carloads of citrus fruit will be shipped from the Lower Rio Grande Valley, Texas, this season.

An automobile show will be held in Mexico City April 16-23 under auspices of the American Chamber of Commerce of Mexico.

The Colorado River Commission, which held its first session in Washington, will again convene on March 15 at Phoenix, Arizona.

A three cent tariff on honey was asked by members of the American Honey Producers' League assembled last week at Salt Lake City.

In the Salt River Valley of Arizona little damage was done to garden truck or to the general crop of lettuce but late planted lettuce received a serious setback.

At the twenty-fifth annual convention of the American National Livestock Association which was closed at Colorado Springs January 14, Fred H. Bixby of Long Beach was chosen president.

The Yakima, Washington, Fruit Growers' Association held its annual meeting January 24, reelecting all officers. The association has 285 members and handles fruit from 3,451 acres of orchards.

The Arizona Cattle Growers' Association and the Arizona Wool Growers' Association are making tentative plans for a getting together of the two organizations to further their mutual interests.

The commercial crop of citrus fruit in Arizona was gathered before the freeze so that only fruit left on trees for local consumption was damaged and much of that is reported saved by smudging and irrigation.

A record in jackrabbit extermination is claimed by Oregon and United States biological survey agents working together in Fort Rock Valley. Three weeks' kill was estimated at 60,000. Poisoned rye was used.

Figures on cost of cow testing in associations are given out by the Oregon agricultural college. They show an average number of 107 herds doing official testing, and having an average of 491 cows on test. The cost per herd is \$10.44 per month, or \$2.27 per cow net to owner.

The U. S. weather bureau reports from Arizona and western New Mexico ranges: "Although morning temperatures in the northern portion of the state have been close to zero and on a number of mornings several degrees below, stock have come through the unusually cold spell remarkably well."

Temperatures averaging six degrees below normal have been general over the southern portion of Arizona during the last days of January constituting a period of cold weather seldom equalled in the last 25 years.

At the recent annual meeting in Portland of the Oregon state chamber of commerce the importance of settlement of lands in the state was emphasized by the statement that there are only eight persons to the square mile in Oregon.

Specializing in Chicks

By Jean A. Koethen

WHEN Mr. and Mrs. P. F. Fuller purchased a half finished home on Lankershim Boulevard and with it five acres of sandy soil and a poultry plant which its original owner had commenced on ample lines but failed to complete, they were impelled by a vision of what poultry keeping might be made by suitable equipment and scientific management. That was three years ago. Today the beautiful cobblestone castle is one of the show places of the San Fernando Valley and the poultry plant with its four laying houses, comfortable brooder house and incubator house of 50,000 capacity nearing completion has proved to be a most profitable investment.

Housing for Health

The long laying houses accommodate 5,000 hens and are filled during the winter and spring, though the number is reduced somewhat by fall culling. They are built on the plan recommended by the poultry division of the University of California, with a smaller portion of the front open than is common in the south, but a larger air space inside. Instead of the usual height of 7 feet in front and 5 feet at the back these houses have a height of 9 feet in front and 7 at the back, which gives them 2 feet more of air space throughout. Six feet of the front is boarded up the entire length of the house, only the low door being left in each house for entrance and exit of the birds. Another door at the end admits the caretaker and supplies additional ventilation when it is required. The upper 3 feet of the front is covered with wire and with a swinging board awning which may be turned to admit sunshine to the farthest corner of the house or by the twist of a pulley rope exclude the sun entirely. Figure 1 shows one of the houses with the awnings in both positions. The closed front gives more protection from sun and wind and rain than is given by the ordinary open front, and the extra height makes the house comfortable in the hottest weather.

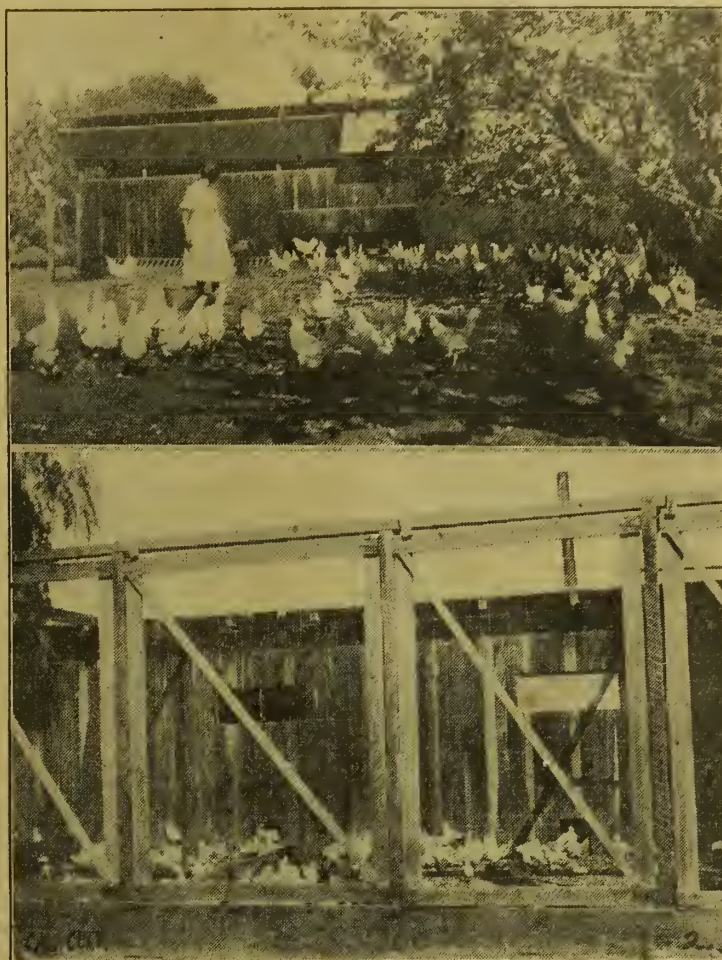
The houses are 20 feet wide by 144 feet in length, each of the nine sections being 20 by 16 and accommodating 125 hens, which makes the total capacity of the house about 1,200 birds.

Only Three Per Cent Loss

The care of the baby chicks is Mrs. Fuller's job, and she has done so well

that she plans to specialize in it. Realizing that the fall demand for pullets is far beyond the supply and that only a specialist who can raise to maturity nearly every chick hatched is able to fill this demand, she is building a new

must be credited to her love for the work and careful study of the chick and its needs. In November when I was there 1,000 lively chicks were quarreling over their feed and chasing each other up and down the sunny



Solid Comfort

Upper photo: Both indoors and out the hens on the Fuller Ranch have sunshine and shade. Lower photo: Warm as it is inside the brooder house, the chicks prefer the sunny, sheltered yard outside.

incubator house and enlarging her brooder equipment to meet it. Last year her losses between shell and laying house were not over three per cent, a remarkable record, and she is an enthusiast on the subject of chick rearing. Much of her success last year she ascribes to her new electric brooders which brood 500 chicks each with hardly any loss, but fully as much

floor of the brooder house, and she plans to rear 10,000 this winter.

The brooder heat is run at 90 degrees the first week, 80 degrees the second week, 70 degrees the third week, and the fourth week no heat at all is used. At the end of the sixth week the birds are transferred to the laying house and the brooder is ready for a new hatch.

The chicks are not fed at all for 48 hours, but have water, grit and charcoal before them. Their only feed the first week is very fine chick feed, fed first in trays, then in litter, after the system of the poultry division, of which Mr. Fuller is an earnest follower. On the tenth day they have dry mash set before them at 10 o'clock and 2 o'clock. The number of mash feedings is increased gradually to five a day, and after the fourth week the mash is left before the chicks all day. The change from chick grain to whole grain is made just as gradually.

Greens Are Bought

Some enterprising San Fernando Valley farmers are finding it profitable to sell their alfalfa in small quantities to the poultry people, and the poultry people find it cheaper and more convenient to buy their alfalfa in this way than to raise it themselves. The Fullers, like many others, buy their greens from a man who delivers fresh cut alfalfa three times a week at 30 cents per hundred pounds, and run it through the clover cutter as they need it. Kept in a cool place it remains fresh, and they are able to spend all their time in caring for their flock. Lettuce is bought from the truck farmers and is used with the cut alfalfa for the baby chicks.

Feeding for Eggs

A commercial dry mash is kept before the hens in hoppers, and mash and hard grain are fed in the proportion of 50 pounds mash and 50 pounds grain per hen per year. This insures an abundant supply of egg material. The grain mixture consists of 50 per cent wheat, 25 per cent barley and 25 per cent corn, which is sometimes cracked, but preferably at this season fed whole. A crumbly mash is given at noon and about the same time the troughs are filled with fresh cut alfalfa at which the hens nibble till time for the daily meal of hard grain which is given an hour before dusk.

Mr. and Mrs. Fuller are both enthusiastic over this, their first venture in commercial poultry keeping. "If anybody asks you whether there's money in chickens," declared Mr. Fuller, "tell them there's no question about it. A man can do better if he has capital enough for modern equipment and to keep things going till his pullets begin to lay, but the money is there, all right."

Crop Insurance--Is It Feasible?

By Theo. H. Price, Editor of Commerce and Finance,
Before Agricultural Conference, Washington

IN MY study of the agricultural problem that we are asked to consider I find myself asking whether a partial solution of it is not to be had by a resort to crop insurance. I submit the suggestion in the form of a question rather than as a recommendation because it is plain that much thought and investigation will be required to determine whether the hazards of agriculture are insurable. During the last two centuries the principle of insurance has been greatly extended in its application. The first "underwriters" were the merchants who wrote their names under an agreement to share the marine risks and losses to which the ships and cargoes of their fellow merchants were subject.

The business of fire insurance was next developed.

Then as the law of probabilities became better understood life insurance began to be written and the business

has grown until in the United States alone there are 40,000,000 policy holders in life insurance companies or associations whose resources are in excess of seven billion dollars. No one will deny the benefits of life insurance.

After life insurance came accident insurance and credit insurance, and now we can insure against losses caused by burglary, defalcation, rain, snow, hail and tornado, as well as against war, unemployment, old age, strikes and many other ills or accidents of life. It is said that at Lloyds in London policies have been written that called for the payment of a "total loss" to parents to whom twins were born, and just before the Disarmament Congress met in Washington the New York Times reported that 15 per cent was paid at Lloyds to

insure that the British West Indies would not be surrendered to the United States by or before December 31, 1922, in full or partial payment of Great Britain's debt to this country. Crop Failures Cause National Crises

From a very remarkable essay upon "War and Insurance," written by the late Professor Josiah Royce of Harvard, just after the outbreak of the world war in 1914, I quote the following passages:

"Experience shows that the insurance principle comes to be more and more used and useful in modern affairs. Not only does it serve the ends of individuals, or of special groups of individuals, but it tends more and more both to pervade and to transform our modern social order. It brings into new syntheses not merely pure and applied science, but private and pub-

lic interests, individual prudence, and a large regard for the general welfare, thrift and charity. It discourages recklessness and gambling. It contributes to the sense of stability. It quiets fears and encourages faithfulness.

"Floods, famines, pestilences, earthquakes and volcanoes may interfere in various fashions, with the economic as well as with the rest of the social life of the peoples thus afflicted. Apart from actual famines, the considerable failure of their crops may impair, for a season, the normal supplies of individual nations. Internal crises, social and political, may interrupt their healthy development in ways involving not only moral disasters, but heavy expenses. Such evils come upon various nations with irregularly recurrent, but also with widely different weight and seriousness. Only a vast and long continued collection and an exceedingly difficult

(Continued on Page 176.)

Walnut Investigations

By J. T. Barrett Before Walnut Institute

THE University of California agricultural experiment station has been more or less actively engaged with problems important to the walnut industry for a number of years. As early as 1905 a laboratory was established in Whittier primarily for conducting investigations on walnut blight. These early studies at first confined to the bacterial organism responsible for the blight disease, soon expanded to an investigation of the whole subject of walnut culture. In 1912 the results of the seven years' investigations and observations were published in Bulletin 231 of the agricultural experiment station by R. E. Smith and his assistants. After the reorganization of the experiment station work in the southern end of the state and the establish-

ment of the citrus experiment station at Riverside in 1913 a careful consideration was given to the best form of organization to adopt in order to meet the various and numerous problems confronting the various horticultural interests.

So far as the walnut investigations were concerned it was agreed that a man should be secured who should have as his main and special business the investigation of problems affecting the walnut industry. In 1915 Dr. L. D. Batchelor was appointed to fill this position and I need not tell you men that he has been on the job ever since. There are always more demands on an experiment station for aid in the solution of the growers' numerous problems than can be met by the funds available. This is especially true in such a state as Califor-

nia where the various agricultural industries, particularly horticulture, have reached the intensive and progressive stage that it has. Recognizing this fact and at the same time feeling the urgent need of having certain investigations put under way as soon as possible, the Walnut Growers Association proposed in 1917 that some plan of cooperation between the association and the University of California represented by the citrus experiment station be arranged. Such a plan was drawn up, approved, and soon put into execution. It is still in force and I am glad to say, in our opinion, it has proved to be a most satisfactory and productive arrangement. It is a good illustration of how a proper cooperative plan of investigation between the growers of a particular crop on the one hand and the research staff of an experiment station on the other hand can be so conducted as to give increased results. To be sure, if the state could furnish sufficient funds to conduct all of the various investigations which are de-

sired perhaps such arrangements would not be necessary, but that time has certainly not yet arrived. A representative of the field department of the California Walnut Growers Association, in the beginning W. E. Goodspeed and at present D. C. Wylie, has his headquarters at the citrus experiment station where he is more or less in constant touch with and under the supervision of the directing head of the various investigations. Several projects have been instituted under this plan and we feel confident that more progress has been made than could have been the case had the station not had this added assistance. Further, in the case of other investigations on walnut problems not specifically included under this cooperative arrangement we have had the most hearty cooperation and sympathy of the walnut growers of the state.

As to the results of the investigations to date, it must be apparent that at most only a brief resume can be given at this time. From time to time reports of progress have been presented by those directly in charge of the various projects and no doubt many of you are already fairly well informed as to the results.

The need of a careful study of the comparative value of present commercial varieties, as well as the possibility of finding in the many seedling groves new varieties of promise led to the formation of a project in 1915 on "A Study of New Walnut Varieties." While this project was well under way when the cooperative work was instituted, the work has been ably assisted by this arrangement. One of the very valuable results to date of this investigation has been the conclusion arrived at after a close study and observation, that the Ehrhardt variety should be recommended as a highly desirable one and perhaps second to none. The nut is of splendid quality, a good producer, and highly resistant to blight. Other promising new varieties are under observation and trial, particularly such as may be adapted to the interior sections such as the San Fernando and San Bernardino valleys. A trial of varieties will be established on northern black walnuts now growing at the citrus experiment station.

Another phase of this study has to do with blight resistance. This investigation is being carried on in cooperation with the division of plant pathology and already some data of value has been accumulated.

Desirous of determining whether fertilization of walnut groves is economically profitable as seemed to be indicated by reports on certain groves, a project was planned in 1917 on "Field Trials of Fertilizers and Green Manure Crops with Walnuts." Three trials were instituted as follows:

1. On young bearing trees located on the San Joaquin ranch, Tustin;
2. On trees over 20 years old, P. F. Cogswell ranch, El Monte;
3. On old trees, Limoneira ranch, Santa Paula.

The details of the plan of the trials and the fertilizers used have been previously reported, therefore only a statement as to apparent results to date seems appropriate here.

In trial 1, it is doubtful if there is any significant effect on the yield.

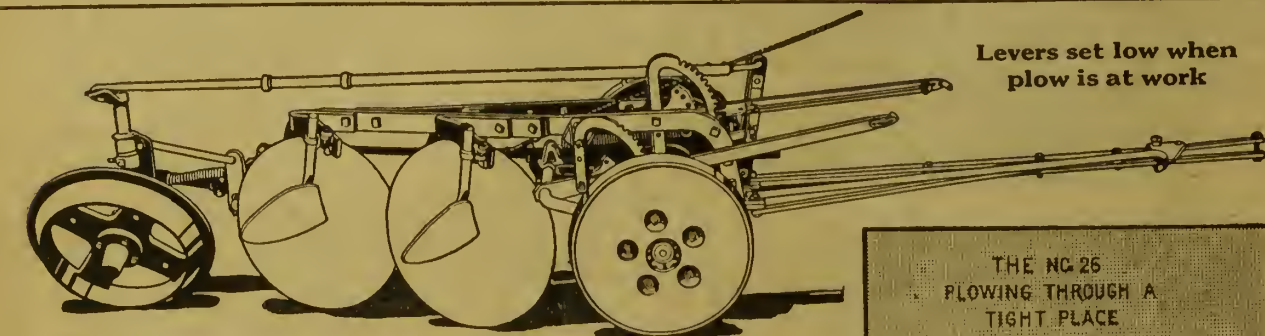
In trial 2, it is possible that the nitrogenous fertilizer has made a significant increase in yield but not commensurate with the cost.

In trial 3, the old trees, which had reached the stage when it seemed desirable to remove half of them, and production was not satisfactory, after a three year trial, it seems very probable that the nitrogenous fertilizers have made a significant increase in yield, but here again not commensurate with the cost.

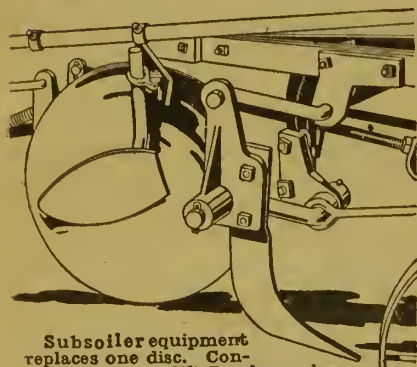
In 1916 an investigation was planned and put into execution on "Sunburning and Winter-killing of Walnut Trees." This trouble largely confined to the inland sections almost annually causes a large amount of damage. It is especially severe on young trees from one to four years old.

The project was planned on the assumption that the sunburning or injury was primarily a climatic problem. The investigations have been conducted at Hemet where a carefully planned and thoroughly executed irrigation experiment has been under way for five years.

The results of these investigations



Levers set low when plow is at work



Subsoiler equipment replaces one disc. Controlled by power lift. Breaks up plow pan and forms deep bed of aerated mulch, thus saving irrigating water and increasing crop yields. Permits plowing and subsoiling in one operation with small tractor.

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The 3-in-1 Orchard Tractor Plow

Note the subsoiling and ridging equipment illustrated and described at the left.

Unusually low and narrow. The No. 26 is only twenty-six inches high when plowing six inches deep, and only thirty-seven inches wide—gets under low limbs and up close to row. Levers set low when plow is at work. Note illustration above.

Stiff, adjustable hitch—a great disc-plow improvement, permits offsetting plow to right or left of tractor for work close to row, and, being stiff, it tends to hold the plow in the furrow, when offset.

Floating rear end—loosening the set-screw collar on the rear axle permits rear of plow to rise over roots without carrying weight of rear wheel

—a great aid in preventing damage to large roots.

Compound power lift raises discs unusually high. Frame built over discs, providing unusual clearance. Discs and disc bearings same as on large John Deere disc plows. Simple construction, and every part strong and substantial. Just the right size for small tractors.

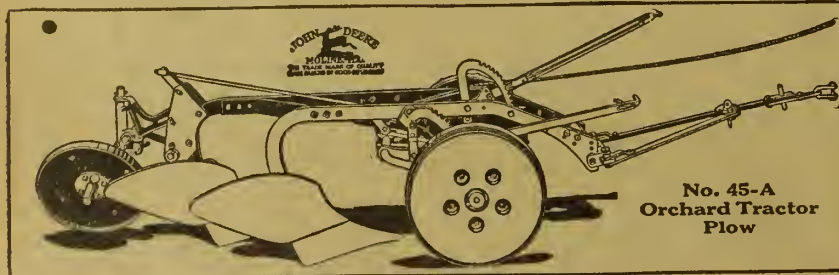
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No. 45-A
Orchard Tractor
Plow

John Deere No. 45-A

Low and narrow like the No. 26—only twenty-six inches high when plowing six inches deep—only thirty-seven inches wide—levers set low when plowing—gets under the low limbs up close to row. Adjustable hitch permits offsetting for work close to row. Pulls unusually light—a real fuel-saver. Great strength—beams guaranteed not to bend or break. Compound power lift raises bottoms unusually high.

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to date, we believe, warrant the conclusion that winter killing may be caused by one of two things: early fall frosts killing the immature twigs, or the effect of winter drouth. Dr. Batchelor reports that only trees on which the leaves were frost injured on the Hemet plots during the fall of 1919 were found to be killed back 12 to 36 inches from the tips of the past season's growth when examined during the spring of 1920.

It has been demonstrated that much injury can be avoided by eliminating the late fall irrigations of young trees, thus allowing the young growth to mature earlier.

Regarding the effect of winter drouth it can be stated that a study of all the available past weather records in conjunction with a recent field observation indicates that such injury may be expected not more frequently than two out of five years. It should be noted that the hazard is increased when late intercrops such as tomatoes, peppers or winter crops of barley are grown in the orchard. Winter irrigation has been demonstrated to be effective in reducing the die-back due to drouth but should be considered as a form of insurance rather than a constant necessity.

The most recently instituted project is walnut irrigation, harvesting, and curing in its relation to mouldy walnut kernels. The problem of the mouldy walnut has become of such importance that a special investigation as to its cause and especially the factors contributing to the infection of the nuts seemed advisable. The work was started in January, 1920. I need not delineate all the points of attack suggested but will mention only the main lines of inquiry such as (a) what are the cultural conditions which are conducive to the occurrence of this mold? (b) What sort of harvesting and curing, and furthermore, possibly what transportation methods make its prevalence more certain? (c) What are the fungi involved, the manner, time and condition of infection?

As a result of the investigations to date we know that several different fungi are concerned, each of which may apparently cause a mouldy nut. A large per cent of mouldy nuts are those which fall with husks attached but are considered clean after the husks are removed. The data accumulated on this point seem to warrant a recommendation that such nuts be kept and handled separate from those dropping free from husks.

Pruning experiments with walnuts directed by Dr. H. S. Reed have been under way since 1917. These represent trials of various methods of pruning but inasmuch as Dr. Reed is away a statement of what he might consider the results to date could not be secured. I believe, however, that the moderate pruning is the most promising.

The above briefly described projects are all that may be considered as strictly cooperative.

There are three other projects, however, on walnut problems to which I will refer but briefly. Two of these will be discussed here today so I will merely mention the titles. Melaxuma of Walnuts, by Dr. H. S. Fawcett, and the Codling Moth of Walnuts, by Prof. H. J. Quayle. The third is a problem of long standing and one we feel always offers an opportunity for study; I refer to walnut blight. As a result of further study on the subject by C. O. Smith it can now be stated that the blight organism has been found on the leaf and catkin buds sometime before growth begins in the spring, but probably causes little or no infection until the new growth appears. Further, that water as fog or rain and pollen from infected catkins act as a medium in which the organism can grow.

Other investigations by artificial inoculations indicate differences in the resistance of several commercial varieties to walnut blight, the Ehrhardt apparently being less susceptible than the Placencia and seedlings. This seems to be confirmed by orchard observations.

Again I express the appreciation of the citrus experiment station staff of the very sympathetic and liberal cooperation given by the walnut growers association. It has been stimulating to all who have been engaged in attempts to solve the various and often perplexing problems.

GETTING A HEAD START

Grape shippers of the Lodi district of San Joaquin County have had their fill of shortage—car shortage—and are already laying plans to assure better conditions for the next shipping season. They have started a careful survey which will enable them to compute very closely number of cars needed to keep their grapes moving.

The Lodi Growers and Shippers' League at a meeting February 2 completed its plans. Managers of several of the shipping companies were present and all agreed to back and support the new plan as adopted in the following motion:

That each shipping concern be requested to furnish the secretary on or before February 9, 1922, a list covering their clients for the last two shipping seasons, stating name and address of growers, location of property described as to section, township and range, the number of acres of each variety of vines or trees, approximate age of each, total map acres his place covers, information referring to the total or partial tonnage for the previous years.

This information as turned in by the companies will be checked against the vine count as submitted by the grower himself and with such a check should form an undisputable basis for computations necessary in the allotment of cars during the coming season.

It was the sense of the meeting from information at hand that there will undoubtedly be a very severe car shortage at the height of the season, and growers are enjoined to send their reports to the secretary immediately.

AVOCADO AREAS

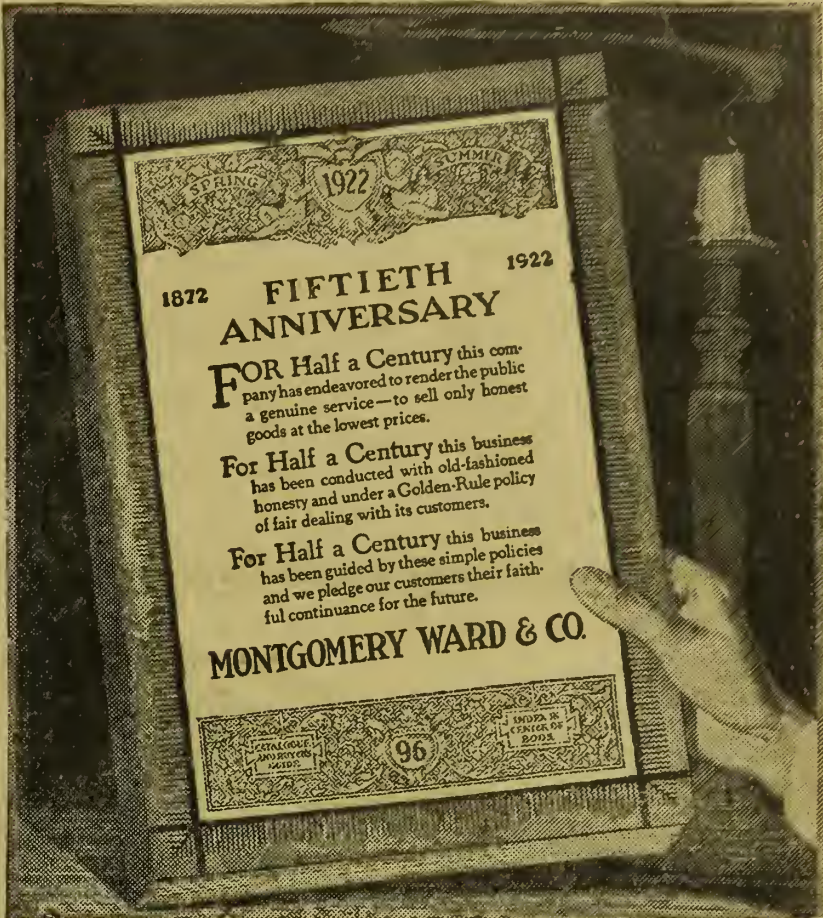
At the avocado meeting at the Spinks ranch, January 25, one of the speakers, former President Thos. H. Shedden, said: "In a tour of investigation over the principal avocado sections we found two practically immune to frost injury: the upper part of this ranch and North Whittier Heights."

The writer later made a longer and more searching trip over the same and other territory and found the statement true, though other spots, in other sections, were likewise free from serious frost injury. But the two districts named are wholly unlike in one respect. Aside from Mr. Spinks' ranch there is no land available near by for planting except on the adjoining Bradbury ranch. Fortunately, in the North Whittier Heights district there are hundreds of acres in the so-called frostless belt and if to these are added those on the other side of the hills, or the upper lands of the La Habra Valley, the safety zone for Guatemalan avocados may be extended to, possibly, a few thousand acres.

The writer visited the orchards of such well known "avocado men" as J. M. Elliott, E. G. Hart, R. M. Teague, B. H. Sharpless and many others, also nurseries of young trees on the hills skirting the La Habra Valley, and was gratified to find all such stock still in salable condition. During the past half century the valley lands have been cultivated, while the hill lands have been left for sheep runs, largely for lack of irrigation facilities on the latter. Even now, with ample water supply, those who are putting these hill lands on the market informed the writer that the little lateral valley lands command twice the price of hilly land in the same tract. Yet a critical examination of existing plantings show that only on the higher ground were plants absolutely free from frost injury. We have had much fun with the familiar expression, "take to the hills," but we may have to do so in order to play safe with the Guatemalan varieties of avocados. But even this is, to a certain degree, a puzzle, for wind is a controlling factor, and sections passing free in the still lower general temperatures of 1913 were frostbitten in 1922. This has proved, however, more true in the mesa lands than further into the hills.

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CROP INSURANCE—IS IT FEASIBLE?

(Continued from Page 173.)

statistical analysis of the facts regarding such calamities could determine the regularities which a sufficiently large number of instances of national disaster would be, if properly studied, certain to show. Such regularities, however, if once discovered, would furnish an 'actuarial basis' upon which an insurance of individual nations against such risks could conceivably be undertaken."

And in the eleventh edition of the Encyclopædia Britannica, in the article upon "Insurance" written by Charlton Thomas Lewis, Ph.D., a great authority upon the subject, I find these words:

"The value of insurance as an institution cannot be measured by figures. No direct balance sheet of profit and loss can exhibit its utility. The insurance contract produces no wealth. It represents only expenditure. If a thousand men insure themselves against any contingency, then, whether or not the dreaded event occurs to any, they will in the aggregate be poorer, as the direct result, by the exact cost of the machinery for effecting it. The distribution of property is changed, its sum is not increased. But the results in the social economy, the substitution of reasonable foresight and confidence for apprehension and the

sense of hazard, the large elimination of chance from business and conduct have a supreme value. The direct contribution of insurance to civilization is made not in visible wealth, but in the intangible and immeasurable forces of character on which civilization itself is founded. It is pre-eminently a modern institution. Some two centuries ago it had begun to influence centers of trade, but the mass of civilized men had no conception of its meaning. Its general application and popular acceptance began within the first half of the 19th century, and its commercial and social importance have multiplied a hundredfold within living memory. It has done more than all gifts of impulsive charity to foster a sense of human brotherhood and of common interests. It has done more than all repressive legislation to destroy the gambling spirit. It is impossible to conceive of our civilization in its full vigor and progressive power without this principle, which unites the fundamental law of practical economy, that he best serves humanity who best serves himself, with the golden rule of religion, 'Bear ye one another's burdens.'"

Insurance Truly Cooperative

It might almost be said that if insurance were universal and included all the hazards of life it would be a practical form of socialism, for it distributes the losses of the few among the many without diminishing the in-

centive to individual effort. But the question is, can it be applied to the hazards of agriculture and would the government be justified in undertaking it? We all know that one of the farmers' greatest difficulties is that he is compelled to be a speculator and to take risks that are not calculable. He is in fact a gambler against his will, for gambling is defined as hazard without calculation in contradistinction to speculation, which is hazard with calculation. The farmer must cultivate his land or see it go to waste. He has to plant some crops, such as winter wheat, in the autumn and others in the spring, but he cannot have any assurance of the prices that will be obtainable for them six or ten months later. He is, moreover, exposed to the hazards of the weather and innumerable agricultural pests in the interval.

The merchant who is not reasonably certain that he can sell goods will not buy them or will reduce his inventories, and the manufacturer who is not assured of a profitable market for his product will shut down his factory and let his labor remain idle. But the farmer cannot follow these examples. He has to plant his land at planting time or allow his investment to remain idle and deteriorate for a year.

If he decides to plant he will probably become a borrower on obligations that mature concurrently with his crop. The whole financial system

of the northern hemisphere is organized upon a plan which contemplates an autumnal liquidation of agricultural debts. Within one or two months the farmer is compelled to sell the crops that represent the labor of the year just ended and the world's consumption for another year just commencing. The result is congestion and a buyers' market in which the seller is at a great disadvantage.

What is the remedy? Surely there must be one. If it is to be found in crop insurance it should be speedily applied.

Crop Insurance No Novelty

Crop insurance is not a new idea. At least two joint stock fire insurance companies and several mutuals have tried it, but they had no experience upon which to base rates, and found that in order to get a fair average they would have to blindly accept risks so large that their capital might be jeopardized. Even to those who know but little about the science of underwriting it is plain that a very large number of widely scattered crops would have to be insured before the probable percentage of loss could be ascertained.

A rate so high that it would absolutely protect the insurer would be regarded as extortionate and no one would take out a policy, while a rate that was too low might bankrupt the underwriter if he did a large business or had many risks in one locality.

Then there is the question of determining or measuring the farmer's loss. Manifestly it would be unwise to allow him to insure his crop for any valuation he chose to put upon it. An over valuation would be an incentive to neglect and extravagance and would lead to the presentation of many unfair or fictitious claims. On the other hand an under valuation would not give the protection required.

In so far as any rule has been applied by those companies who have written crop insurance the practice seems to have been to insure the actual cost of production up to a certain maximum per acre and to require that the farmer insured must furnish satisfactory proof that the amount claimed has been actually expended.

In some cases crop policies have also contained a provision making the farmer a "coinsurer" for 20 per cent of the risk so that he would have an additional incentive to avoid loss. The price of the crop insured at planting time is another factor that must be taken into consideration if the indemnity provided is to cover a possible deficiency between the proceeds finally realized at harvest time and the ascertained cost of production.

It seems reasonable to assume that if prices were low when the crop was being sown the risk would be less than if prices were high. The cost of production would be smaller and the chance of an advance in values that would offset crop failure would be greater. As a generalization therefore we may conclude that rates ought to have a direct relation to the prevailing values for agricultural products when the policies were written. But in its other aspects the problem is not so simple.

Farm Survey Practicable

The cost of producing a crop varies in different regions or on different lands. In the Atlantic states fertilizer is required to produce a good cotton crop. In Texas fertilizer is not used. The cost of labor also varies in different sections.

These are factors that would have to be taken into consideration in determining the insurable maximum of production costs.

It might be necessary to have each insured farm surveyed in order to fix rates and insurable values fairly. This would seem to involve an appalling amount of detail, but does it? Every building in almost every city and town of the United States has been surveyed in the interest of the fire insurance companies.

In most fire insurance offices there are to be found huge books of maps on which the area, height, construction, fire exposure and hazards of every building in every city of the United States and Canada are accurately set forth. These maps are kept up to date by the company which issues them. The corrections are made by pasting the maps of new



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Transportation is furnished to thousands of people each day by the street cars whose propelling force is supplied by this Company.



buildings over those which have been demolished.

According to the last census there are 6,443,336 farms in the United States. The number of buildings in our cities is not known, but New York City alone has over 600,000 and the total in all cities is probably well over 6,000,000. If they can be mapped as they are, the feat of surveying the farms would not seem so difficult and the information in regard to soil, area and productivity thus made available would be invaluable.

With it as a basis, equitable rates for writing crop insurance could be speedily established and with a crop insurance policy added to the other security that a farmer can offer his financial problem would be much simplified.

The general use of crop insurance would benefit the farmer and the country in many other ways upon which it is not now necessary to elaborate. The fact that the farmer could if he chose protect himself against the great risks and ruinous losses to which he is now exposed is a sufficient reason for considering whether the government ought not to provide the machinery and credit requisite if crop insurance on a large scale is to be made immediately available.

Most people are wisely opposed to having the government enter any business that its citizens can handle, but here is a business that private capital cannot undertake because of its novelty and magnitude. Would it not therefore be well for the president or congress to immediately appoint a committee to make a careful study of the subject with a view of ascertaining whether it would be practicable and expedient for the government to establish a crop insurance bureau from which the farmer could buy policies that would indemnify him for his actual and reasonable expenditure and from which after a few years the larger insurance companies who were willing to do the business could obtain data upon which to base rates?

War Risk Insurance Profit \$17,000,000

Shortly after the outbreak of the war on the 1st of August, 1914, the British government undertook to insure the marine war risks to which vessels and cargoes under its flag were subject. Almost concurrently, the then secretary of the treasury, Wm. G. McAdoo, asked congress for authority to organize an American war risk insurance bureau for insuring hulls and cargoes under the American flag. The necessary legislation providing an initial fund of \$5,000,000 was passed. The bureau was organized and was functioning by the 2nd of September, 1914. It continued in existence until the end of the war. Its record is remarkable.

The total of the policies issued was \$2,250,000,000. The premiums received amounted to \$46,000,000, and the losses paid were \$29,000,000, leaving a profit of \$17,000,000. The expense of conducting this enormous business for the four years was only \$165,000, or hardly more than one-third of one per cent upon the premiums received. When compared with the cost of conducting the insurance business under private auspices these figures seem to be almost incredible and they are an effective refutation of the frequently repeated assertion that government management is always inefficient and extravagant.

It is, however, only fair to say that the bureau had the advantage of being able to commandeer the services of some of the ablest underwriters in America. Its director was William C. De Lanoy and its advisory board consisted of Hendon Chubb, William N. Davey and William R. Hedge. For little or nothing these men gave their time to the work as a war duty, and while the great success of the bureau was largely due to the authority and credit of the government it would be uncandid not to recognize the share that those named and many others had in the results achieved. As the business grew congress appropriated a further \$45,000,000 as additional working capital for the bureau, but not a dollar of the total of \$50,000,000 put at its disposal was ever drawn, as almost from the first the premiums received exceeded the losses and expenses incurred.

I have been unable to obtain exact information with regard to the insurance business conducted by the British government, but those that are "in

the know" believe that it was also highly profitable and it is generally admitted that both the American and the British bureaus rendered a very substantial and necessary service to the shipping and trade of the respective nations.

Why Not Crops?

In an article published in the New York Times of Monday, December 26, 1921, advocating a ship subsidy there is included a proposal that "the government should create a non-profit making corporation to insure its own ships and to offer hull insurance at cost to privately owned American vessels." It is explained that "For the organization of a non-profit making insurance corporation a \$10,000,000 loan will be necessary" and that the cost of handling cargo insurance is estimated at about \$1,000,000 for the first year and a decreasing amount each year thereafter, the loss ultimately vanishing.

If the government is willing to do this for shipping it ought not to hesitate in doing at least as much if not more for our infinitely more important agricultural industry, and I earnestly recommend the idea to its consideration.

The difficulties that seem so great in prospect would, I believe, disappear in practice and it is highly probable that after the first year or two the business would show a profit and pro-

duce an income that would more than pay the cost of conducting it.

A LETTER FROM BROWNSVILLE, TEXAS



AM very glad to learn that you have decided to send me the California Cultivator in exchange for any articles which I might send you. Your letter of January 27 was very much appreciated.

The citrus fruit in the Lower Rio Grande Valley is progressing very nicely, and we find that we have many things to learn about this great industry. Previous to this year we have had very little trouble in selling our fruit, but we find that this year we have more fruit than local demand can consume. We have had a week of specializing on the valley fruit by the people of Houston, Texas. They took 11 cars of our citrus fruit and disposed of it. The papers of that city gave us some very good advertising. San Antonio has disposed of a few cars.

There is quite a large acreage being planted to citrus trees this year, and the majority of them are pomelos, or, as we commonly call them, "grapefruit." We believe that we can produce a better quality of this fruit than can either California or Florida. The most common variety of pomelos being planted is the Marsh Seedless with the Duncan running a close sec-

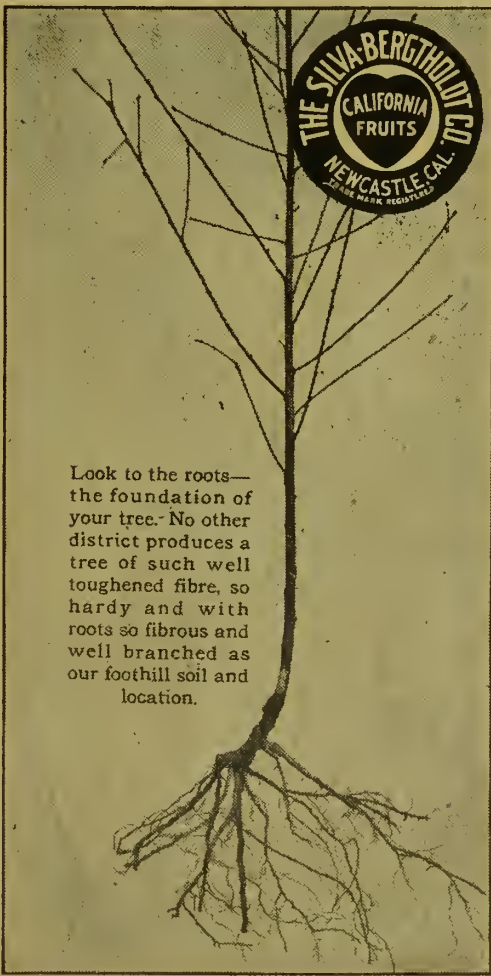
ond. Many people are planting the Foster on a small scale. The leading varieties of oranges are the Washington navel, Parson Brown and Valencia. We do not seem to have secured the best type of navel oranges. We must do more bud selection as we have some navel oranges that are fairly good, but the majority of them are poor. There are not very many lemons being planted. We have two lemon curing plants here in the valley, both located at Mission.

There will be over 250,000 citrus trees set out this year. We now have over a million trees in the valley. Only a little over a third of the trees set out this year will come from the valley. The rest will be shipped in from California and Florida. (The frost will decrease the California shipments.) The majority of the trees which we now have set out will come into bearing this next fall.

We have had no loss from frost this year. There were only 400' orchard heaters in this county last summer. As the result of a series of orchard heater demonstrations carried on by my office over 7,000 orchard heaters have been sold. The heaters were only used one night and then for only about four or five hours. There was no damage done by the frost except to very tender vegetation in unprotected fields.

We will have large shipments of truck crops to move from this territory this year. We have a very large

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Write us for complete copies of the announcements of the "Bergtholdt Plan." This plan is a vital issue to every fruit grower—to all California. It means your success and ours in fruit growing. The responsibility for this plan is upon every individual fruit grower—boost for it.

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The acid test of any business is not what it will do under favorable conditions, but what it will do under adverse conditions.

Even under this year's depreciated values, the orchardist with a block of **Prunes, Bartlett Pears, Apricots, Cherries, Raisins, Shipping Grapes, Clingstone Peaches, Drying Peaches, Fall Pears, Almonds, Shipping Peaches, Shipping Plums, Canning Plums, and Figs** will make more money than the grower of grain, hay, alfalfa, beans, rice or the dairyman.

Every acre of land adapted to fruit growing that you now employ in growing grain, hay and other crops, is too valuable for fruit to be employed as you are now doing.

Every year that you grow these other crops instead of planting your acreage to orchard, represents not only a dead loss in money, but more than that, one year's loss of life's opportunities.

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We offer for your planting the most complete assortment of commercial fruit varieties.

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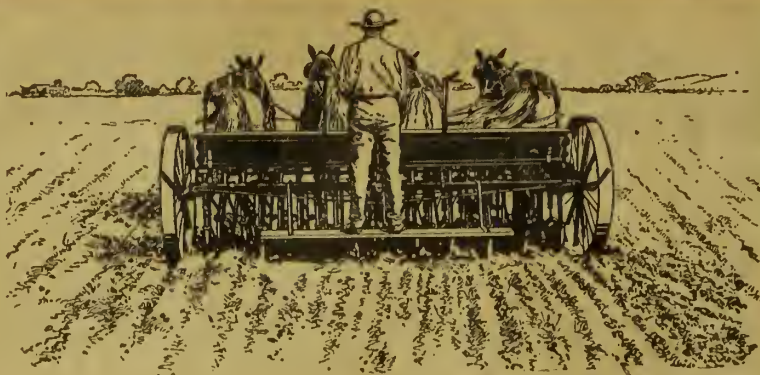
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cabbage acreage. We have had considerable trouble and damage from the aphids and thrip. These two insects have become very numerous in some fields and are cutting the yield of cabbage considerably. However, during the last 11 days we have had cold wet weather and quite a few of them have been killed. Yet we are hoping that we will receive a hard drenching rain which will help us in our fight against this insect.

It is planned to plant out a large acreage of early tomatoes and melons. The growers are very optimistic and many of them have large acreages in which the plants are well up and are growing nicely. The acreage in spring potatoes will also be very large.

With best wishes for your paper, I remain, very truly yours, Louis H. Alsmeyer, County Agricultural Agent, Cameron County.

MELAXUMA OF THE WALNUT

(Continued on Page 171.)

growing season begins the next year. Even in severe cases it may take sometimes three or four years for a canker to completely girdle a large limb and cause its death.

Investigations as to Cause

The first investigation of the disease was made in the early part of 1913 by W. H. Nixon and C. A. Hollister, students of the University of California, who proved that the disease was infectious by transmitting it from active cankers to perfectly healthy limbs by means of infected ax or chisel cuts, and also by inserting pieces of diseased bark from active cankers into healthy limbs. In the latter part of June, 1913, further inoculation experiments by the writer with material from active cankers showed the same results as those obtained by Nixon and Hollister. A fungus, *Dothiorella gregaria*, was then discovered in the diseased lesions and numerous inoculations with pure cultures of the fungus reproduced the disease in sound bark. In this way it was proved conclusively that this fungus was the causal agent in producing the lesions.

Later cankers identical with those on walnut trees were discovered on a common species of native willow in Santa Barbara County. On microscopical examination and culture tests the same fungus was found to be present on the willows. Cankers were found on willow trees not only on the edge of walnut orchards but on trees far away from walnut orchards. It is believed that the disease may have originally come from the native willows in Santa Barbara County to the walnut trees there.

Probable Methods of Natural Infection

As was stated before, the usual place for cankers to begin is at the crotches of the large limbs, or at forks of branches, or where a smaller twig joins a main branch. They often start also at injured places at any point on the bark of the trunk or branches.

On an examination of older walnut trees it will be seen that at the crotches at the angle between branches there are distinct lines of rough bark that have been pushed up and broken by the growth pressure of the bases of the two adjoining limbs. These places with their extra amount of functionless bark cells are fertile places for the germination and growth of the fungus, which having once become thoroughly established as a saprophyte appears to be able to advance into the surrounding live bark. Another probable entrance for the fungus is in unavoidable injuries to the limbs when the pickers climb the trees or when poles are used to knock down the nuts. In some places also the woodpeckers line the bark with rows of small holes which would open up the way for the entrance of the fungus. Then it would seem that the small twigs, especially on the inside of large trees that are possibly weakened by shading, are attacked and the fungus passes easily from them to the larger branches, thus forming cankers.

Control

Having proved that this fungus was the cause, experiments were started to see what could be done in controlling it. Some of these cankers which had been produced by inoculation were cut out so as to remove all the diseased bark as well as the black killed wood underneath, and the wounds were treated, some with strong lime-sulphur

solution and others with Bordeaux paste, the same that had been used for the treatment of citrus gummosis. The results showed that the cankers could be stopped in this way and prevented from enlarging any further. Other cankers not treated enlarged until the limbs were killed by girdling. A large grower in Santa Barbara County cut out these cankers and dead limbs on a rather extensive scale, having treated more than 100 acres. The results of this work were quite promising. Most of the wounds where cankers have been cut out healed without further spread. In treating these trees on a commercial scale, the blackened wood in many of the areas was not entirely cut out because of the expense, and yet in most cases these also seemed to be stopped and showed no activity the next year. In one orchard of about 40 acres the work was more hurried at the last than at the first, the cankers and dead limbs not being cut out so thoroughly. In the part of the orchard treated last the results were not nearly so good, and a considerable number of cankers later showed signs of activity. In the part where the work was first begun and executed with more care, very few old cankers showed any signs of enlarging.

From the observations and results of experiments so far made the following treatment is recommended:

Cut out the cankers that have not gone too far on the trunk and larger limbs and disinfect the wounds thus made. The dead and discolored bark should be cut away, getting a little beyond the margin of dead tissue. If the cankers are not large and the wood underneath has not been stained deeply, it will pay to dissect out all the discolored wood as well as the bark. Probably one of the best disinfectants to apply to the wound is the Bordeaux paste, the same that is recommended for brown rot gummosis. The entire trunk and first crotches may be painted with this mixture as a preventive. Creolineum, carbolineum or other good disinfectants may also be used. If the canker is large and has been in the tree a long time the wood may be stained so deeply as to render the work of cutting out all discolored wood too expensive. If the canker has practically girdled the limb, the entire limb had better be cut out. Some weeks or months later after it is seen that the progress of the cankers is stopped and the bark is healing at the cut edges, the exposed wood should be covered with asphalt paint.

The formula for Bordeaux paste is as follows: 12 pounds of bluestone (copper sulphate) dissolved in 8 gallons of water in a wooden, earthen or glass vessel; and 24 pounds of quicklime slaked in 8 gallons of water. When the lime is cool stir together about equal parts by volume of each for making enough mixture to last for one day only. The bluestone is easiest dissolved by suspending it in a sack at the top of the water overnight. If the bluestone is pulverized and suspended in warm water it dissolves rapidly. Good lime that is not air slaked should be used, and after slaking it with the

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Brown Rot

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water it should be allowed to cool before being used in making paste. If covered to avoid evaporation each ingredient will keep indefinitely, but after mixing the paste slowly deteriorates. Where it is being used over a number of days or weeks, just enough of the wet slaked lime and the blue-stone solution should be mixed to make paste enough to last for one day, leaving the remainder unmixed in separate vessels. It may be applied with large brushes as is whitewash. Commercial Bordeaux paste diluted with about equal parts of the slaked lime indicated above may also be used.

Legal Queries

Louis B. Stanton, attorney, 343 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Joint Bank Account

Can a married man with grown children place money in the bank in such manner that after death his wife can withdraw it without going through legal process?—Subscriber, Dinuba.

The manner frequently used in doing this is to deposit the money in joint account, then either of the parties may withdraw by check.

Deed Delivered at Death

I wish to make my wife a deed of gift which shall not be recorded during my life. How shall I proceed?—Subscriber, Dinuba

There are two or three different methods of doing this. One and the simplest is to have the deed executed and acknowledged before a notary public and delivered to the grantee. The second is to deliver to an escrow holder to hold until death of the grantor. A caution should be given in this matter, however, that this manner of transferring property has probably given rise to more litigation and expense than any other known method.

Ditch Right of Way

A right of way was deeded by a former owner to a canal company and transferred to the present irrigation system. It has lain unused for some five or six years. My neighbor now claims the right to use this right of way. Can he do so and can I require him to use pipes instead of an open ditch?—Subscriber, Fresno.

It would depend entirely upon the terms of the grant, otherwise a right of way which is granted to one party is not available to any one else. As the grant stands in the name of the irrigation system it would not neces-

sarily be true that any individual would have the right to use this grant. On the other hand if he does have the right to use the grant he could use it with open ditches if such is the term of the grant and could not be restrained to the use of a pipe line although such use might be arranged by private contract.

Community Property

A wife sued her husband for divorce, was given alimony and custody of the child, but divorce was denied and there was no property settlement. All property was community property. Can she obtain her share thereof? In case of the death of the husband without will what share would the wife and child receive? He has brothers and sisters.—Subscriber, Los Angeles.

The divorce being denied the court would have no jurisdiction in property settlement. In fact, it is probably true that the alimony would be taken as in lieu of property settlement. In case of death of husband without will one-half of this community property would go to the wife. The remaining one-half would go one-half to the wife and one-half to the child. The husband could, however, dispose by will of this remaining one-half.

Separate Property

On death of a wife without will can a second husband claim a share of the property belonging to her prior to marriage? Can she will such property fully to children of the first marriage? There are no children of the second marriage. Would children belonging to the husband by a former marriage be entitled to a share of such property?—Subscriber, Orosi.

As this is all separate property it is wholly subject to the will of the wife and she can dispose of it as she pleases. It is only in case of her death without will that her husband could claim a share. In such event, as she has left more than one child, he would be entitled to one-third and the remaining two-thirds would be divided equally between the children by her former marriage.

MANY USES FOR ALFALFA

"A nearly perfect forage"—that is the height of praise heaped upon alfalfa by R. A. Oakley and H. L. Westover of the United States department of agriculture in a new farmers' bulletin, "Utilization of Alfalfa," just issued. And when the good qualities of this crop are enumerated it is evident that some such description is warranted. As a hay it is unsurpassed for general feeding; as a pasture it has a high carrying capacity and produces large gains; as a soiling crop it is valuable with proper handling; it makes excellent silage; and when ground into meal it is a good and easily handled feed. In addition to these good qualities it is of great value as a soil improver. Attempts have even been made to introduce it as a human food and as a medicine, but it can not compete with other staples as a food and it has no special medicinal properties.

Although not detailed enough to make laborious reading, each subject from haymaking on through to alfalfa meal manufacture, and a consideration of fake and fad alfalfa products, is treated so fully as to give the reader a thorough understanding of the possibilities of this great crop. Those who are inclined to be too enthusiastic over certain uses will find reason in the collected experience of many growers and feeders to modify their views, for alfalfa is not a panacea for all the troubles of the farm and feedlot. Consideration is given to the needs of dairy cattle, beef cattle, hogs, sheep, horses and poultry, and to the crop in various forms, including hay, pasture, silage, straw, soiling feed, tea and meal.

Those who are interested should write to the United States Department of Agriculture, Washington, D. C., for Farmers' Bulletin 1229, which will be sent free of charge.

Why does any healthy person want to be kicked into wakefulness in the morning?

Many people feel that they have to be agitated into wakefulness in the morning. They think that without the tea or coffee they take in the morning that they will not be able to meet the tasks and duties of the day.

Nothing could be more false than this reasoning. Any doctor can tell you this. For a healthy body does not require a stimulant. It gets all the stimulant it needs from food.

The thein and caffeine found in tea and coffee are irritating to the heart and nervous system. They jolt the nerves into undue activity. The result is a reaction. This is why regular tea and coffee drinkers think they must have their stimulant the first thing in the morning to wind them up for the day.

If you will stop using tea and coffee for a week, and drink Postum, the pure cereal beverage instead, it will give Nature an opportunity to rid the system of the irritating substances that harass your nerves, upset digestion, increase your heart action, and make you nervous and irritable.

Many people who have tried Postum say that inside of a week they wake in the morning without that "all gone" feeling that they used to have, and are full of energy, strength and endurance.

Order Postum from your grocer today, and make it according to directions. Your first sip of Postum will surprise and please you.

Postum comes in two forms: Instant Postum (in tins) made instantly in the cup by the addition of boiling water. Postum Cereal (in packages of larger bulk, for those who prefer to make the drink while the meal is being prepared) made by boiling for 20 minutes.

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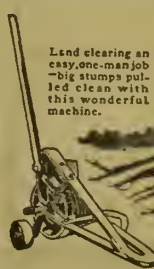
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Some of the Costs of Fumigation

SIMPLY for the sake of giving an idea of the awful cost of insect control to the citrus section of the fruit growing industry we quote a few short paragraphs from the annual report of Horticultural Commissioner Ryan of Los Angeles County:

"Approximately 50 per cent of the citrus acreage of the county was treated by fumigation or spray for scale insects. Our records show that over 28,000 acres were fumigated and 4,000 acres sprayed.

"Artificial control of citrus insects has never been entirely satisfactory and there is always much argument between growers as to the best methods of scale control. In the hope of securing information pertinent to this old controversy this office inaugurated in the summer of 1920 a system of reporting on grove conditions throughout the county. The first year the condition of 1,345 groves was recorded. This year a total of 3,142 groves and 35,000 acres was reported on. Scale conditions in orchards having had one method of treatment were compared with conditions in orchards treated by other methods, taking into consideration the condition of the same groves 12 months ago.

"It was found that of the orchards in good condition one year ago 87 per cent of those which had been given one fumigation were in good condition this summer as compared with 31 per cent of sprayed groves. Of the orchards which were in poor condition in 1920 and fumigated, 55 per cent are in good condition in 1921; of the sprayed orchards 14 per cent are now rated as good. Of orchards graded in 1920, 1,671 were later fumigated once and graded in 1921. They are in better average condition than they were a year ago by 15 per cent. Two hundred and fifty-eight of the orchards graded in 1920 were later sprayed. These are now in 11 per cent poorer condition than one year ago. Untreated orchards are 22 per cent worse than in 1920.

"These comparisons are between the so-called liquid gas method of fumigation and the proprietary sprays commonly called 'arsenical' sprays because of the use of lead arsenate in

combination with sulphur and soap powder. There were too few groves treated with other methods of fumigation or with other spray materials to make further comparisons.

"A very complete record was obtained this year of grove conditions in all parts of the county, and we believe we will be able to render a thorough report of results secured from each of the many different methods of treatment sure to be used the coming season. A large number of groves will be treated with the cyanofumer machine and considerable work will also be done with the pots in addition to the liquid gas method in common use. It is, therefore, hoped that a definite comparison may be made between the three systems of fumigation.

"The city lot fumigation work was handled in the same manner as last year. Contracts were let to the lowest bidders, who were furnished with copies of notices served by district inspectors, solicited the work from the interested property owners at set prices, and made their own collections.

"It was necessary to pay out \$1,184.58 for fumigating orchards neglected by owners. All of this was either collected or protected by liens on July 1, 1921.

"Natural control of black scale is being attempted by the colonization of a small internal parasite, *Aphyus lounsburyi*, imported from South Africa by the state department of agriculture. This insect was established in Ventura County with complete success.

"District horticultural inspectors are cooperating with the state department of agriculture and with the California Fruit Growers' Exchange in carrying on this work. While the scale conditions in citrus districts east and north of Los Angeles city do not seem suitable for the establishment of the *aphycus*, there are several thousand acres in the county where it promises to do efficient work. Unfortunately, in most of the acreage in these sections the red and purple scale are prevalent and artificial control will be necessary, even if the black scale parasite should prove effective."

Grapefruit---Pomelo

THE other day Bob (alias R. M.) Teague was in Imperial Valley and was interviewed by a local paper and of course asked as to citrus growing possibilities in the Imperial. Because of Mr. Teague's long study of citrus conditions and citrus possibilities his opinion is of value, and from the interview we quote:

"There's no use dwelling on the wonderful fertility of your soil. This is too well known to need elaboration. However, it is always a debatable question as to just how well the soil, climate and other local conditions are adapted to citrus culture. We have had an opportunity this week to inspect most of the bearing orchards from Calipatria south to the border, and I have been firmly convinced that the growing of grapefruit will assume a large place in the future prosperity of the valley. Now listen! That word grapefruit is a misnomer—pomelo is the proper name. Because the fruit is prone to set somewhat in clusters in the same manner of grapes, the name grapefruit has come into general use and in order to be generally understood we have to use it whether we like it or not.

"There is no question about your ability to raise good grapefruit and plenty of it. I have seen seven year old trees here—not one tree but acres of them—that are as large as ten or twelve year old trees in our section, which are producing an average of

ten picking boxes per tree and better of fruit that I have never known to be excelled for flavor. The fruit ran uniformly to desirable sizes for marketing, but were small at one place where the trees had been grossly neglected for both water and cultivation.

"Your grapefruit has been introduced to the trade of the Pacific Coast cities from San Diego to Seattle and has met with such a hearty reception that the fruit from other places can not compete with it except when offered at a heavy discount in price. Authorities very generally agree that grapefruit grown in the coastal counties south of the Tehachapi does not reach prime marketing condition before April or May and a considerable part of it is usually held back until July and August. By developing your markets in different centers you should be able to clear up a big crop by March.

Navel Oranges

"Hardly know what to say about navel oranges. The point at issue seems to be whether the trees will set full crops or not with any degree of regularity. A spring cover crop coupled with the maintaining of sufficient moisture in the soil may prevent the 'June drop.' The navels shown at the Brawley show and those we saw of the trees are real Christmas oranges. In addition to size, sweetness, juice and flavor they were the most brilliantly colored navels I have ever seen. It was sunshine, painted and burnt in red."



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Our white lead base must pass through a silk screen with 40,000 meshes to the square inch. A patented purifier makes it "whiter," so Fuller colors are exceptionally clear. The paint when applied on the house is a beautiful elastic, tough, protective coat.

Such paint costs but a trifle more to buy per gallon and is five or more times more economical in service rendered.

Cheap paints are costly—in the long run—good paints save money—they protect. Remember that when you buy paint. Don't allow surfaces to rot. It costs less to paint them.

Fuller's SPECIFICATION Farm Paints

House Paint-Barn & Roof Paint
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Planting Two Year Grapevines

I planted some grapevine cuttings last year in rows six feet each way. It is doubtful whether or not I shall be able to plant them out in vineyard form this year. Would they do all right if I plant them out next year, or are two year old vines hard to transplant?—Subscriber.

Rooted vines one year old are best for planting in a vineyard, although two year vines may be used with satisfaction if they have not made an excessive growth or if they are not dug and replanted at the end of the first year. The usual objection to the use of two year old vines is that if dug and then replanted and dug again the second year roots are in pretty bad shape. If you cannot use the vines this year it might be wiser to dig them and sell them to some one who can, putting out cuttings for your own use.—F. K. H.

Hubam

Having so many queries as to Hubam clover and its behavior in California we have asked George W. Hendry as to any experimental plantings made in California. Prof. Hendry writes:

"We have grown Hubam clover at the university during the past season planted in three foot rows, February 20, 1921, with Melilotus alba planted adjacent as a check. Irrigations were given June 28 and July 21. On August 1 Hubam clover stood four and one-half feet high and was in full bloom. M. alba on that date stood three feet high and did not blossom during the season. Hubam continued to blossom and set seed until killed by frost on November 16. Portions of both plats were cut for hay September 1. Hubam hay was coarse and woody. M. alba hay was finer and softer. There was nothing to choose between them in taste and both were very bitter. Hubam yielded at the rate of 3.35 tons per acre (green weight) and M. alba 4.8 tons per acre. M. alba is more branched and is a denser and more compact plant. Samples of both of these varieties, together with common alfalfa, cut and cured in the same way, were submitted to Professor Jaffa for an analysis on September 1."

Two Distinct 'Mums

Could you advise me what kind of commercial fertilizer would benefit mesembryanthemum? It is growing on a hillside in a heavy, stony soil. Some of it makes a good growth but a good deal of it is short and brown. Should it be watered in the dry season in this locality?

Also, should pom-pom chrysanthemums be separated in the spring the same as the standard sort or would it be better to allow the plants to grow unseparated, a profusion of small flowers being desired?—Subscriber, Oakland.

It is certain that mesembryanthemums need no fertilizer when growing in a "heavy strong soil" for in nature they grow in a very loose sandy soil, often heavily impregnated with alkali. In such soils they root deeply and the roots are always moist, for nearly all species grow near the sea. In heavy soils they doubtless suffer for need of water, which should be given. Pom-pom chrysanthemums should be treated the same as the larger flowered types and be divided now, either to plant out in permanent position or as a source of cutting for later propagation. Commercial growers and professional gardeners start anew each year from rooted cuttings, not from clumps. The best time for making these cuttings is from March 15 to April 1 and they are planted in the garden from May 1 to May 15 by the best growers.

Spotted Livers

I am asking for an explanation of a diseased condition of my rabbits. White sacs containing a thick, milky white fluid are present in large numbers in the livers. What is the nature

and cause of this condition? Is there a remedy? Can the muscle meat of rabbits so diseased be safely eaten?—Subscriber, Chula Vista.

A very small parasite, with a big name—coccidia, or fluke, is the cause of the spotted livers, which may invade other organs causing chronic anaemia, wasting diarrhea and death. The disease is contagious and we would advise not using the same hutches without disinfecting thoroughly and removing all droppings, burning or burying them.

These parasites infest wet greens on which rabbit manure containing them has been spread, also wet hutches or the ground beneath. They spread from the old stock to the young and may be spread by the sneezing of affected animals. It is easier to prevent than cure. Cleanliness is absolutely necessary. Would advise doing away with does that produce infested young. Feed plenty of dandelion and other medicinal weeds, scald and disinfect all vessels used. If the liver is not too badly spotted the muscle meat may be used—if the animal does not show other signs of diseases—but not the liver. Stock is often purchased that is infested.—W. D. W.

Strawberries

What kinds of strawberries are best suited for the climate of San Diego County? Do strawberries have to be replanted every other year?—Subscriber, San Marcos.

In the south end of the state the strawberries now most generally planted are: Carolina, Brandywine,

Grapes

	No. 1	No. 2
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65,000 Thompson	50.00	30.00
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Leonard Coates Nursery Co.
Morganhill, Cal.

Klondike, Banner and Gibson. They do not need replanting every other year and beds, if properly pruned and fertilized, are maintained at a profit for several years, depending wholly upon condition and crop. When so matted (or from other cause) that yield falls off materially, the need of renewal is indicated. The present is the best time for planting or transplanting.

Asparagus Culture

Please tell me at what time and how to care for a two year old asparagus bed.—Subscriber, Esparto.

The present is the golden time for attention to asparagus beds. The chief requirements are abundant supplies of food and drink. So necessary is a heavy food supply that many planters plow a deep furrow, put in a quantity of stable manure and plant roots on top. In old beds the same furrow system is often used for application of fertilizer between the rows. Commercial fertilizers are heavily applied. Ten tons of barnyard an acre is not too much, and experiments have proved that 446 pounds of nitrate of soda, 300 pounds of acid phosphate and 260 pounds of muriate of potash to the acre produced best yield. The fields should be kept free from weeds at all times.

Pecans and Poultry

Any information or advice re the pecan or poultry industry will be appreciated.—Subscriber, San Diego.

This is surely rather a long commission for there is not a little published on pecans, and as to poultry there are whole libraries. Regarding pecans we would suggest that you write a letter to the Department of Agriculture, Washington, D. C., asking for Bulletin 51 of the bureau of plant industry, "The Pecan." Also Bulletin 30 of the bureau of plant industry, "Budding the Pecan"; Farmer's Bulletin 332, "Nuts and Their Uses as Food" by Prof. Jaffa of this state. It is possible by applying to State Commissioner of Agriculture, Austin, Texas, one may

secure Bulletin 2, "Pecans and Other Nuts" and Bulletin 19, "The Pecan and Hickory in Texas." The Florida Experiment Station, Lake City, Florida, has also issued bulletins on pecan culture as has the North Carolina Department of Agriculture, Raleigh. As to poultry one of the most practical publications is "Poultry for Profit," by Jean A. Koethen of the Cultivator editorial staff, originally published at \$1. Only a very few copies remain and should this be republished today it would be at least a \$2 book. We trust inquirers will be as explicit as possible in asking questions. It is a physical impossibility to answer such general questions as above in this department.

Correspondence Schools

Could any of your subscribers give me any information pertaining to correspondence schools? If there are any persons who have taken a course how did they succeed? What do they think about them?—Subscriber, San Jose.

There is no question that many a young person has had his opportunity for usefulness in life vastly increased because of correspondence schools. Beginning way back in 1880 or 1882 the Chautauqua movement resulted in the establishment of the Chautauqua Literary and Scientific Circle. This was nothing more nor less than a course of reading or study with limited connection with the central or inspirational office of the institution. The work of that "circle" is nothing more nor less than wonderful. We do not think even the most enthusiastic of believers in the correspondence courses would consider them equal to a college course or the educational facilities given by personal contact with educators, but there are thousands of us unable to give to ourselves all the advantages we would like so we take advantage of correspondence courses. There are regular established schools operated for profit. There are others like the college of agriculture connected with the University which are conducting these correspondence courses. Anyone interested in agricultural or horticultural courses should write the college of agriculture at Berkeley for particulars.

Peach Variety

I note in your issue of October 1 a subscriber from El Cajon asks for information in regard to the best varieties of pits to plant for budding to the Hale peach. If he wishes to grow Hale's Early I wish he would write again and give his reason for wishing to grow that variety. I have had experience in growing peaches in Fresno County. But the varieties grown here are nearly all for drying or canning. The Elberta is a popular peach for shipping and it is about the only shipping peach grown here. I would like to know about Hale's Early; if it is a good shipping peach; if the tree is a strong grower and bears well; if it sells well as compared with other peaches. I mean for Fresno County.—Reader.

The new J. H. Hale is characterized as "A new valuable freestone of Elberta type, large yellow skin, brush of red, yellow flesh, tender, fine flavor, superb table and shipping variety." We will appreciate it very much if we may have from San Joaquin Valley subscribers their estimate of the worth of the Hale peach.

Caliper of Fruit Trees

When buying nursery stock what should a four to six foot pear tree caliper, and at what place is it measured?

There is such variation owing to kind of fruit, variety, etc., that it is impossible to give any hard and fast rule. The caliper is usually taken from one to three inches above the intersection of the bud with the stock. As a basis four to six foot trees should caliper at least one-half to five-eighths of an inch.

White Angora Rabbits

Can you please give me the names of breeders of White Angora rabbits? I would like to get a buck of that breed.—Subscriber, Orland.

We know of no breeder of White Angoras in California. Presume getting in touch with Eastern breeders (Continued on Page 199.)

RELIABLE SEEDS FOR SPRING GARDEN



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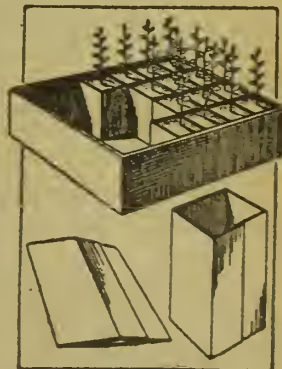
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Do you know what you should use? Are you certain you have enough information on the subject? Write S. W. Foster, our entomologist, if you are in doubt. He will be glad to give you his suggestions.

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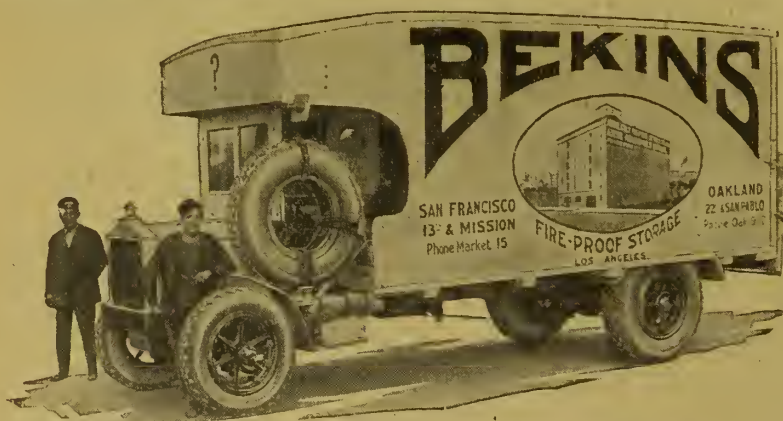
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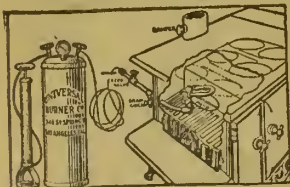


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Write, or better still, see my field. Fred W. Kelsey, South Rosemead Ave.,
2 miles west El Monte, Calif.

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Household Department

WHEN LITTLE GEORGE WASHINGTON WROTE A LETTER:

He ruled his paper with many a line,
And pen-points made in goose quills fine;
He dipped his quill in a horn of ink,
And wrote his letter with care, I think.
From a box like a salt shake, standing
nigh,
He shook out sand his ink to dry;
He blew off the sand; with many a pat,
He made of his letter an oblong flat;
Addressed it and tied it with linen
thread;
Sealed it with seals so big and red;
Then it went its way by coach or by
hand—
A long, slow journey across the land.

WHEN LITTLE G. W. JONES WRITES LETTERS:

He's only his fountain pen to get,
Or to sit at a typewriter—better yet;
Then dash off his letter; slip it in
An envelope, ready and gummed so thin;
Address it, stamp it, send it away,
And it comes to you the very next day!
But, do you know, G. W. Jones
Freely, frankly and fairly owns
That he would try hard and take all the
trouble
Of little George Washington—yes, and
double—
If he could but write one letter his sons
And the world would prize like Washing-
ton's!

HER AUNT MARGARET

By Elizabeth Earl in Forward



LL through the four days' journey Alice had been thinking about this latest discovery of hers—an aunt. To have an aunt was an altogether new experience to the girl, or rather, to know that she had an aunt. Before that wonderful discovery she had no one except a very much absorbed mother, a mother who was always busy writing or lecturing or recuperating from writing and lecturing, and to whom aunts did not in the least matter.

Families of any kind never had seemed to matter much to mother. Her own daughter had been a responsibility which she had borne dutifully, though hardly enthusiastically. Even father, as far as Alice could remember, while a joy to mother, as well as a responsibility, had never seemed like other girls' fathers. He and mother had been absorbed in each other and in very little else outside of their professions. Save for a general oversight, Alice had received very little of their time or attention. She had never dreamed they had any relatives other than herself. She of course, was a relative.

At the time of her father's death she might have been enlightened if she had been older. But grown people receive many letters which they do not account for to twelve-year-olds. And as no relative had ever been spoken of in Alice's presence, how was she to suspect that she had any?

And then suddenly, when Alice was sixteen, mother came in one day, dropped her furs on a chair, and said quite casually: "We'd better talk a bit about your future, Alice. The doctor tells me I shall not live a great while."

The girl looked up from a book she was reading—she adored reading—and stared at her mother.

"I don't think, mother," she remarked, "that I quite grasped what you said."

Her mother repeated. It never put her out if you didn't understand at once what she was talking about. As a rule, she hardly expected you to understand and you didn't. But this statement seemed clear enough, though rather incredible.

"I should like to finish my book," said mother. "I never have felt I made my theory about self quite as intelligible to ordinary intellects as it can be made. However, the doctor thinks it unlikely that there will be time enough. And I suppose in the long run it will not matter. I think it will be best for you to go to your Aunt Margaret. I am sure I have her address somewhere. I must look it up."

"My aunt?" Alice watched her mother's slender fingers tossing over the motley collection of papers she had tumbled out of the pigeonholes of her desk. "Why, mother, I didn't know I had an aunt!"

That discovery struck the girl at the moment more forcibly than her mother's other news.

"She is your father's sister," mother flung over her shoulder, "his only sister, I think, though he had brothers."

The girl walked over and stood by the desk where her mother was rummaging.

"But mother," she gasped, "why hasn't anyone ever told me? Uncles and an aunt! And I never knew I had anyone like that." Then a thought struck her. "Have—have you any?"

"Any what?"

"Any brothers or sisters?"

"No, indeed. What put that idea into your head? Oh, here it is!" She

held out a slip of paper. "Now, Alice, we will never speak of this again. I have no use for people who keep their eyes on such an event as it approaches. If I can, I shall finish my book. It will round out my work. When it becomes necessary for you to break up here, go to your aunt in Milton. That is near Boston. You might, I suppose, telegraph her that you are coming."

"But mother—"

Her mother paused in the rapid walk with which she was nearing her study door. In the face she turned to her daughter, Alice saw the approach of extreme concentration. Nevertheless she persisted.

"Can't you remember anything more?"

Mother looked helpless as well as in a hurry.

"You know, Alice, how hard it is for me to remember things like that. Your father told me, of course, I think he mentioned nine brothers."

"Nine!" gasped the girl.

"But he never spoke of but one sister, the youngest of the family, believe. Your father was the oldest."

"But why haven't we ever seen or heard from any of those people?"

"Your father was no correspondent and I—when do I have time for letters, Alice? The conventional attitude of kinsfolk has never impressed me. The accident of relationship does not make people interesting. In my case my work was more important. I there is nothing else—"

"Oh, no; I won't keep you! But if you should happen to remember anything more—"

Mother vanished inside the study door.

Nine uncles and an aunt! If hadn't been for the slip of paper in her hand, Alice would have thought in the days that followed that their talk had been a dream. The paper was no dream. It was real. "Miss Margaret Rankin, 9 Blank Street, Milton, Massachusetts." A dream does not deposit addresses typed neatly in black and white. The girl thought a great deal about her new aunt. What she was like she hadn't the faintest idea. Mother didn't know. Apparently it never had occurred to her to inquire, and what she might have heard had slipped out of her head. Thought of the new aunt occupied Alice's imagination, balancing, mitigating, that other part of mother's new which also claimed its place in the girl's thought.

Then suddenly one night, the night after she had finished her book, mother died in her sleep. Morning found Alice alone in the world. So she was on her way east to make her home with her Aunt Margaret.

She was very much excited. She had always craved relations, a big family of relations, from grown-up to babies, and to come into possession of even a single aunt was something. There were possibilities, too, in the uncles, though she knew nothing about them, not even their names or addresses.

Alice tried to think what this new possession of hers would be like. She pictured her as tall and slender and stately, with high-piled white hair—or it might be merely gray, for Aunt Margaret wasn't yet a really old lady. Probably she was deliberate and dignified. Or she might, of course, be little and brisk. In either case, Alice could hardly wait to see her.

The Clarks, with whom she had traveled for four days, left the train at Springfield.

"Only a few hours now, my dear, and you'll be with your people. Write after you get there. We shall want to know how you made out, though

of course nothing can go wrong. But wait just as she tells you to in the station."

Alice knew what to do. She had the directions by heart. Her aunt would wear a blue suit and have a pink rose in her coat, and would look for her in the waiting room in a spot she had indicated in her letter.

"In case we're a bit late, sit down and wait. We can't always count on car service."

Whom did the "we" cover? Alice wondered. She was hungry for people, plain people; not people with ideas, but people with babies and brothers and sisters and grandmothers. She wished Aunt Margaret had been married.

In the waiting room, balanced on the very edge of the bench, intent, eager, Alice watched for her aunt. She couldn't simulate calmness for she didn't feel calm. Were any of these other people looking for relatives that they had never seen? Surely not. They were too phlegmatic, too busy scurrying one way or another with immobile, expressionless faces. A woman leading two children passed her; an elderly woman with a little boy; three breezy schoolgirls. When a tall, angular woman approached, Alice' heart skipped a beat. Was she Aunt Margaret? No, the woman passed on, leaving Alice feeling that she had just escaped something.

Next came a whole flock of a family, followed by more girls, more women; a dainty dove-gray little lady—Alice jumped up on her approach, even though she wore no pink rose and blue suit. The girl began to feel anxious and a little lonely. Not that she could not take care of herself. But the aunt—so much hinged on what kind of woman this Aunt Margaret might be.

"This is Alice, I'm sure."

Alice turned to look down into the merry blue eyes of a girl her own age, a girl wearing a blue suit with a pink rose stuck through her belt.

"I'm Peggy," said the girl. "Ralph couldn't come, and Don's out of town this afternoon. Business snatched Ralph at the last minute. They're not really inhospitable—don't think that. In fact, they're keen on having you with us. Just give me your checks." (Continued Next Week.)

HOUSEHOLD QUERIES

"Burial of the Minnisink"—"Utah Carol"

Could you kindly publish the poem, "The Burial of the Minnisink," and name of the author; also words to the cowboy songs, "Bury Me Out on the Lone Prairie" and "Utah Carol." I do hope I am not asking too much and will appreciate your publishing these in the Cultivator for me.—Subscriber, Holtville.

We have not yet been able to secure words of "Bury Me Out on the Lone Prairie," but think we may soon get on track of it. Meanwhile, if any of our household readers have it in their home libraries and can copy and send to this office for publication, we, as well as our inquirer, will be grateful. Also, we will extend subscription to the Cultivator in return for the favor.

BURIAL OF MINNISINK

By Henry Wadsworth Longfellow
On sunny slope and beechen swell,
The shadowed light of evening fell;
And, where the maple's leaf was brown,
With soft and silent lapse came down,
The glory, that the wood receives,
At sunset, in its golden leaves.

Far upward in the mellow light
Rose the blue hills. One cloud of white,
Around a far uplifted cone,
In the warm blush of evening shone;
An image of the silver lakes,
By which the Indian's soul awakes.

But soon a funeral hymn was heard
Where the soft breath of evening stirred.
The tall, gray forest; and a band
Of stern in heart, and strong in hand,
Came winding down beside the wave,
To lay the red chief in his grave.

They sang, that by his native bowers
He stood, in the last moon of flowers,
And thirty snows had not yet shed
Their glory on the warrior's head;
But, as the summer fruit decays,
So died he in those naked days.

A dark cloak of roebuck's skin
Covered the warrior, and within
Its heavy folds the weapons, made
For the hard toils of war, were laid;
The cuirass, woven of plaited reeds,
And the broad belt of shells and beads.

Before, a dark-haired virgin train
Chanted the death dirge of the slain;

Behind, the long procession came
Of hoary men and chiefs of fame,
With heavy hearts, and eyes of grief,
Leading the war horse of their chief.

Stripped of his proud and martial dress,
Unburied, unreined, and riderless,
With darting eye, and nostril spread,
And heavy and impatient tread,
He came; and oft that eye so proud
Asked for his rider in the crowd.

They buried the dark chief; they freed
Beside the grave his battle steed;
And swift an arrow cleaved its way
To his stern heart! One piercing neigh
Arose, and, on the dead man's plain,
The rider grasps his steed again.

UTAH CAROL

Collection by Lomax, Author Unknown

And as, my friend, you ask me what
Makes me sad and still,
And why my brow is darkened like the
Clouds upon the hill;
Run in your pony closer and I'll tell you
The tale
Of Utah Carol, my partner, and his last
Ride on the trail.

'Mid the cactus and the thistle of Mexi-
co's fair lands,
Where the cattle roam in thousands,
A-many a herd and brand,
There is a grave with neither headstone,
Neither date nor name,—
There lies my partner in the land from
Which I came.

We rode the range together and had rode
It side by side;
I loved him as a brother, I wept when
Utah died;
We were rounding up one morning, our
Work was almost done,
When on the side the cattle started on a
Mad and fearless run.

The boss man's little daughter was hold-
ing on that side;
She rushed; the cattle saw the blanket,
They charged with maddened fear.
And little Varro, seeing the danger,
Turned her pony a-pace,
And leaning in the saddle tied the blan-
ket in its place.

In leaning, she lost her balance and fell
In front of that wild tide.
Utah's voice controlled the roundup: "Lay
still, little Varro," he cried.
His only hope was to raise her, to catch
Her at full speed,
And oft-times he had been known to
Catch the trail rope off his steed.

His pony reached the maiden with a firm
And steady bound;
Utah swung out from the saddle to catch
Her from the ground.
He swung out from the saddle, I thought
Her safe from harm,
As he swung in his saddle to raise her in
His arm.

But the cinches of his saddle had not
Been felt before,
And his back cinch snapt asunder and
He fell by the side of Varro.
He picked up the blanket and swung it
Over his head
And started across the prairie; "Lay still,
Little Varro," he said.

Well, he got the stampede turned and
Saved little Varro, his friend.
Then he turned to face the cattle and
Meet his fatal end.
His six-shooter from his pocket, from the
Scabbard he quickly drew;
He was bound to die defended as all
Young cowboys do.

His six-shooter flashed like lightning, the
Report rang loud and clear;
As the cattle rushed in and killed him he
Dropped the leading steer.
And when we broke the circle where
Utah's body lay,
With many a wound and bruise his young
Life ebbed away.

"And in some future morning," I heard
The preacher say,
"I hope we'll all meet Utah at the round-
up far away."
Then we wrapped him in a blanket sent
By his little friend,
And it was that very red blanket that
Brought him to his end.

To Sweeten Burned Lard

In reply to request of subscriber for
a way to sweeten burned lard: I had
the same experience and brought it
out perfectly by slicing about 12 pota-
toes in it and re-cooking till the pota-
toes were crisp brown. To whiten it
to natural color, slice lemon with rind
and cook in with potatoes and lard till
they are all nice and brown. Rancid
lard may be treated the same way.—
Subscriber.

Make Scorched Lard Into Soap

Replying to the Santa Rosa subscri-
ber who has the 50 pounds badly
scorched lard would advise getting 8
cans of Eagle brand lye, follow the di-
rections on the can and make the lard
into soap. You will find the home
made soap washes white clothes
whiter and colored clothes cleaner
than the soap you buy. I would divide
the lard, making a portion at a time.
—Cultivator Subscriber.

Clear With Potatoes—Make Soap

If Santa Rosa subscriber will boil
Irish potatoes, sliced, in her lard, she
will have nice sweet lard. The pota-
toes are also good to eat if drained



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and salted. She can make soft soap of some of it. I use a coal oil can (top cut out): 2 gallons cold water, 1 can lye. Boil and add 5 pounds lard, stir until it ropes, take from fire and add 3 gallons boiling water, stir until smooth, let cool and if a little harder soap is wanted set in sun to dry.

I have clarified lard and also made the soap so I know both are good. Hope you can use these suggestions to advantage.—Mrs. L. B. Brown, Schilling.

HINTS FROM HOUSEKEEPERS

Plain Two Layer Cake

One heaping tablespoon shortening, 1 cup sugar, 1 egg, 1 cup milk, 1½ cups flour, 2 rounded teaspoons baking powder, pinch salt and flavoring, cream shortening and sugar, add well beaten egg and beat. Add alternately the milk and the flour into which baking powder has been sifted. Bake in two layers in moderate oven, about 20 minutes.

Lemon-Apple Filling for Cake.—2 raw tart apples grated, grated rind and juice of one lemon, 1 cup sugar, 2 eggs well beaten. Mix and cook until it thickens. Stir constantly but gently. Spread between layers and on top while warm. Over top and sides put a boiled icing.

Boiled Icing.—Boil 1 cup sugar and ½ cup water until syrup spins a thread when dropped from spoon. Pour hot syrup into beaten white of one egg. This must be done gradually. Beat until thick enough to spread on cake.—Mrs. W., Los Angeles.

A Bunch of Hints

If walnuts or any other kind of nuts are packed in layers of sand and kept in a cool place they will keep indefinitely. Soak them in warm water for an hour before breaking them open if you would have them peel as if they had just been gathered from the tree.

Box springs may be protected from insect pests by opening the ticking at one end and pouring in a quantity of naphtha balls or other insect destroyer. When the ticking is replaced no odor will escape.

Use a newspaper while pressing dark woolen goods and thus avoid troublesome lint.

Cover ironing board with a wool cloth when pressing anything that is apt to get shiny along seams.

Instead of blueing the water in which lace is to be rinsed try making a final rinsing in milk. It gives a lovely creamy tone to the lace.

A cloth dipped in ammonia will often remove the stain from the collar of a cloth coat.

A bottle or a vase is sometimes very difficult to cleanse. Try pouring in a little gasoline, add some soapsuds and shake well. The dirt will immediately disappear.

Rust may be removed from white goods with sour milk.

Apply kerosene to your stoves with a rag when you are ready to put them away for the summer; it will prevent them from rusting.

If your pastry board has become discolored it may be effectively bleached with a lemon. Cut the lemon in half and rub over the entire surface of the wood, afterward rinsing well with cold water.

TRIBUTE TO A TENDERFOOT

I once believed that "full of prunes"

Was but an idle jest

That signified an emptiness

Beneath one's hat or vest,

But since I've been abiding

In this "Land of Afternoon"

I've learned the real ingredients

That go to make a prune.

You take a little sunshine

And a little of the nectar

From the busy bee that hoards;

Add a drop of melted snowflakes

From the mountains, if you please,

And a breath of spice that's wafted

On the tropic ocean breeze,

Add a little of the treasure

That the Forty-Niner sought

And a little of the romance

With which all things here are fraught.

Wrap it all up in the purple

That the twilight hills assume,

And behold! you have the dainty

That the gods have named—A PRUNE.

—Walter Palmer.

Where there's heart room there's hearth room.

The Cultivator Patterns



3892-3571. Ladies' Costume—Slip 3571 cut in four sizes: Small, 34-36; medium, 36-40; large, 42-44; extra large, 46-48 inches bust measure. It requires three yards of 36 inch material for a medium size. Blouse 3892 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure, and requires 3½ yards of 40 inch material.

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3877. Ladies' Apron Dress—Cut in four sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size requires 6½ yards of 27 inch material. Price 10c.

3723. Girls' Dress—Cut in four sizes: 4, 6, 8 and 10 years. An eight year size requires 3½ yards of 27 inch material. Price 10c.

3870. Ladies' Dress—Cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size requires four yards of 44 inch material. The width of the skirt at the foot is about two yards. Price 10c.

3894. Girls' Dress—Cut in four sizes: 10, 12, 14 and 16 years. A 12 year size requires 4½ yards of 42 inch material. Price 10c.

3897. Ladies' House Gown—Cut in four sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size requires 5½ yards of 36 inch material. Price 10c.

3885. Child's Romper Suit—Cut in four sizes: 2, 4, 6 and 8 years. A four year size requires 2½ yards of 32 inch material. Price 10c.

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PATTERN DEPARTMENT

California Cultivator Los Angeles

February in the Ornamental Garden

Northern California

By A. R. Gould

EVEN in the ornamental garden the frost has been severe and cinerarias, arum lilies, begonias and our old friend, the every day geranium, have been hard hit, and now we must have a general clean up. Heliotropes, fuschias and hydrangeas should be now cut back and in due course will be breaking forth into a new spring growth.

Chrysanthemums Hardy

Subdivide roots of single types and plant in manured soil. There is nothing more satisfactory than these hardy perennials, and they flower late in the season when many of our summer flowers are gone. Of recent years a number of beautiful types have been developed from the single pom-poms and anemones and they come in various shades of bronze, yellow and pink while old rose is also a favorite color. Plantings may be made in groups in the border so that the colors may be effectively arranged. Plant one foot apart or if for cut flowers, in rows at least two feet apart.

Shrubs for the Wild Garden

A grouping of some of our wild shrubs will give your garden a distinct natural touch. What is more beautiful than the wild Christmas berry, heteromeles, when well covered with its bright berries? Then the prunus, or wild cherry, with its handsome dark green leaves and dark red berries should find a place in your garden as well as the madrone, arbutus menziesii and wild coffee, hamnus. The ceanothus, or wild blue lilac, is always attractive as also is the romneyi, matilija poppy. These may all be secured in small pots ready for planting. These natives are somewhat difficult to move when large and the younger plants are therefore more satisfactory. Plant in groups and place them each variety three or five in a group. They should be given plenty of room to develop, at least eight feet apart.

Flowers for Summer Bloom

As warm weather approaches a sowing of annuals may be made and the following will give a long season of bloom: Calliopsis, nemesia, larkspur, balsam, scabiosa, salpiglossis, verbena, petunia, cosmos, antirrhinum, marigold, celosia and centaurea. All these may be sown in boxes or beds in a warm situation and transplanted later to their flowering quarters. The following may be sown in borders where they are to flower: Mignonette, California poppy, Shirley poppy, oenothera, godetia and clarkia, very finely.

Summer Flowering Sweet Peas

These give a continued season of bloom and they should be sown without delay either in pots three in a pot, or boxes and transplanted, or they may be sown in trenches. They require a very deep rooting medium, hence it will always pay to dig the trench several feet deep and mix up the manure and soil very thoroughly.

Gladiolus

The early flowering types should now be showing through the ground and will require cultivating. The ground should also be well prepared for planting the summer flowering types of which there are now quite a large number of wonderful varieties in a very choice shades. A few of each of these should be in every garden.

The Water Garden

It would take more space than we have at our disposal here to fully describe the details and hints on the construction of a water garden. However, we hope that those who have the space and love for water effects will have a water garden no matter how small as even a pool eight by ten feet will be large enough to grow your favorite water lilies or water iris, and we think that there is usually a handy man around who can construct a pool of cement. And here we would warn you about making it water tight as it is essential that there should be a good thickness of cement. One can

make it of various shapes. Some prefer a round pool, some oblong and some oval, and then again others prefer it very irregular. A small fountain may be placed in one corner or in the center and an overflow pipe and clean out should not be forgotten. Next month we hope to give details of water loving plants you may grow in and around the pool.

Southern California

By Ernest Branton

EVEN to the unusually cold weather there will arise urgent need of pruning and some replanting. It is as well to defer the pruning until the actual amount of injury is ascertained through new growth, if growth is to start at all. Often shrubs and trees presumed to be dead manifest hearty vigor in springing forth abundantly. Wait for this action and prune back to first bud or branch on live wood. This involves but one pruning and enables one to prune intelligently. When pruning any plant cut out thick central growths so light may reach the interior. Also prune out canes or branches that cross and all abnormal growths.

Normally February is a month of great activity in the garden, and the present cannot prove an exception throughout its four weeks. Warm weather will come, perhaps very warm weather, and vegetation usually fairly spurts forth. The most distress-

ingly hot day the writer can recall was February 7, 1889. All deciduous trees and plants will start forth, and all contemplating planting such material should set them out as quickly as possible. Those already in the soil for one or more years will need fertilization. Sap is rising and springtime vigor needs the support of ample plant food. Soil should be stirred deeply and thoroughly.

While cold weather has necessarily delayed early February planting of material of doubtful hardiness, the last two weeks will bring sufficient warmth for all but the most tropical we grow. Seeds for autumn and winter flowers may be sown at this time in such variety that a full list can hardly be given, but the more commonly planted are: Asters, calliopsis, celosias, annual chrysanthemums, salvias, stocks, sweet peas (the last sowing) sweet Williams and other pinks. Carnation cuttings may be rooted in boxes of sand, and late in the month chrysanthemums may be treated likewise, but for all but the very warmest spots 'mums are best rooted in March. Hardy perennials, such as grow in eastern states, are already sprouting new tops, and needed division and replanting should be done at once. Hardwood cuttings of deciduous shrubs root as freely now as at any time of the year.

There are many bulbs and tuberous or fleshy rooted plants that should be planted during this month. Such should include: Agapanthus, amaryllis, anemone, caladium, calla, canna, dahlia, gladiolus, iris (except Germanica), lily, and tuberose. Tuberous-rooted begonias should not be planted in the garden but may be put in pots, under shelter, for planting out next

month. Dormant, bare root roses may still be had and should have immediate planting. Hardy plants in rooted cuttings or seedlings may be set in permanent position, as may all plants of a hardy nature, whether potted or transplanted from the open field. Evergreen plants and trees will move as easily and safely now as at any time, but should be taken up with as large balls of soil as it is economical to move. There is no better time to fertilize lawns, for now all grasses will be growing and only when growing can they assimilate food.

APPLE PULP FOR COWS

Some use has been made of apple pomace after extraction of the pectin as a succulent feed for cows. After the pectin has been extracted about three-fourths of the total weight of the pulp is water, rendering it subject to rapid spoilage. Heretofore it has been thrown away, but it has been found that when the pulp is dried it can be kept for a considerable time and, because of its reduced weight, handled and shipped economically. Some manufacturers have recently installed evaporators for drying the pulp in order to market the product for stock feed. This pulp is comparable to beet pulp in feeding value though in experiments made cows did not eat it so rapidly. It seems that pound for pound of dry matter the pectin pulp is superior to corn silage and perhaps intermediate between the silage and beet pulp. This product is also called cider press cake.

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Jacob Germann of Farmingdale, Ill., tells of his experience with cow ailments much the same as hundreds of others who take the trouble to write us every year. He says:

"I had three cows this Spring, one had garget and one had milk fever, and one was done up completely from calving and could not get up or walk and I had a veterinarian with no good results. I began feeding Kow-Kare and she is able to go to pasture with the other cows now. I just know I would have lost the three if I had not had your medicine."

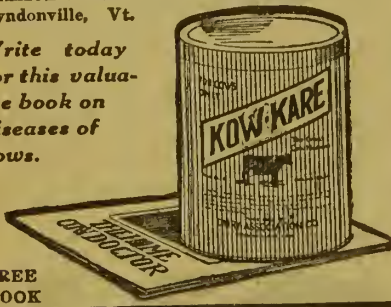
D. B. Thomas of Knightville, Utah, had an experience with a barren cow that is just like scores of others who have kept cows on a paying basis with the aid of Kow-Kare. He writes:

"Had a valuable Jersey cow eight years old that had had seven calves. Something went wrong with her after her last calf came, so that for two years she failed to become with calf. Fed her some of your Kow-Kare last January and she was all right the first serving, and long before I had given her the whole package of your Kow-Kare that I purchased."

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Winners of Cultivator Prizes in State Dairy Cow Competition

By Prof. F. W. Woll

FIVE grade cows owned by M. L. Pontoni of Arcata, had the highest average production of butterfat of similar groups in herds entered in the state dairy cow competition during the month of January, viz: 43.56 pounds, and the California Cultivator prize for that month was accordingly awarded to him. The productions of the individual grades for the month were as follows:

Name of Cows	Days in Milk	Milk Lbs.	Butter Fat Per cent	Lbs.
Klamath	281	795	7.3	58.04
Mousie	289	781	5.4	42.17
Arcata Girl	278	601	6.8	40.87
White Tail	280	630	6.3	39.69
Rolley	251	756	5.2	37.04
Average	276	712.6	6.11	43.56

All these cows were grade Jerseys and were full aged, with the exception of White Tail, a four year old. All were far advanced in their lactations, on the average over nine months, and their production of 37 to 58 pounds of butterfat for the month at this stage is therefore remarkable, especially in view of the fact that all were bred within a few months from last calving. The average production of milk by the grades for the month was 712.6 pounds, with an average fat content of 6.11%.

These cows stood first among similar groups of five grades in seven herds in different parts of the state competing for the Cultivator prize the past month, all of which were nearly dry and had a low production, viz: 11.4 to 19.3 pounds of fat for the month.

The state dairy cow competition came to a close on January 31, and this is therefore the last award of the California Cultivator monthly prize. During the 17 months of the competition it was won by 11 different dairy farmers, seven of whom were located in Humboldt County, three in Los Angeles County, and one in San Joaquin County. The names of the winners are: Earl Graham, Compton, four times (for four different groups of five grades each); Los Angeles County Farm, Hondo, Nate Hauck Alton, and Eugene Biondini, Ferndale,

each twice; C. F. Holman, Stockton; F. F. Pellissier, Whittier; J. A. Genzoli, Loleta; W. Terkelsen, Ferndale; W. F. Early, Grizzly Bluff; Peter Iverson, Grizzly Bluff, and M. L. Pontoni, Arcata, each once.

The average production of these 85 prize winning grades for the month was 1,439.7 pounds milk and 67.65 pounds butterfat, the highest production of butterfat being 113.3 pounds and the lowest 40.2 pounds (average distance from freshening 97 days). A production of 67.65 pounds of butter fat is equivalent to nearly 80 pounds of commercial butter, or over two and one-half pounds per day, a yield that would be a credit to any purebred herd.

In offering this monthly prize for high producing grades the Cultivator has rendered a distinct service to the dairy industry of the state and helped to stimulate a greater interest in the competition among dairy farmers and breeders during its progress than any other single feature connected with it. It has been the means of calling attention to the excellent work done by many previously unknown dairy farmers along the lines of breeding and production and has shown that no one breed has a monopoly of good cows. Much good has, and doubtless will come from the educational influence of this and other features of the competition in the communities of the respective prize winners and in the wider sphere where the results have been studied and discussed through the reports that have been published from month to month since the competition started.

Dairy farmers and breeders are cordially invited to attend the closing exercises of the competition on February 23 at 7:30 p.m., during the Stockmen's Week at the university farm, Davis, when announcement of the award of all prizes in the competition will be made and the presentation of trophies and other prizes will take place. An excellent program has been arranged, with addresses and discussions by well known dairy specialists. Those attending may look forward to most interesting and profitable meetings.

1921 Livestock Values Show Heavy Deflation

THE income of the livestock producers of the United States derived from meat animals marketed through central markets during 1921 was approximately \$1,968,231,000, compared with \$2,913,398,000 similarly received during 1920, a total shrinkage in income of \$945,167,000. To this shrinkage in value of livestock marketed cattlemen contributed about \$447,624,000, hogmen \$460,464,000, and sheepmen \$37,079,000. It should be added, however, that the above figures represent comparative central market values of livestock and do not take into account marketing charges which the producer must always pay.

These figures do not represent paper losses or a marking down of inventories which might be at least partially neutralized by subsequent advances in market prices. On the contrary, they represent approximately the amounts by which the income of the American farmer was reduced during the past year as a result of his livestock marketing operations.

This reduction of income was brought about by two sets of conditions, namely, sharp declines in market prices of all classes and grades of meat animals and a decrease in the total number of animals marketed.

Using yearly average prices at Chicago for 1920 and 1921 as a basis of comparison, price declines for 1921 ranged from \$5.68 on hogs to \$4.33 on sheep, all per 100 pounds. Lambs declined \$5.66 and beef cattle \$5.32 during the same period. These figures represent only the net changes in average annual prices for the two years and do not necessarily measure extreme fluctuations within the years. The other important factor which

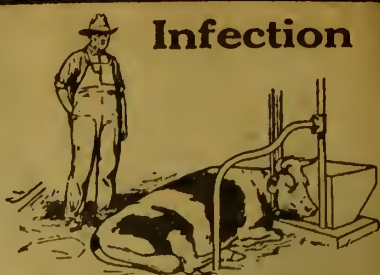
cut into the farmer's income was the fact that there were nearly 3,000,000 fewer meat animals marketed in 1921 than during the preceding year. In this connection it might be argued, however, that when farmers are marketing at a loss the fewer the animals marketed, the better for the farmer. From the standpoint of domestic meat supplies of the near future perhaps a more significant feature is the fact that during the year just ended 2,900,000 fewer animals from central markets went back to the country for feeding than during 1920.

In the following discussion Chicago weekly average prices, either of bulk of sales or selected typical classes and grades of animals, are considered as an index of the general trend of the market throughout the country.

Cattle

Of the various classes of livestock, cattle probably presented more interesting features than did any other. For example, despite a total decrease of 11 per cent in the number of head marketed, prices declined steadily throughout the year 1921. It was rather significant that the highest weekly average price of the year occurred during the first week of January and the lowest price during the week ending December 24. While certain slight advances occurred at various times during the year they were almost invariably of short duration.

Not only was the 1921 yearly average price \$5.32 under that of 1920 but it was only 63 cents above the prewar average for the five years 1910-1914. During the first week in May the price fell to within 11 cents of the prewar average and during the first week of July it fell four cents below



Infection

would have been prevented if B-K had been used shortly after this cow dropped that beautiful calf. When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in Abortion and failure to "get with calf." The afterbirth should be removed at once, without force, and the cow flushed out with a powerful antiseptic.

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There are only a few on hand and at the prices we have placed on them they will soon be gone. If you can't visit our herd, write or wire for description and prices.

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that average. From that time on, the 1921 average hovered close to that of the pre-war period, sometimes touching the latter and at other times only slightly above it, until the third week in November, when it fell below the pre-war average and remained so to the end of the year.

Opinions may differ as to what the above situation indicates with regard to the cattle industry of the country. There seems to be little doubt, however, that range herds have been seriously depleted and that the large cattle producers will, for some time to come, face a serious problem of restocking.

Serious inroads on the great breeding herds in Texas, which occurred during recent drouth years and which were followed almost immediately by severe and sustained liquidation made necessary by financial conditions, were largely responsible for a shrinkage of approximately 57 per cent in 1921 cattle receipts at the Fort Worth market as compared with receipts at the same market during 1918. A shortage of cattle in the great Northwest was indicated by the decreased arrivals at such markets as Chicago, St. Paul, Omaha and Sioux City.

Shrinkage in importations of Canadian cattle, due partially to the tariff duty imposed, was an additional factor which contributed to decreased receipts at some of the markets located near the international boundary. In fact, it was not until late in the season, when financial relief materially broadened the demand for stocker and feeder cattle, that any appreciable number of Canadian cattle were imported.

There was little activity in stocker or feeder trade until late in the summer, when assurance of an abundance of cheap feed, easier money, and a growing conviction that cattle prices had about struck bottom broadened the investment demand. As a matter of fact, subsequent events demonstrated that the opinion regarding prices was not well founded.

Following the trend of market requirements for lighter carcass beef, stocker and feeder demand switched strongly from heavy feeders to light cattle and even calves, with the result that an unusually large percentage of calves and many light, and often common stockers went back to the country.

Indicative partly of the growth of the dairy industry, but to a considerable extent signifying liquidation of beef herds, calf receipts were approximately 2.5 per cent greater than during 1920, despite a shrinkage of 11 per cent in receipts of cattle.

Hogs

Hog prices during 1921 followed a course, in most essential respects, paralleling that of cattle prices. The yearly average for 1921 was \$5.68 under that of 1920 and was 64 cents per 100 pounds above the pre-war average for the five years 1910-1914.

During the third week of April, 1921, prices dropped to within three cents of the pre-war average and during the first week of May to within one cent of that average. Early in June prices dropped slightly below the pre-war average and hovered around that point for nearly a month, but fairly sharp advances which culminated during the first week of August were followed by a rather precipitous decline which, by the first week of September, brought the price back to and below the pre-war average. From that time to and including the week ended December 24 the price remained below the prewar average.

Average hog prices reached the highest point during the second week of March, when the average of bulk of sales at Chicago was \$10.50 per 100 pounds. The lowest point of the year was reached during the third week of November, when the average price was \$6.76. Despite the fact that an abundance of relatively cheap corn was available during most of the year, the average weight of hogs at Chicago during 1921 was three pounds less than for 1920.

The preference for lightweight animals applied to hogs as well as cattle and as a result lightweight hogs and pigs sold at a premium practically throughout the year. At one period in August lightweights on the Chicago market sold \$3.50 per 100 pounds

above heavy packing sows.

While total receipts of hogs at all markets for 1921 were only 2.6 per cent less than during 1920, variations in production and marketing were not evenly distributed throughout the country. There was, for example, a rather marked shortage of hogs on the Pacific coast which resulted in considerable numbers being shipped from Kansas City to California points, and from the more northern markets to the Pacific Northwest. Increased losses of hogs from disease undoubtedly were largely responsible for curtailed marketing from certain sections.

Sheep

The sheep and lamb market during 1921 was, to a certain extent, a law unto itself. This was particularly true of lambs. While the yearly average of prices for 1921 was \$5.66 lower per 100 pounds than the 1920 price, the lamb market during a greater part of the year showed strong powers of recuperation, and after the middle of February every decline was followed by a fairly sharp advance. After the low point reached late in August, the market advanced rather steadily to the end of the year and prices for the week ending December 24 were only \$1 under those of the first week of the year.

The sharp decline which occurred during the first six weeks of 1921 constituted a continuation of the steady downward movement which began at the close of January, 1920, when the weekly average price at Chicago reached the high point of \$20.80 per 100 pounds and culminated during the third week of February, 1921, when prices touched \$8.13. When that great general movement finally came to an end the market resisted strongly and successfully any further efforts toward sustained depression.

The lamb market differed from that of cattle and hogs in that at no time did lamb prices touch the pre-war average. The yearly average price for 1921, while \$5.66 under that of 1920, was still \$2.62 over the pre-war average for the five years 1910-1914 in spite of the fact that receipts of sheep and lambs at all markets during 1921 were approximately 629,000 head greater than during 1920.

While sheep prices showed a similar resistance to depressing influences and followed the same relatively steady trend as did lamb prices, they differed from the latter in that the great downward swing which began early in 1920 and culminated near the close of that year carried sheep prices below the pre-war average during the last week of 1920. Throughout 1921 sheep prices fluctuated very close to the pre-war average, being below that average about as much of the time as above. The yearly average price of mature sheep for 1921 was \$4.33 per 100 pounds lower than that of 1920 and was only 12 cents above the average of the five pre-war years.

While the continued heavy receipts of sheep and lambs at public stockyards throughout the year 1921 would seem to indicate a continuation of liquidation, the sharp upturn of lamb prices during the last six weeks of 1921 may carry to the sheepman a ray of hope of better times to follow. That there is an increasing demand on the part of the consuming public for lamb as food seems indisputable and this would seem to be borne out conclusively by the fact that despite the general industrial depression of recent months and the relatively high price at which lamb sells compared with most other fresh meats, together with increased supplies available, lamb prices have been maintained well above the pre-war level.

SHORT COURSE DAIRY MEETINGS

Short course dairy meetings were held the past two weeks in Imperial, San Diego, Orange, Riverside, San Bernardino and Los Angeles Counties. Drs. Frey and Keefe of the state department of agriculture, Prof. Castle of the U. S. department and Secretary-Manager Greene of the California Dairy Council were the speakers. It is planned to hold these meetings annually.

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In principle, construction and operation the De Laval Milker is as simple as A. B. C.

Nothing could be more logical or simpler than the way it works—in complete harmony with the cow and in full observance of the principles of milk secretion.

Think of the most skilful hand milker you know—one who has the knack of getting more milk out of cows than any other—and you will get an excellent idea of how it works; with this difference—that it enables one man to milk from two to three times as many cows, never gets tired, and is as regular and uniform in its action as the tick of a clock. Every unit, no matter if there are a dozen, always works at exactly the same speed. Naturally with such milking cows do better and their udders are kept in much better condition.

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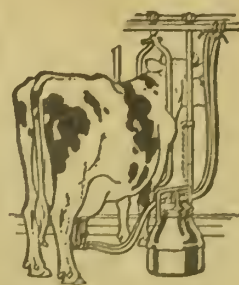
one moving part and never requires oiling. The entire outfit is thoroughly reliable.

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Monday, 27th. Auction Sale, 30 Berkshire bred sows and gilts. Choice animals from leading herds in Iowa, Indiana, Ohio, Pennsylvania and other Eastern States will be offered at your price at your own door.

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\$650 in premiums, besides large number of silver cups. Visit the Orange Show. Come and meet your Eastern friends and compare Eastern and Western hogs.

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You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now. Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs. of butter in 7 days, included in this offer. Call or write at once.

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HOLSTEIN *Fred Hartsock* **CATTLE**

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsock, Lankershim, California.

Condition of the Cattle Industry in the Ranch Country

From Address of Fred H. Bixby, President, American National Livestock Association



THE conditions are most deplorable, the reasons being, first, high cost of production and the high cost of marketing. This resolves itself into the high salaries, high prices of feed, high cost of materials and excessive freight rates, to say nothing of too high commission charges at the central markets.

Second, in some of the western states we have dry years, and a number of states were subjected to blizzards and exceptionally bad weather conditions.

Third, the decrease in consumption caused: first, by the inauguration of the meatless days during the war; second, by the high retail price; third,

by the propaganda of other industries against our commodity.

Fourth, lack of export trade. There is no export trade and there isn't much chance that there is going to be in the immediate future.

Fifth, the period during the war was "open season" for the cattle loan companies. They loaned a great amount of money on too high a valuation and in some cases on a very poor appraisal, consequently when the drop came these loans were called, and the forced liquidation following resulted in flooding the markets in many cases with half fat cattle instead of prime cattle.

Sixth, there was no money available for the financing of feeders or for the financing of the people purchasing the yearlings and feeder cattle, the psychology of it being absolute depression and lack of confidence among the cattle producers of the west.

My opinion of the remedies for the present situation would be, first, a reduction in the overhead which we have partially accomplished.

Second, the season in the west is apparently going to be an exceptional one and the spirit of the cattlemen will be revived.

Third, the insistence by the producers that the retailers curtail their profit, as it is a certainty that they are the profiteers in the meat business, or that they are handling their end of the business in an uneconomical manner with the result that meat consumption decreases.

In our endeavor to "put over" this plan of an increase in the consumption of our commodity we are forming a committee consisting of producers, packers, commission men, and retail men to start in the immediate future an "Eat More Meat" campaign.

Fourth, the War Finance Corporation has come to our assistance in a wonderful manner. The cattle breeders, or cattle producers, are enabled to produce money at seven and one-half per cent for a term of three years. It is the opinion of the cattle producers that the term is too short and perhaps the interest paid slightly excessive. Our business should be able to borrow money at the same rate as any other industry.

Fifth, there has been a slight reduction in freight rates, but it is

impossible for an industry to receive less than pre-war prices for its commodity and pay double the transportation charges it paid before the war. We are vitally opposed to what is known as the "guarantee clause" of the railroad companies.

Sixth, relative to the attitude of the commission men at the central markets who have been requested to reduce their commission charges in accordance with the prices which the producers now are receiving at the markets for their cattle, we are insisting that these commission charges be commensurate with the pre-war prices that we are getting for our

announced by Professor Woll and the prizes presented by Professor Gordon H. True.

Friday morning at 10:00 a.m. the men who won prizes in the dairy cow competition will tell how their cows were fed and handled. Following this Noel Negley, formerly cow testing association specialist of the U. S. dairy division, who is operating a dairy farm in California at the present time, will talk on "How to Use a Cow Testing Association." J. W. Coppini, one of the leading Jersey cattle breeders in the state, will use as his subject, "A Pure Bred Dairy Sire at the Head of Every Herd." A dis-



Won Over Five Other Colleges

Winners of "Cattle Loan Trophy" at Portland. These are all but one California boys and represented U. C. They are, reading from left to right, standing: J. M. Rutherford, Santa Barbara, (alternate); Chas. A. Reeves, Pomona; Albert H. Powers, Marshfield, Oregon; Clarke J. Burnham, Berkeley; Philip J. Webster, San Diego. Sitting: Sam Bell, Whittier; E. H. Hughes, University Farm, Davis, (coach).

cattle. We are insisting that the commission firms go back to their regular pre-war schedule and instead of opposing the recently enacted legislation known as the "Haugen Bill," that they come in with us, and with the packers, to the end that we will carry out this legislation successfully and justly to all concerned and be of the proper assistance to our secretary of agriculture.

Seventh, we are very much in favor of the cooperative commission houses now in existence in some cases at the central markets. We are in favor of having more of such commission houses started.

The cattle producers in the west are unalterably opposed to the transfer of the forest service from the department of agriculture to the department of the interior. We have the greatest confidence in Secretary Wallace and hope that when the time comes for federal leasing of the unappropriated public domain it will be handled as well as the bureau of forestry has been handled.

DAIRYING EMPHASIZED DURING STOCKMEN'S WEEK

The dairymen will be given two days and one night for their program during Stockmen's Week at the university farm, Davis, February 20-24.

Starting at 11:00 a.m. Thursday, February 23, a preliminary report of "Feeding Sunflower Silage to Dairy Cows" will be given at the dairy barn, where an experiment is in progress to study the value of sunflower silage as compared with corn silage as a feed for dairy cows.

The afternoon will be taken up with meetings of the dairy cattle breed associations. These meetings commence at 1:00 o'clock. The California Jersey Breeders' Association, California Guernsey Breeders' Association and California Ayrshire Breeders' Association have requested that this time be set for their meetings.

A well balanced program is announced for Thursday evening. B. H. Rawl, former chief of the dairy division, bureau of animal husbandry, U. S. D. A., now with the California Central Creameries, will discuss "Ways and Means of Increasing Dairy Production." S. H. Greene, secretary of the California Dairy Council, will outline "A Simple Program of Progress for the Dairy Industry of California." The results of the "Second California State Dairy Cow Competition" will be

cussion will be led by Professor C. W. Rubel, of the extension division of the University of California. Professor Woll will explain the state register of production for grade cows. Dr. G. H. Hart of the veterinary division, University of California, will discuss "Contagious Abortion in Dairy Cattle."

Immediately after lunch at 1:30 p.m. a sale of pure bred dairy bulls will be held. It is hoped that the dairymen will arrive at the university farm in time for the California stockmen's banquet at 6:45 Wednesday evening, February 22.

LIVESTOCK NOTES

The condition of livestock, pastures and all growing crops has been adversely affected by the unseasonably cold weather of the last two weeks of January. Freezing temperatures occurred January 19 in Northern California, extending throughout the state, January 20, 21 and 22, and resulting in the heaviest damage in the southern citrus districts that has been experienced since 1913. Moderately heavy rains fell in southern California January 29-30, and light rain and snow in central and northern California. Farm work as a rule is light with a supply of farm labor reported sufficient.

Reports on pastures all reflect a retardation of growth due to the cold weather, but the supply of grass appears to be sufficient except in some of the higher valleys, where pastures are snow covered. Livestock generally is apparently not in quite so good condition as at the beginning of the month. Lambing for the state is reported to be about one-half completed, and while conditions during the past two weeks have been generally unfavorable, no serious damage to the lamb crop has been reported.—E. E. Kaufman, Agricultural Statistician.

MOUNTAIN HOUSE CENTER ACTIVE

On Thursday, January 26, Farm Advisor Russell T. Robinson and Dr. Robert Jay, swine expert, U. S. bureau of animal industry, gave a demonstration in the use of serum for the prevention of hog cholera. It was well attended by an interested group of ranchers of the Mountain House section.

In the evening Mountain House Center of the Alameda County farm

HEREFORD BULLS IN CARLOAD LOTS At Public Auction

Tuesday, February 21, at 1 P.M.
University Farm, Davis, Calif.

This sale affords the first opportunity in California for buyers of range bulls to buy them in groups suitable for the carload buyer.

There will also be at least 20 bulls sold individually, to take care of the buyer who wants only one or a few head.

There will also be about 25 cows and heifers of good breeding for the man who wants to increase his she stuff.

Every Animal Registered,
Transferred Free of Charge,
Guaranteed a Breeder, and
Tuberculin Tested.

These choice registered Herefords are consigned by fifteen leading Pacific Coast breeders under auspices of

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Ayrshire Cattle **OG RANCH** Buellton, California

Twenty head of high grade Ayrshire heifers bred to pure bred bull.
Ten head of high grade cows, seven-eighths or better. Good milkers.
For sale at reasonable prices. Apply C. G. Lamb, Supt.

bureau met with an attendance of about 30. A committee was appointed to look after the marketing of alfalfa and grain hay from this region. It is the intention to connect with dairy-men in this and Contra Costa Counties and sell direct to them either in truck-load or carload lots.

A committee made up of men residing in the district a number of years will advise with prospective settlers regarding land values, the idea being to acquaint them with the producing value of the land. It is hoped in this way they can eliminate the practice of selling land at a figure such as can only result in bankruptcy and deserted farms, for men with limited means.

BERYLWOOD HERD GETS COAST'S HIGHEST RECORD HOLSTEIN BULL

One of the most notable transactions ever negotiated in Holstein circles was closed February 4 when J. W. Snodgrass, acting for the Berylwood Stock Farm, Hueneme, purchased from the A. W. Morris and Sons Corporation, Woodland, the 15-month old son of Sir Aaggie De Kol Acme and Aralia De Kol Mead 2d. The purchase price has not been made public but is known to have reached five figures.

In the selection of this young bull the Berylwood Stock Farm has the distinction of owning the highest record Holstein bull on the Pacific Coast and it is confidently expected that when his dam completes her year's record that he will take the first rank among the bulls of the breed. As noted, the sire of Prince Aaggie of Berylwood, the name selected by Mr. Snodgrass, is Sir Aaggie De Kol Acme son of the famous Aaggie Acme of Riverside 2d, whose strictly official yearly record of 1,331.70 pounds of butter is a world record. His dam, Aralia De Kol Mead 2d, a daughter of Aralia De Kol Mead, promises to

take high rank among the leading producers in Morris' great herd. As a junior two year old she hung up a 365 day record of 851.01 pounds butter and 18,785.16 pounds milk; as a four-year-old she came through with 886.16 pounds butter and 21,217.2 pounds milk in 305 days. After freshening last December, at which time she gave birth to twin heifer calves, she made 36.53 pounds butter and later increased her seven-day record to 37.12 pounds butter from 563.7 pounds milk. It is expected that she will finish her year with more than 1,000 pounds butter.

A study of the pedigree of Prince Aaggie of Berylwood discloses the fact that his seven nearest dams average slightly over 1,120 pounds butter, a higher average production than is credited to any Pacific Coast bull and which is only exceeded by his 100 per cent brother, Sir Aaggie Mead De Kol, sold by the Morris' to Arfmann and Amos of New York for \$11,000.

Another fact of impressive interest is that five of his seven nearest dams have proven their transmitting qualities by producing 1,000 pound daughters. The sixth dam has an 885 pound four year old daughter that has 954 pounds to her credit as a mature cow. The seventh dam, his own, is too young to have acquired producing daughters but as she has three daughters under milking age it is certain that she will be able to boast of at least one 1,000 pound daughter. Furthermore, five of the seven dams have each produced over 2,000 pounds of butter in two consecutive years and the sixth one has 1,862.88 pounds in two years.

In speaking of this sensational youngster, Frank Morris pointed out that he believed that there were not over eight instances of three generations of thousand pound dams and that when Aralia De Kol Mead 2d completes her year that three cases will appear in his pedigree. Besides being a 100% brother to Sir Aaggie De Kol Mead, Prince Aaggie of Berylwood claims a three-quarter relationship to King Korndyke Pontiac Acme, the \$41,000 bull at the head of the Santa Anita herd, and a like relationship to the \$9,250 Sir Aaggie Mead owned jointly by W. J. Higdon and F. S. Borrer of Tulare. The dam is a full sister to Aralia De Kol Pontiac Mead that has just completed a yearly record of 1,065.43 pounds butter.

By the purchase of this crack bull Mr. Snodgrass has at once placed the Berylwood herd in the front rank of California Holstein establishments. Few bulls have ever entered a herd under more favorable circumstances as the Berylwood herd has around 70 head of well bred females waiting for his immediate services. California breeders will watch this herd with the keenest interest and many are already predicting that with such a richly bred bull in service that the results can be looked forward to with complete confidence.

Southern California is particularly fortunate in having added to the already formidable list of high record sires in service this great youngster, and breeders in that section now have available what is undoubtedly the greatest lot of high record bulls owned in any one section of the world. Not the least interesting fact in connection with this transaction is the announcement of Mr. Snodgrass that the services of Prince Aaggie of Berylwood will be available to the members of the Ventura calf club that he was instrumental in organizing and which is being carried on largely under his direction. It is entirely correct to say that no calf club in America has the advantage of such breeding.

For the past several months Prince Aaggie of Berylwood has been used in the herd maintained at the university farm, Davis, and a number of the institution's best cows are safely settled to his service.

80 SHORTHORNS CATALOGUED FOR SALE

Entries for the annual sale to be held at Davis during Stockmen's Week at the university farm have been closed by the California Shorthorn Association. The sale will be on Wednesday, February 22. Among the entries are several of the prize winners in the bigger shows of last fall's circuit.

Howard Vaughn of Dixon, sales manager for the association, writes regarding the sale as follows:

"The bulls are all between the ages of 11 and 30 months. There are no old stale bulls and only a very few that are not old enough for immediate and heavy service. Some of these bulls are as well bred as any Shorthorns in the United States, and are in condition to appeal to men who want high class herd sires. There are a number in the sale that are from good sires and dams but have not been highly fitted and are in excellent condition to turn on the range. There will be eight groups of bulls of from three to five head each which will be sold together, so that range men may be better assured of getting the number they may want.

"In making the arrangements for this sale we have been very much surprised to find how few really good purebred bulls there are for sale in California this spring. The officers of the association thought they would have 150 to 200 bulls offered for sale. We have found, however, that there are actually not over 100 head of purebred Shorthorn bulls of serviceable age on the market now, and two-thirds of them have been consigned to the association sale to be held in Davis.

"This condition of affairs indicates two things: First, that those men who desire to purchase purebred bulls this year will find it almost imperative as well as exceedingly profitable to attend the Davis sale; and, second, that the limited supply of purebred bulls indicates a great opportunity for the starting of new herds of purebred cows to produce a good class of bulls to supply the inevitably increasing demand in the near future."

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Herefords

February 21, Pacific Coast Hereford Breeders' Association, University Farm, Davis.

Shorthorns

February 22, California Shorthorn Breeders' Association, University Farm, Davis.

Poland Chinas

February 24, California Poland China Breeders' Association, University Farm, Davis.

Berkshires

February 27-28, American Berkshire Congress Show and Sale, Riverside.

Roma Duchess Korndyke Alcartra, owned by the J. S. Gibson Company, Williams, recently completed a seven day record of 31.15 pounds butter in seven days. She is by Prince Alcartra Korndyke, the oldest son of Tilly Alcartra.

C. S. Howard, Willits, owner of the Ridgewood Ranch, reports a sale of six Herefords to Wm. G. Henshaw, Eden Valley.

The California Cattlemen's Association is preparing for an intensive campaign for membership. Secretary Robert will have charge of the drive in the southern part of the state.

Mais Brothers of Long Beach, Los Angeles County, announce that their recently formed Glen Ivy Holstein herd is not yet an exceptionally large one but promises to be great in accomplishment because of fine foundation stock.

L. W. Bardsley, Tulare, will disperse his entire herd of registered Holsteins on March 14, on account of pressure of other business and the large share of his time taken by his duties as a supervisor of Tulare County. While no official testing has been done in the herd it is a group of good producers and is headed by an excellent yearly record son of King Mead of Riverside.

W. J. Higdon, Tulare, celebrated his return to milking his own test cows by making a 31.40 pounds seven day record on the senior three year old Johanna Gelsche Walker, a daughter of Prince Gelsche Walker, with a milk yield of 504.9 pounds. It may be remembered that Mr. Higdon purchased this heifer in the C. W. Anderson sale at Burbank in June, 1920. The daughters of King Korndyke Pon-

tac 20th are coming on in excellent shape, but none of them are to be crowded on seven day test and will be given 305 or 365 day records.

Germain's FIELD SEEDS GROW in California

Why?

—because no strain is offered for sale

until it has been thoroughly tested and tried out under California growing conditions.

We make a specialty of fancy, re-cleaned, purebred, high-germination, true-to-type field seeds. A half century of intensive specialization is back of every pound you buy.

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THE CUTTER LABORATORY
The Name "Cutters"
on Serums, Vaccines
and Aggressins signifies, Made by The Laboratory that Knows How. Twenty-five years of conscientious endeavor in one line count for something.
The Cutter Laboratory
Berkeley (U.S. License) California

Red Top GUARANTEED Steel Fence Posts

YES, there can be improvements even in fence posts! You don't have to break your back digging post holes these days; get RED TOPS—they drive like a stake.

But that isn't all; they don't burn, rot or buckle; they make a strong fence line that lasts for years. They hold the staples. Practically eliminate repairs and upkeep.

And they actually cost less in the fence line than wood or concrete posts. Made in angles and tees.

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giving all the facts

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Los Angeles, Cal.

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For years Stover Samson windmills have been famous for long service. NOW that we offer them HYATT Roller Bearing Equipped they stand without a rival. Noiseless. Oil-less. Turn when other mills are standing still. Write us TODAY for FREE windmill booklet.
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NOWHERE is the need for reducing the cost of production more urgent than in the case of the great staple crops *Corn, Grain, Hay*. These have always been low value per acre crops. Their labor cost factor is high. A double yield per acre involves but little additional labor.

Fertilizers are the direct means to increase yield. For the best results, fertilizers must be properly balanced.

One-sided fertilization spells soil exhaustion. Balance the fertilizer with 5 to 10 per cent. of Potash. There is plenty of it now.

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H. A. HUSTON, Manager

42 Broadway New York

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Planet Jr.

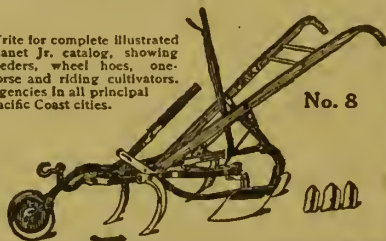
No. 8 Planet Jr. Horse Hoe and Cultivator is one of the most useful, popular horse hoes we make. Its extra length and stiff construction give it steadiness. Works quick and close, saving hand work. Adjustable to all widths. Hills or throws from the row. Has solid, non-clogging depth wheel with lever.

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Our section is one of the warmest and best protected from wind of any in Southern California. Let us show you now.

Ideal conditions for avocado, citrus and winter vegetables. Beautiful homesites.

BUY NOW FOR SPRING PLANTING, OR WE WILL PLANT AND CARE FOR ORCHARDS. SPECIAL TERMS TO THOSE WHO IMPROVE.

Any acreage desired. Low prices. Reasonable terms. Send for descriptive folder.

Also specialize in Hillgrove Townsite, North Whittier Heights property, and in other choice walnut and citrus properties.

Edwin G. Hart Developer and Exclusive Agent for North Whittier Heights Main 2606 727-731 Van Nuys Building Los Angeles

Directions for Making Alum Tanned Lace Leather



THESE directions for making alum tanned lace leather are issued by bureau of chemistry, United States department of agriculture, in response to numerous requests from farmers for information that will help them utilize their hides, since they are offered for them but half as much as before the war and are charged double pre-war prices for leather. Directions for making other kinds of leather are in preparation but not yet available.

These directions have been drawn with care to adapt them to the farmer's facilities and on the assumption that he is inexperienced in tanning.

Study and understand the directions, have ready all supplies and equipment called for, and have your plans made before starting. Follow directions carefully and if you find that you do not thoroughly understand any part, or if you have trouble working the directions, or if you make a poor leather, write to the bureau of chemistry telling at what stage you had difficulty, stating fully just what the difficulty was, and send also a piece of the leather.

Lace leather should be made from good, sound hides, preferably steer hides. The weight of the hides used may vary from 20 to 40 pounds, depending upon the thickness of leather desired.

Hides must never be allowed to freeze, nor heat. Tanning operations, unless otherwise specified, should be carried out at a fairly uniform temperature. A cellar where the solutions can be kept fairly warm in winter and cool in summer is a suitable place.

Slaking Lime

Place about six pounds of burnt or caustic lime in a clean wooden tub; add about a quart of water, and as the lime begins to slake, add more water, a little at a time, to keep the lime moist, but do not pour in water enough to quench the slaking. After the lime is apparently slaked, stir in a gallon or two of clean water. Do all this just exactly as you would make whitewash. Slake the lime the day the soaking is started, and keep the tub covered until used. If burned lime is not available fresh hydrated lime (not air slaked) may be used. In this case stir eight pounds of hydrated lime into a barrel of water and proceed as directed under liming.

Soaking and Cleaning

If the hide has been salted, shake thoroughly. Spread the hide out hair side down, cut off the tail, and trim off the head, ears and ragged shanks and edges.

Place the hide, hair side up and lengthwise on a log or board and with a sharp butcher knife cut it from nose to tail down the backbone into two "sides." It will be found more convenient in subsequent handling, when the hide is large, to split each side lengthwise into two strips. The back strip will make the better leather and should be about twice as wide as the belly strip.

Fill a barrel with clean, cool water. Place the strips in the barrel and soak for two or three hours, with frequent stirring to soften the sides and loosen and soak out the blood, dirt, manure and salt. Take the strips out of the barrel and place one at a time, hair side up, on a very smooth slab, log, or a thick planed board, from one to two feet wide and six to eight feet long, one end of which rests on the floor and the other extends over a box or trestle about two and a half feet high. Scrub off all dirt and manure and wash off with several buckets of clean water.

Turn the strip over, flesh side up, and carefully cut off most of the meat or flesh. Now go over the entire flesh side with the back edge of a drawing or butcher knife, holding the knife by both ends, pushing it away from you hard against the strip, and wash off with a bucket or two of clean water. This working over should always be done. Refill the barrel with clean, cool water, put the strips back, pull up and stir frequently until they are soft and flexible. A green hide usually should not remain in the water more than from 10 to 20 hours,

and a green salted hide not more than 20 to 40 hours.

When the strips are properly softened throw them over the slab or board and carefully scrape off all remaining flesh or meat with the back edge of the drawing or butcher knife. It is of the greatest importance to remove all of this meat. When it can not be scraped off, cut it off, but be very careful not to cut into the hide itself. Even though there appears to be no flesh to take off and nothing appears to be removed, it is necessary to thoroughly work over the flesh side in this way with the back edge of the knife. Finally wash off with a bucket of clean water.

Liming

Empty and rinse the barrel in which the soaking was done, pour in the slaked lime, and nearly fill the barrel with clean, cool water, and stir thoroughly. Hang each strip, hair side up, over a separate piece of rope, and suspend in the lime water. Fasten the ends of the ropes to the barrel so that the strips are entirely covered by the lime water, and cover the barrel with a bag or board. Pull up the strips and stir the lime three or four times each day until the hair will rub off easily from all parts of each strip. This will take from five to eight days in summer and from six to 16 days in winter.

When the hair comes off easily throw the strips, hair side up, over the smooth slanted slab or board, and with the back of a drawing or butcher knife, held nearly flat against the hide, push the hair off. If the hide is sufficiently limed, a curdy or cheesy layer of skin rubs off with the hair. If this layer does not thus rub off, the strips must be returned to the lime water. After removing the hair, put the strips back in the lime for another day or until any fine hairs that may remain can be easily rubbed off. Work over the grain or hair side thoroughly with the back of the knife to "scud" out as much as possible lime, fat or dirt. Turn the strip over and do the same thing, making sure to remove any meat that may be yet on the hide. Then throw the strips into a wooden or fiber tub of clean, lukewarm water and let remain for from six to eight hours, stirring occasionally.

Drenching

Drenching is necessary to remove the lime which the hide still contains and to get it very soft and pliable.

Buy three ounces of U. S. P. lactic acid at the drug store. Nearly fill a clean barrel with clean cool water and stir the three ounces of lactic acid into it with a clean paddle. Take the strips out of the tub of water, throw them into the barrel of acid, and pull up and stir frequently for 10 to 12 hours or over night. Now work over or "scud" thoroughly both sides of each strip as is directed after liming, and put in a tub of cool clean water.

Lactic acid helps to make a softer leather but if it cannot be bought, use half a gallon of vinegar instead.

Tanning

While the strips are being drenched, thoroughly wash out the barrel in which the hide was limed. Place in it 15 gallons of clean water and 12 pounds of ammonia alum, or potash alum, and stir frequently until it is all dissolved.

Dissolve three pounds of washing soda (crystallized sodium carbonate) and six pounds of salt in five gallons of cold clean water in a wooden bucket. The soda crystals must be clean and transparent (glass like). Do not use white opaque lumps.

Now pour the soda solution into the alum solution in the barrel very, very slowly, stirring the solution in the barrel constantly. Take at least 10 minutes to pour in the soda solution in a small stream. If the soda is poured in rapidly, the solution will become milky, and it will not tan. The solution should be cool, and enough water should be added to nearly fill the barrel.

Hang each well washed strip, from the drench, in the alum-soda solution. Pull up the strips, and stir the solution six to eight times each day. (Do not put the bare hands in the liquor

if they are cut, cracked or have sores on them. The alum will make them worse.)

After six or seven days remove the strips from the alum-soda solution and rinse well for about 15 minutes in clean cold water. Drain on clean boards for half an hour, then hang up by one edge to dry in a moderately warm place free from drafts. Turn the strips every hour so that first one edge and then the other is up. If this is not done the lower edge may become cracky. Be sure not to let the strips dry completely and become stiff. If one part of the strip dries faster than another, which is especially likely to occur on the edges, moisten these drier places with water. While the strips are yet damp but have become somewhat stiff, about like a bridle or driving rein, but can be sharply bent without cracking, begin to work or "stake" them. That is, pull them vigorously back and forth lengthwise over the end of a small smooth board about two and a half feet long, six inches wide and one inch thick, fastened upright and braced to the floor or ground. The top end of the board must not be more than one-eighth inch thick and the corners must be well rounded. Pull the strip backward and forward, flesh side down, exactly as a cloth is worked backward and forward in polishing shoes. Do this vigorously but do not cut holes in the hide. The strips must be staked very thoroughly all over in order to make them pliable and soft. The more time given to the staking, the more pliable the lace leather will be.

The staking must be done in a clean place where the strips will not get dirty.

After "staking" lay the strips flat on a large, low table or on smooth boards, grain side down, and go over the flesh side thoroughly with the back of the knife, or better, with a piece of wedge shaped hickory about six inches square and half an inch thick at the head of the wedge. The narrow end of the wedge should be from one thirty-second to one-sixteenth of an inch thick and should be very smooth. Work the flesh side of the hide with this "slicker," holding it in both hands by the top and pushing away from you, to remove all adhering flesh and dirt. Turn the strip over and work the grain side also.

Melt together three pounds of tallow and one pint of neatsfoot, cod or fish oil, or if none of these oils can be had, use a "medium" automobile cylinder oil instead. While the strips are still soft and uniformly damp (if they are not damp at this stage, cover them in damp sawdust until they are uniformly moist all over, but not wet) rub a heavy coat of the melted grease mixture all over both sides of each strip. This should be done in a very warm place and the grease should be as hot as the hand can bear without discomfort.

Roll the greased strips together and keep in a very warm place for two or three days. Unroll and again "stake" thoroughly. If too dry and stiff to stake readily, cover with damp sawdust until soft enough. After drying, if the leather is not sufficiently soft and pliable, again apply "dubbin" to both sides exactly as before, and lay away rolled for two days. Again "stake" and then work over both sides with the hickory "slicker" to more thoroughly work in the grease and remove the excess.

The strips should now be very supple and pliable even after they are thoroughly dried out. If they are not, they must be vigorously and thoroughly staked all over and redubbed with oil only, staked and "slicked," until they remain soft and pliable. Thorough, vigorous staking of the nearly dry leather is absolutely essential to produce the desired softness and pliability. When dry, soft and pliable, the leather is ready for use.

JUST SO

During a discussion with his wife touching things domestic, Grouche Leigh delivered himself of the following:

"Marie, I have observed that she who makes a good pudding in silence is of greater worth than she who makes a tart reply."—Wayside Tales.

NEMATODES

By R. R. Snowden

The root knot nematode is a field pest now receiving much attention on the part of agricultural scientists because of its rapid spread in various parts of the country and great damage done by it to many crops.

Last season the writer made an experiment on sugar beets near Compton with the result that the plots receiving nitrate of soda were free from nematodes while the others were affected with them.

In the latter part of June a beet field in Utah was visited that was so badly injured by nematodes that the superintendent remarked that he would not get a 25 per cent crop. The writer believed there would be no crop at all so badly blasted were the plants, but on the strength of the Compton experience a few of these beet plants were fertilized with nitrate of soda in about five different parts of the field, the individual plants being carefully marked.

In the latter part of September the writer had occasion again to visit this field. Upon careful examination the roots of the plants receiving nitrate of soda were found to be about twice as large as the neighboring ones that had received no nitrate.

In view of the importance of the situation it certainly would be well to follow up every promise of relief from this destructive pest.

HECKE AT CONFERENCE

George H. Hecke, director of state department of agriculture, recently returned from the Washington conference, considers it was an epoch making meeting. He says:

"It seems likely that the recent national conference at Washington will merely be the forerunner of similar conferences to be held each year in the future. It is felt that this is the significant feature of the national conference just closed in Washington, which, while important in itself, is especially so because it marks definite

policy on the part of the national administration to take the working farmers and fruit growers into its confidence in the establishment of its agricultural policies. Resolutions were passed and presented to congress for consideration on many matters of national importance and I feel that much good will result on account of these deliberations."

RECORD SHIPMENT OF CALIFORNIA ROSE BUSHES

The largest single shipment of rose bushes from California to the East has just been handled over Southern Pacific lines via New Orleans. Moving in four special cars, the shipment, weighing 129,360 pounds, from Montebello to Riverton, New Jersey, arrived at its destination in 12 days. To prevent damage to the bushes from low temperature while in transit, heaters were placed in the cars, which were accompanied by a shipper's representative.

SEED TESTING NOW AT SACRAMENTO

The state seed laboratory on the first of January was transferred from the state university at Berkeley to Sacramento, where it will be conducted under direction of the state department of agriculture. The laboratory will be under direction of W. S. Wilkinson, who was formerly with the state university. The primary purpose of the laboratory is to standardize agricultural seeds as to quality and see that they are properly labeled.

CAULIFLOWER SEASON BEGINS

With a shipment of 501 crates of cauliflower from the Ventura district to Seattle, the California season for this product has begun. Southern Pacific officials estimate that the 1922 crop will total approximately 1,900 cars as against 1,600 cars in 1921.

Pinches of sodium fluoride in the feathers will rid a hen of lice.

PINE FLAT FEASIBLE

Based on crop values, says the Fresno chamber of commerce, the Kings River is the most important irrigation stream in America, and the execution of the Pine Flat storage project will double its efficiency. This is, in brief, the finding of the special board of engineers which has been working for some months on the feasibility of one of the greatest irrigation schemes yet attempted.

The project is not only feasible but highly desirable, state the engineers. The estimated available water supply from the Kings River for the district is two million acre feet annually. The mean annual diversion by canal now is about 1,400,000, leaving an effective storage capacity in the reservoir of 600,000 acre feet.

Preliminary estimates place the cost of the scheme at \$20,000,000, including \$12,000,000 for the building of the Pine Flat dam and reservoir, \$5,000,000 for a power plant with a capacity of 90,000 kilowatts and \$3,000,000 for a large pumping plant.

The proposed dam at Pine Flat would be 320 feet high and would hold 620,000 acre feet of water. It is estimated that an income of \$720,000 could be made from the sale of surplus power above that required for pumping.

CLEAN GRAIN FOR SEED

There is no single farm operation so easily and cheaply done which gives larger returns than the thorough cleaning and grading of all seed sown. Besides cleaning out the weed seeds the light weight seeds are taken out when the job is properly done, thus preventing the reproduction of the poorer plants. This practice carried on year after year permits the increase of the best and kills out the poorest. Thorough cleaning and grading of all seeds planted is the first step toward a successful crop. There is no time like the present to put the seed in proper shape for planting.

Irrigation Type

Irrigation service calls for motors that will not falter even under the most trying conditions. U. S. Motors are designed particularly for irrigation duty. They are 40 degree motors, and will operate continuously in torrid temperatures, assuring reliable power at all times.

Western Made for Western Trade

These motors are a Pacific Coast product, designed by electrical engineers who know at first hand the peculiar conditions of each locality on the coast. Every purchaser is assured of quick factory service when required and our service department stands ready at all times to assist you. Prepare now for the coming irrigation season. Request literature.

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U. S. ELECTRICAL MFG. CO.

Largest motor builders in the west since 1906



Advise With Our Electrical Engineers

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The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4½ cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Baby Chicks: When you buy baby chicks the big thing for you to remember is QUALITY, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. ORANGE COUNTY HATCHERY, Santa Ana, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. VENTURA: First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the Vineburg Hatchery. All baby chicks guaranteed safe delivery. Vineburg Hatchery, Vineburg, California.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

White Leghorns: Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.

February Chicks Pay Well—Ask for our Circular and Special Letter about them. White Leghorns, Brown Leghorns, \$15 hundred; R. I. Reds, Barred Rocks, Black Minorcas, \$18 hundred. Quality the best. Prompt service and reasonable prices. The Mission Hatchery, Box 17, Campbell, California.

Baby Chicks from the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. The White Leghorn Hatchery, Pomona, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.

Baby Chicks from 227 egg strain of heavy winter laying S. C. White Leghorns. Book your order now for 1922 delivery of guaranteed chicks and hatching eggs. Pullets and breeding stock. Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live, vigorous chicks guaranteed. Prices on request. Reliable since 1898. MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.

Baby Chicks "well hatched are half raised." Petaluma Incubators produce that kind. They have lots of "Pep." We supply chicks. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Barred Plymouth Rocks, "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2.

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. Pause Pheasantry, Fair Oaks, California.

POULTRY

Baby Chicks—Are you looking for chicks that will grow into good layers? We have been supplying this kind to our customers for several years. All our Hatching Eggs are from carefully selected Hoganized stock. Our record of 1918 eggs from 10 Rock pullets for 12 months proves that our Rocks are the best bred-to-lay stock in the West. Customers report Reds laying at 4 months and 15 days. Write us at once for dates; or better still, send in your order, as we are heavily booked for 1922. Every Sunday we have a hatch of Rocks, Reds, Anconas, and White Leghorns. Prices for chicks delivered, Parcel Post: Rocks, Reds, Anconas, 25-35; 50-100; 100-200; 500 Reds, 90; Leghorns, 100-116; 500-775. Circular free. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guineas \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

Our Prices Are Right For

SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? White Leghorns Only—the laying strain.

Custom Hatch—2c per egg

We have the capacity for you.

STEELE'S EGG RANCH

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BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Penn's Quality Barred Ply. Rocks and Ferris heavy-egg-type White Leghorns. Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. GOLDEN RULE POULTRY FARM, Porterville, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 188A, Sunnyvale, California.

For Sale: Thoroughbred Single Comb Black Minorca cockerels and one rooster. C. E. Schwab, San Fernando, Cal.

Brown Leghorn Eggs: Superior egg stock. Write for leaflet. Dunroven Farm, Rte. 2, Santa Cruz, Cal.

Light Brahma Eggs for hatching, \$2.50 per 15, large stock. J. M. Sigler, Puente.

POULTRY

NOTICE

Note the similarity of the names, Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from 1921 record pen. Sittings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.

Capacity 200,000—For 20 years superior, reasonably priced chicks from our 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, ducks, turkeys have supplied foundation flocks and filled repeat orders for hundreds. Reasons: Electric hatched, vigor, size, winter-laying, profit. Book February below pre-war prices, for delivery any week. Most weeks open for 10,000. Profitable Poultry, 13 N. Fair Oaks, Pasadena.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 13 years of trapnesting for vitality and high production. None better anywhere. Circular free. Bonnie Brae Farm, Burbank, California.

Parks P. R. Pedigreed Cockerels and eggs for hatching (230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. E. B. Williams, R. D. No. 2, Fillmore, California.

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Beautiful R. I. Red and Brown Leghorn prize stock. Eggs, per setting, \$2.00 to \$5.00 per 15. Fertility guaranteed. Persian Kittens from prize stock. Mrs. Eva V. Conklin, 1445 Portola Avenue, Los Angeles, California. Phone Garvanza 3034.

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. S. H. Evans, Chowchilla, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

Ancona Hatching Eggs—Select laying stock. Mated for heavy egg production. Settings or hundreds. Write for mating list. R. Baugh, 3534 Allendale Ave., Oakland, California.

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Baby Chicks—White Leghorns from our own stock, well selected and Hoganized. We are taking orders now for spring delivery. Garcia & Sarich, R. F. D., Box 346, Sonoma, California.

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Light Brahmas—A few young cocks. Setting eggs, \$5.00 per 15. Keys Ranch, El Monte.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs—Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harold, Dixon, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

Big Type Durocs—Better Durocs at right prices. Harvey M. Berglund, Dixon, California.

BERKSHIRES

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal.

Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-768 768 So. San Pedro Street, Phone Bdway 5401. Los Angeles, Calif.

SEEDS AND PLANTS

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Cory's Thornless Blackberry—Selected, well-rooted tips, \$2.40 per dozen, \$15.00 per 100, \$120.00 per 1,000. 50 at 100 rate or 500 at 1,000 rate. Black Zante Currant Grape (Pararit), heavy 2 year old vines, \$5.00 per 100. Packed free. Sylvan Nurseries, Lincoln Highway, Roseville, California.

For Sale—500 pounds Klondike Water-melon seed, best brown varieties at \$2.00 per lb. 100 pounds black seed Chilians \$1.00 per lb. All seed guaranteed to grow if planted at proper time. Sam Oskey, 2005 Audrey Street, Los Angeles, California.

The Senator Dunlap Strawberry has them all beat for quality of fruit and yield per acre; 2c each; 1,000, \$15.00. Also Gardena Dewberry, the earliest blackberry on the market; 10c each, \$1.00 per dozen, prepaid. W. C. Metcalfe, R. F. D. No. 1, Ontario, California.

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address: George Forest, Standish, California.

200,000 grape rootings, Thompson, Mission, Emperor, Sultan. Reduced price on 10 kinds of cuttings, inspected; ship anywhere. Full line of nursery stock, farm, garden seeds and plants. Write for circulars. Box 501, Fowler, Cal.

Hubam Clover: My Hubam Clover seed made over 1,000 pounds of seed per acre. Forage yield in proportion. Give it a trial for cover crop, hay or forage. Certified seed for sale by O. E. Lambert, Rte. 6, Box 226, Modesto, Cal.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

Berry Plants, Grapevines, Rhubarb, Roses, Annual and Perennial Flowering Plants. Sent postpaid. Special price list. Hopkins Nursery, 153 So. Hartwick Ave., Eagle Rock, California.

Cory's Thornless Blackberry Plants, extra fancy, 15c each, or rates by the thousand. Corner Inglewood Ave. and Arborvitae, Inglewood, California. C. C. Bryson.

Cory Thornless Blackberry—Large vigor-ous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write Chas E. Mortensen, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. Wm. Mortenson, Route 1, Lodi, California.

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.

For Sale: Strawberry plants, Klondyke, Brandywine, Gibson and Senator Dunlap, \$5 for 1,000. Cumberland Black raspberries, \$3.50 per 100, \$35 per 1,000. S. R. Moore, R. F. D. 3, Box 19, Inglewood, Cal.

Blackberry Plants: Cory and Burbank thornless varieties. Order now, 10c each. Miller Ranch, 1 mile west of Mt. Vernon on W. Highland Ave., San Bernardino. Phone 7304.

For Sale—Government tested alfalfa seed, dry land Chilean variety. Prices and samples on request. O. L. Divens, Dos Palos, California.

Save Work—Plant Iris and Perennials; a \$2.50 collection will make a beautiful garden. Mrs. A. L. Hurt, San Bernardino.

Alfalfa Seed—Certified Halcy Peruvian. Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. J. L. Lawson, San Jose.

For Sale—Selected Mebane Cotton Seed, 5c per pound. Walter E. Scott, Box 174, Blythe, California.

Strawberry Sugarloaf, nothing like it! Plant now! 25, \$1; 100, \$3. Jno. F. Horsley, Upland, Cal.

Zante Currants: One year rooted vines, about 5,000 for sale at \$45 per M. C. H. Wilder, 2429 E. 22nd St., Oakland, Cal.

Strawberry Plants, Harris and Gold Dollar, 60c hundred, \$4.00 thousand. D. R. Bannister, Oakdale, California.

For Sale—Japanese Pear seed, new crop. Imported direct from Japan. W. C. Whitney, Healdsburg, California.

Florida Sour Orange Seed for sale. Milo Hunt, Whittier, Phone 250.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT. Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 284 Court St., Los Angeles.

TREES

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Hachiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Citrus Trees, 1 and 2 years. Supply Co. and performance record bud selection quality trees, Valencia, Navel, Eureka, Lemon, Grapefruit. We think we know how to handle trees. Try us. We have a good line of stock. Prices right. Orchards planted to order. **WANT TO BUY 50,000 sour seedlings.** Cyrus W. Wilhite Citrus Nurseries, P. O. Box 154, Glendora, California.

For Sale—Concord grape vines and cuttings. Kadota and Black Mission fig trees. Kadota cuttings. Hachiya Japanese persimmons, walnuts, peaches, plums, apples and general assorted fruits. Good trees at reasonable prices. Fred W. Kelsey, South Rosemead Avenue, near Valley Blvd., 2 miles west El Monte. Phone Alhambra 919-3.

Avocado Trees: I have 300 field grown, thoroughly hardened Fuertes, one and one-half and two years from bud. Large balls of dirt. No better stock to be seen anywhere. \$4 each in quantities, \$5 each for single tree. W. A. Spinks, Duarte, California.

Clio Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVAL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Nursery Stock at bargain prices. Prune, 12c each; grafted walnuts, \$1.00 each; pears, 20c each; Blackcaps, \$20.00 per 1,000; other stock at bargain prices. Submit your want list and send for planters' list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

Persimmon Trees—2,000 fine Hachiyas on Lotus (Manchurian) roots, the best commercial persimmon on the best possible root. Alcorn's Nursery, R. 1, Fullerton, California.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 53, Chico, Cal.

For Sale: Valencia Late, Washington Navels, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Walnut Trees—4 to 12 ft. W. W. Pearmain apples, Bartlett pears, peaches, apricots and figs. Bassett Nursery, Puente, California.

For Sale—Fine lot Florida sour stock orange seedlings, budded orange trees, grafted walnut trees. A. G. Snow, Oxnard, California.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 6294.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

Placencia Walnut Trees on Northern Black root; 4 to 10 ft., \$1.00 to \$1.50. A. E. Nelson, El Monte, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. W. Irwin, Lindsay, California.

Nursery Stock: Valencia orange trees, 1 year old. H. Meier. Phone 256-W Orange. East Chapman Ave.

For the Cheapest and Best nursery stock call or write the Home Nursery, Los Angeles, Box 1235, Maywood.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Trees—Free Mammoth Bartlett-tack up signs. Zinfandel grapes \$30 thousand, \$5 hundred. Cash Nursery, Sebastopol.

San Pedro and Black Mission fig trees. L. A. Tuttle Nurseries, R. 1, Pasadena.

WANTED

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

I Want Farms for cash buyers. Will deal with owners only. R. A. McNown, 370 Wilkinson Bldg., Omaha, Nebraska.

MACHINERY

Ten Foot Fairbanks Morse Wind Mill and two thousand gallon galvanized tank, 50 ft. wood tower and number 5 late Byron Jackson centrifugal pump with foot valve, also second deep well propeller pump, 8 inch diameter, eighty feet deep. This stuff has got to be moved and a real bargain for quick action. Address—L. A. Turner, RD 2 Box 850, Los Angeles, California.

For Sale: Fine Deep Well PUMPING PLANT, 15 h. p. Western engine, just rebored. Famous model acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well; for cash or trade for late model Dodge auto. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

MISCELLANEOUS

Bargain—We have taken over a large stock of hose, absolutely new, and will ship any quantity you may desire. This hose is manufactured by the most reputable hose factory in the country. 10,000' 3/4" seven-ply hose @ 14c per foot. 80,000' 3/4" five-ply hose @ 10c per foot. 40,000' 3/4" five-ply hose @ 9 1/2c per foot. This shipment of hose will be ready for distributing February 5th. Send for sample. American Machinery Co., 518 Fourth Street, Oakland, California.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—5 hole wood and coal range cook stove, good as new, \$12.50. A. H. Neigebauer, Arcadia, Rd. 1, Box 84. 2nd Ave. near Valnett.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco, smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Ridgewood Ranch—Registered Herefords. Choicely bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeder of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeder of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

DUCKS

Mammoth Pekin Ducklings and Eggs—Ancona chicks and eggs, fine winter layers. Mrs. Walter E. Gould, Orland, California.

Mammoth White Pekin duck eggs for hatching, \$1 per dozen. A. Surtman, Petaluma, Cal.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatsery, El Monte, California.

HORSES

For Sale—Good young work horses, 1,400 to 1,600 lbs. R. F. D. No. 1, Box 133, Tracy, California.

FARM LAND FOR SALE

80-Acre Farm, With Furniture, 13 cattle, 25 hogs, 140 poultry, team mules, mare, tools, hay, vegetables, etc., included. Move right in, everything ready spring's planting; secure living, bright future; in progressive farming district, close village, good markets; 40 acres tillage, spring-watered pasture, lots timber; 200 apple trees, 25 peaches, cherries, plums, grapes; comfortable cottage, 2 barns, poultry house, etc. To settle affairs, only \$3,750, part cash. Details page 87, Illus. Catalog 1,100 Bargains, FREE. STROUT FARM AGENCY, 831 H. K., New York Life Bldg., Kansas City, Mo.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

IRRIGATED FRUIT LAND

Fruit makes California the "Safe Farming" state. Irrigation makes fruit farming safe. We offer irrigated bottom land, best for big yields of fruit, at liberal terms. We have a real opportunity for you.

SUTTER BASIN COMPANY

304 California Fruit Bldg. Sacramento, Cal.

For Sale—1,070 acres. Good house and out buildings and barns. 250 acres alfalfa. Bottom land will raise any kind of grain. Balance is rolling pasture land, good pasture all year round. Lots of timber and acorns; finest stock and hog ranch. Mrs. Belle de Legh, 1246 E. Weber Ave., Stockton, Calif. Price \$90.00 acre.

30 Acres Bearing Apple Orchard, 6-8 year old trees, 10 acres grain land, rich soil, good 6 room house, buildings on main road, near Coeur D'Alene, Idaho and noted lake resorts, boating, fishing, etc. \$8500 clear, will divide and trade part for improved chicken ranch. P. O. Box 242, Inglewood, California.

For Sale—Some of the Finest Orchard Land in Southern California, in a rapidly growing community, \$10.00 to \$50.00 per acre. Water available if desired. Call or address Adelanto Fruit Co., Adelanto, California.

For Sale: 40 acres No. 1 land, 2 miles from Caruthers; plenty of water, good water right, land clean. Price \$150 per acre, \$2,000 cash, balance to suit purchaser. Address G. W. McGowan, Route A, Box 330, Kingsburg, Cal.

For Sale: Ten acres, mile of Arcadia, Cal. Good improvements; income from walnuts, potatoes, alfalfa, poultry, last year \$3,000. \$16,000, terms. See owner on ranch. Jesse A. Moran, Arcadia, Cal. Route 1, Box 47, South 6th St.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry, F. M. Dyke, Real Estate.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TURKEYS

Turkeys—Purebred Giant Bronze, male and female stock, sired by our two famous toms, "Goldbank Boy," champion Giant Bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, and "Copper King Jr.," a 36-lb. yearling son of "Copper King V.," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919, both bred to choice 20-lb. hens. Eggs in season. Address Bronze King Farm, R. 2, Box 88A, Merced, California.

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Turkeys—Mammoth Bronze—About 30 young hens, nicely bred, \$7.00 up. A few good young toms, \$15.00 up. Eggs, 35c, 50c and \$1.00 each. Keys Ranch, El Monte.

Thoroughbred White Holland Turkey Toms, a few beauties at \$12.00. Three hens for \$20.00. Pause Pheasantry, Fair-oaks, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

PHOTO FINISHING

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Dyspepsia—Indigestion

I have a five year old horse that chews up his stall and also the corral and I have another horse six years old that overeats and gets indigestion when standing still on rainy days. What would you suggest doing for them?—Subscriber, Berendo.

This is probably the result of over-feeding, irregular feeding and giving water directly after feeding. There is no danger of a horse over-eating if the owner does not place the feed in his reach.

When working a horse should have about a pound of grain and a pound of hay every 24 hours for each one hundred pounds weight of the horse; that is, a horse weighing twelve hundred pounds should have twelve pounds of grain and twelve pounds of hay every 24 hours and days when he does not work the grain rations should be reduced about one-half or the noon feed of grain omitted. Horses that are loose built require a little more feed but not over one-fourth more. When the horse is not eating or working tie him with two straps; one from each side of the stall, so he can not reach anything to gnaw at, but tie him low enough so he can lay down. Never water a horse directly after eating.

Observe the following rules and you may expect good results: In the morning at least one and one-half hours before you expect to work him give him water to drink, then give him two pounds of hay and when that is half eaten give him four pounds of grain and go away and leave him for an hour. If it is a warm day water him in the middle of the forenoon and again just before the midday feeding and feed him the same as you did in the morning.

Do not forget to water him in the afternoon and soon after stopping work. Let him stand half an hour, then give him eight or ten pounds of hay and half an hour later give him his evening feed of grain. Go to the stable just before you retire and give him water again. Do not forget to tie him so he can not gnaw the sides of the stall and do not forget to omit the grain at noon on all days that he does not work. It will not be long before he will not want to gnaw the stall and you can turn him loose or tie him anywhere. You will probably think this is not enough feed but try it for three months and then let us know the results.

Hogs Ailing

I have a bunch of hogs that I am fattening. Four of them have rickets. They are healthy enough other ways. Will they be unfit for meat? What is a good remedy for them?—Subscriber, Ft. Bidwell.

Keep them in the sunshine as much as possible. Feed them some roots. Give them sour milk. Once a day give each one a tablespoon of phosphate of lime in the feed.

Breeding Young Heifers

At what age should heifers be bred? They are in fine condition and are now one year old.—Subscriber, Ramona.

If they are extra well developed they might be bred at fifteen months old. At any time between that and two years old is all right. Younger than that is apt to stunt the growth. At this day and age of crowding things to the limit you must be careful about the feeding and not have it too concentrated. Be sure they have enough rough feed so there is plenty for remasticating.

Udder Trouble.

Asking for information regarding a cow's udder. One quarter is hard but gives about as much milk as the other quarters. Has been so the greater part of a year. Have given her "Kow Kure" in the feed but it has no effect.

She will not eat salts in the feed. Am feeding bran and "Suremilk" beet pulp twice a day and all the alfalfa and oat hay that she can eat. She was tested by the state for tuberculosis about a year ago and again recently. The first time there was little or no reaction and the last time no reaction, still they put in the report "Suspicious."

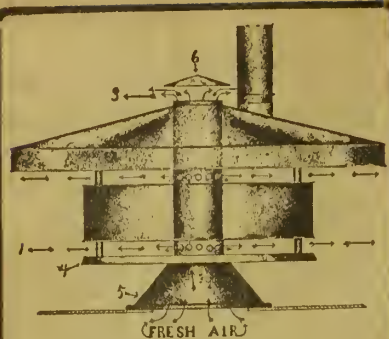
What do you think of such a report and would you have her tested again by a private veterinarian? She is getting along in years but is a heavy milker and looks as well as she did six years ago.—Subscriber, Berkeley.

Sometimes a gland will take on a fleshy condition such as you describe and we can not account for it. Usually it involves the whole udder. Would advise rubbing that quarter

(Continued on Page 199.)

Poultry Queries

Conducted by Jean A. Koethen



If You Are Going to Brood

anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be, write us for our

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Brahmas for Meat

Are Brahmas a good breed for table use, that is, better than other heavy breeds?—Subscriber, Pasadena.

That depends on just exactly what you want. Both Light and Dark Brahmas make wonderful roasters, quite equal to the turkey their admirers believe, but they grow too slowly to make profitable broilers or fryers. Rocks, Wyandottes or Rhode Island Reds make better, more quickly grown fryers, and for an all around table fowl, broiler, fryer or roaster, the Orpington is unexcelled in my opinion. If you are planning to raise market poultry why not try two breeds, Light Brahmas for roasters and White Wyandottes for fryers? A cross of these two is said to make a particularly fine table bird.

Melilotus for Greens

When no other green feed is available would it be advisable to feed melilotus to chickens?—Subscriber, Downey.

Melilotus is excellent green feed. I do not know why it is not more generally used for a forage plant. Any green that they will eat is good for chickens. Malva and other weeds may be utilized when the regular supply gives out.

Narraganset Turkeys

Do you know where there are any very gray turkeys, called by some Silver Bronze and by others Narragansets? There are none advertised in the Cultivator.—Subscriber, Woodland.

This breed appears occasionally at shows, but I have not now the name of any breeder. If any reader knows where such stock is to be found we shall be glad to hear of it.

Blackhead Preventive

I would like to know the ingredients of the mash mentioned in issue of January 7, which is used by a Vacaville subscriber for preventing blackhead.—Subscriber, San Fernando.

To a pint of bran and a pint of bread crumbs add enough boiling water to make a crumbly mash. Let this cool till it is only slightly warm and add 1 quart chopped greens, 1 small chopped onion or onion tops and 1 cup chick grit or sand. For each 10 turkeys add 3 drops turpentine and ¼ teaspoon ginger. This is fed twice a week in place of the regular mash and twice a day for 3 days if white spots are noticed on the back of the legs. The regular mash, which is fed in the morning till the poulters are 3 months old, consists of 1 medium-sized onion chopped fine and added to 1 quart chopped green, 1 pint bran and 1 pint hulled barley or oats.

Drooping Wing

What is the cause of one of my pullets drooping one wing and always trying to step over it? Is there a remedy?—Subscriber, Los Angeles.

There must have been some injury. Possibly a bone has been broken and has healed without being set. If you think the pullet is worth the trouble you might break the bone again, set it and wrap in a bandage made stiff with starch. When this has dried it makes a sort of cast which will hold the bone in place till it has healed.

Mysterious Growth

One of my healthy, laying pullets has a growth nearly as large as a small egg just below the vent. It feels hard and seems to be attached to the skin.—Subscriber, Exeter.

The cause of such growths, which are seen occasionally on apparently healthy hens, is not understood. You may possibly be able to scatter it by painting with iodine daily for a week or so. If this treatment is not successful, kill the hen.

Bloody Yolk

One of my hens frequently lays a double yolked egg. One of these was found to contain one good yolk, the

other being blood and water. What caused the condition?—Subscriber, Lincoln.

Bloody yolks are believed to be due to a rupture in the ovarian follicle. When this ruptures a little blood escapes into the oviduct and is caught up in the albumen. Many hens lay eggs containing blood spots in the spring when laying is heavy. In the case cited the rupture was unusually large and may indicate that the flock is being pushed a little too hard for eggs. More greens and a bulkier mash are the remedy.

Roupy Hen

One of my hens has at times a frothy or bubbly discharge from the corner of her eye. What is the cause?—Subscriber, Bakersfield.

She is rousy. You can probably cure the attack temporarily by washing the eye with a boracic acid solution or dipping her head in the potassium permanganate solution which has been so often recommended in this column, but if the attacks are persistent it would be better to kill her. She is not fit for a breeder and is not likely to be a steady layer.

Soft Roasters

What age or weight can a Leghorn, Rock or R.I. Red chicken be and grade as a soft roaster?—Subscriber, Hesperia.

A Leghorn male is never fit for a soft roaster. By the time it is big enough the meat is tough. I do not know whether Leghorn pullets are ever sold as roasters. If they are large enough they might answer the other requirements. Pullets of the heavy breeds make fine roasters up to six or eight months of age. Cockerels of these breeds grade as soft roasters at from four to six pounds in weight, and four to five months in age. By the time they are six months old their spurs are grown and their flesh has toughened. Light Brahma cockerels remain soft longer than Reds and Rocks.

The Best Brooder

What is the best way to raise baby chicks without hens? We have a house 6 by 8 with concrete floor in which we wish to raise 200 chicks. Last year we bought 100 chicks and gave them to four hens, but they did not do well. Now we would like to try either a brooder or brooder stove or electric hover. We live in an orange grove and are making a success with the oranges as well as with Jersey cows and Rhode Island Red chickens on the side.—Subscriber, Riverside.

With the special rate at which Riverside poultrymen are able to secure electricity for incubating and brooding there ought to be little question as to which is the best brooder for you. Get an electric hover and brood the 200 chicks in your 6 by 8 house. You will need a sheltered run on the south side of the house, and it would be better if you could enclose a small space outside for a playroom since the house is so small. I am afraid you did not give your hens a fair chance. If you had used six hens instead of four for the 100 chicks and given each one a coop and run by herself you could have raised at least as many of the chicks as you will raise with any kind of artificial heat.

Canopy Hovers

Are the oil burning canopy hovers as good for raising chicks as the old type hot water or hot air brooders?—Subscriber, Camino.

The question is one of size of flock rather than of method of providing heat. Do chicks do better in flocks of 100 or 500 or 1200? As a rule the smaller the flock the smaller is the mortality among baby chicks, but large commercial poultrymen believe the lessening of labor by the use of the large hovers offset the greater mortality.

Spring Pullets

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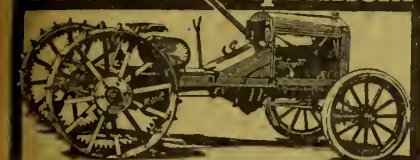
WELL CASING
San Francisco.

Deformed Wings

Wings of two tom turkeys recently purchased are either deformed or have lost their feathers. Will this condition cause infertility? — Subscriber, Brawley.

I do not see how deformed wings could cause infertility, out if they are

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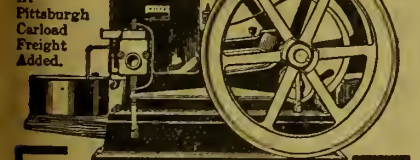
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HERCULES MFG. CO.
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really deformed there might be a similar deformity in the offspring. As you are not certain just what the trouble is, why not try incubating some of the eggs before you discard the birds? If the eggs are fertile and the poult strong and perfect there is nothing to worry about. If the poults prove to be abnormal in any way you will have to change toms.

Reds for Exhibition

Will you please give me directions for selecting my best R. I. Reds, pullets and cockerels, for exhibition? How can I tell them up to make them appear their best? Should the pullets be laying?—Subscriber, Delano.

Standard weights for R. I. Reds are 8½ lbs. for cocks, 7½ lbs. for cockerels, 6½ lbs. for hens and 5 lbs. for pullets. Color should be a brilliant red, with black in wings and tail and under color red to the skin. Back of male should be broad, long and carried horizontally, head blocky, comb perfectly straight and upright, with five even points and smooth blade. Pullet's tail should be carried at an angle of 35 degrees above horizontal, head medium size and carried horizontally. Colored birds are not usually washed. Feet and shanks should be scrubbed and anointed with vasoline to bring out the bright yellow color.

Raw Beef Bones

I feed my 128 hens a laying mash, barley and corn. Would I get a larger egg yield by grinding raw beef bones and giving to them, and how much should I feed?—Subscriber, Arroyo Grande.

The beef bones, "green cut bone" we call them, ought to help production—just how much they will help depends on the quantity of meat on them. A pound to every 20 hens twice a week is as much as it is wise to feed, and be sure they are fresh. Stale meat does more harm than good. If your egg yield is not satisfactory you might try adding wheat to the grain ration, making it equal parts wheat, barley and corn. Do not feed more than a quart a day to 15 or 16 hens, and see to it that they have some kind of green feed every day.

Mating Turkeys

How many turkey hens should be mated to one tom? Where can I get a book on turkeys?—Subscriber, Lankershim.

Most breeders run one tom with nine or ten turkeys. Some, to make fertility more certain, keep two toms for each pen, putting them with the hens on alternate days. If a number of breeding pens are kept two or three extra toms might suffice for all. There is a government bulletin which may be had free from the department of agriculture, Washington, D. C. It contains a good many useful suggestions.

Worms

How can I rid my White Leghorn hens of intestinal worms?—Subscriber, Lankershim.

Try the tobacco treatment recommended by Dr. Beach of the poultry division of the state college of agriculture. Mix one pound tobacco dust or powder with 50 pounds dry mash and keep before the hens about three weeks. This treatment may be repeated at intervals of three weeks until all signs of worms have disappeared. Oil of turpentine is also a standard remedy for worms, but it must be given after a fast and followed by a dose of salts or castor oil. The tobacco treatment is far simpler when an entire flock is affected.

ACCREDITED HATCHERIES

The Sonoma County farm bureau poultry department is taking an advanced step in securing pedigreed or at least higher producing poultry. The selling of day old chicks is an exceptionally large business in that county and while the production quality of their poultry is advancing this effort should materially speed up the advancement. The following conditions are set forth under which hatcheries may operate and secure place on the accredited list.

Fowls used for breeders shall be in

good healthy condition as judged by the inspector, and shall be culled so far as may be practicable during the first period beginning November 1, 1921, and shall be culled thoroughly during the early summers of 1922 and 1923, according to the standards recommended and demonstrated by the agricultural extension service.

Females are to be at least 12 months old.

Males are to be approved by the inspector as to vigor, and shall not be less than eight months of age. The males to be used during the breeding season of 1922-23, beginning November 1, 1922, shall have, in addition, trapnest pedigree records on the side of the sire of 175 eggs, or better, and the males to be used during the breeding season of 1923-24, shall have a trapnest pedigree record of both the dam and sire of 175 eggs.

No artificial lighting earlier than 5:00 a.m. or stimulating feeds to produce higher than 40 per cent during the months of December and January.

Eggs to be delivered within seven days, and precautions taken to prevent chilling or overheating.

Weight to be 22 to 26 ounces per dozen.

Eggs must be uniform in size, shape, color and shell texture.

Ample supply of greens must be fed birds in inspected pens.

Grain must constitute at least 50 per cent of total amount of grain and mash fed, and where fed in houses, litter must be reasonably clean, dry and loose.

The poultry department has given out a list of hatcheries which were accredited for the month of January. This list will be entirely revised for February.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST AT SANTA CRUZ

High pens for the ten days from January 10 to 21; R. H. Young Santa Cruz, 76 eggs; Alex Stewart, Santa Cruz, 76; Boling's Poultry Farm, Gilroy, 75; Warren Wood, Santa Cruz, 71; H. C. Kleinsmith, Hoff, Oregon, 69; Geo. B. Ferris, Grand Rapids, Michigan, 67; J. J. Shore, Santa Cruz, 66; Kinmont Poultry Farm, Seattle, Washington, 65; D. C. Berry, Santa Cruz, 65; Geo. Wood, Santa Cruz, 62; Geo. Wood, 61; C. H. Russell, Santa Cruz, 60; C. P. Brooks, Santa Cruz, 60; Lot Durgan, Watsonville, 60; W. H. Marshall, Santa Cruz, 60; Sunrise Poultry Farm, Santa Cruz, 59; W. J. Neef, Santa Cruz, 57; Levi Mellon, Santa Cruz, 55; Geo. Barker, Santa Cruz, 55; E. D. Crewdson, Santa Cruz, 54; H. H. Corbett, Santa Cruz, 54.

Pens constitute the lay of ten hens. All of the above are White Leghorns except H. C. Kleinsmith's pen which is Barred Rocks.—Max Kortum, Manager.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, January 31, 1922.—Report for the thirteenth week ending January 30:

In the thirteenth week of the contest the 100 pens produced 2640 eggs or a yield of nearly 33 per cent. This is only three eggs more than last week but 353 eggs more than last year for the same period and 229 more than the seven year average. Not only this but the birds have produced more eggs for the thirteenth week this year than in the same period in any of the seven previous contests.

Apparently the Leghorns have become tired of having the American breeds take first honors for the week for we find a pen of White Leghorns owned by Andrew L. Ohr, Wallingford, Connecticut, in first place for the week with a production of 47 eggs.

The four leading pens in each of the principal breeds are as follows:

Plymouth Rocks

Seven Hills Farm (Barred), 409 eggs; S. Bradford Allyn (White), 403; Harry C. Culver (Barred), 362; Merritt M. Clark (Barred), 313.

White Wyandottes

Frank P. Matteson, 529; Woodbridge Orchards, 481; Clemens J. Die-mand, 434; Walter Bradbury, 422.

Rhode Island Reds

The Orchards, 446; Applecrest (Continued on Page 199.)

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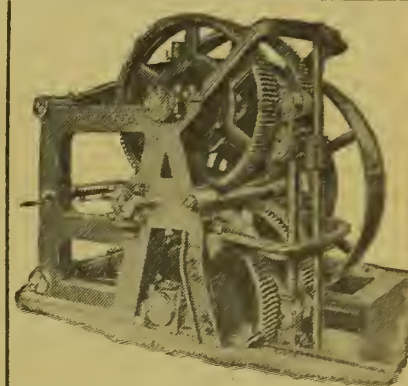
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STAWBERRY PLANTS

That Please the California Fruit Grower. G. J. Streicher, Napa Co. Cal., writes: Jan. 7-22. Received strawberry plants today in fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.

Our New 1922 Catalogue describing more than 25 varieties and containing other information now ready. get your FREE copy quick.

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When Writing Advertisers Please Mention Cultivator.

Los Angeles Markets

Los Angeles, February 15, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 49 cents.

CHEESE

Brokers' prices:
California firsts, 24@26.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 27; case count, 25; pullets, 24.

POULTRY

Price to producers: Hens, 26, colored, 26; broilers, 36@39; roasters, 34; old roosters, 16; fryers, 39; ducks old, 20; ducklings, Pekin, 3½ up, 28; others, 28; geese, 28; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, Feb. 14.—Welshed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 10.50; 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 7.50; medium, 7.00; cows, good, 6.00; medium, 5.50; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 8.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 90@1.00. Stocktons: Burbanks, per cwt., best, mostly 2.50@2.75, few 2.85@2.90; poorer, 2.00@2.35. Idahos: Russets, best, mostly 2.50@2.75; bakings, 3.25@3.50. Sweet Potatoes: Movement moderate, market weak. Locals, No. 1, best, per lug, 85@1.00; poorer, 60@75 per lug. Arkansas: Nancy Halls, per bu., 2.25@2.50; per lb., 5.

Onions: Demand moderate, market strong. Stocktons: Per cwt., White Globes, best, mostly 9.00; browns best mostly, 7.00@7.50; lugs, whites, best, 2.75@3.00; browns, 2.10@2.25.

Garlic: 8@10 lb.; poorer, 5.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, February 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Artichokes: Doz., 1.75@2.25. Brussels sprouts: Mostly 17@20 per lb. Sacked vegetables: Beets and carrots, 2.25@2.50; turnips, mostly 1.00@1.25; parsnips, 1.75@2.00.

Bunched vegetables: Per doz. bunches: Turnips, 30@40; carrots, 70@80; beets, 70

@80; radishes, 30; parsley, 15@20; spinach, wide range in quality, 40@50. Cabbage: Market stronger. Per field crate, mostly 2.00@2.25; few best, 1.50@1.75.

Cauliflower: Market stronger. Wide range in quality. Per field crate, mostly best, 1.50@1.75; poorer, low as 1.00.

Celery: Market stronger. Locals: Best, 5.00@6.00; mostly 5.50@6.00. San Diego, 8.00@8.50.

Cucumbers: Market steady. Hothouse, mostly 1.00@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 80@1.00 crate.

Lettuce: Demand moderate, market steady. Locals, quality poor; field crate, 2.00@2.50; shipping crates, 75@1.00. Imperial Valley, 3.75 for packed cr.; 1.00 per dozen heads.

Parsnips: 1.00@1.35.

Onions: Green, 15@20 bunch.

Peppers: Mexican chill, mostly 12@15; Bell, fancy, 33@35.

Rhubarb: Box, 1.75@2.00.

Tomatoes: Market steady. Mex., lug, repacked, 4.00@4.50; per lb., 13@15; per crate, 3.25@3.50.

FRESH FRUITS

Apples: Demand and movement moderate, market steady. Locals: Miscellaneous varieties, orchard run, 3@4 lb.; Winesaps and Romes, mostly 4@5; Delicious, 6@7, few 8 per lb.; B grade Delicious, 2.25@2.75; fancy, 3.00@3.25, few 3.50; Winesaps, fancy, 2.50@3.00, mostly 2.75; B grade, 2.25@2.50; Romes, fancy, 2.50@2.75; B grade, 1.75@2.00. Watsonville, fancy, 3½ and 4 tier, Bellefleurs, 1.60@1.75, few 1.85; poorer, 1.25@1.50; 4½-tier, 1.30@1.40; poorer, 1.15; loose, per lb., 3@4; Pearmain, 4-tier, fancy, 2.00@2.25; Yellow Newtown Pippins, 4-tier, fancy, 2.00@2.25; 3½-tier, 2.50. North western: Splzenburgs, medium to large, extra fancy, 3.00@3.25; fancy, 2.75@3.00; Romes, extra fancy, 2.75@3.00; Yellow Newtowns, extra fancy, 2.75; fancy, 2.50; Winesaps, medium sizes, extra fancy, 3.00@3.25; fancy, 2.75@3.00.

CITRUS FRUITS

Grapefruit: Movement slow, market dull. Californias: Northern: Packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50. Imperial Valley, 4.00@5.00. Arizonas: Seedless, 4.00@5.00, according to size and quality. Lemons: Demand and movement moderate. Market dull. Locals: Loose boxes, mostly 2.25@2.75. Oranges: Demand limited, market steady. Navels, special brands, 126s-176s, mostly 5.25; 200s-216s, 4.50@5.00; market pack, 2.50@4.00, according to size and quality; culls, 50@1.50 per field box. Tangerines: Demand and movement light, market dull; mostly 6; poorer, 5 lb.

HAY

Alfalfa Growers of California report: The storms of last week, general over the entire state after only a short spell of dry weather, again interfered with the country movement of alfalfa hay and kept down receipts.

Free consumption and low stocks in the hands of users resulted in a continued strong and steady demand for current use; the demand for the higher grades of hay could only be partly supplied and it looks as if this would continue to be the case during the balance of the old crop year. The market and prices remained correspondingly firm.

There were 1,550 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending February 11th, with 450 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

quality, 6@6½; cows and helpers, No. 1, 5@5½; second quality, 4½@5; bulls and stags, 3½@4.

Calves: Light weight, 8@9; heavy, 6½@7½.

Sheep: Wethers, 6½@7; ewes, 3½@4.

Lambs: 9½@10½.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 11 lb.; do, 200 to 250 lbs., 10 lb.; do, 250 to 300 lbs., 9 lb.; light sows, 9 lb.; heavy, 8 lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Tulare, Feb. 7

90 162½ 9.60

68 154 9.55

19 122 9.55

100 157 9.45

52 193 9.35

52 214 9.25

23 250 8.85

16 300 7.25

1 stag 500 3.00

421 hogs 5 cars, 35 consignors, \$6,954.47.

Visalia, Feb. 8

92 166* 9.55

104 152 9.35

103 151 9.25

84 192 9.20

77 163 9.10

80 205 9.00

3 313 8.00

1 stag 520 3.00

13 285 5.50

557 hogs 6 cars, 32 consignors, \$8,774.58.

Hanford, Feb. 9

16 83 10.00

87 160 9.60

76 186 9.55

71 188 9.40

10 233 8.90

4 245 8.90

7 250 8.90

1 580 8.50

1 540 6.50

2 405 6.50

276 hogs 3 cars, 28 consignors, \$4,667.94.

Corcoran, Feb. 10

40 166 9.25

4 215 8.75

1 270 8.25

45 hogs ½ car, 6 consignors, \$711.

Totals for the week: 1,299 hogs, 14½ cars, 101 consignors, \$21,107.99.

VEGETABLES

Prices furnished by state department of agriculture, division of markets: Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Fancy, 20@23; off grades, 15@20.

Bunched vegetables: Carrots, 50 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20.

Cabbage: 2.00@2.25 per crate, 1½ per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 4.50@6.00 crate; poorer, 1.50@3.00 crate; San Diego, 7.00@8.00 crate.

Eggplant: Quality poor, 5@10 lb.; poorer low as 2; Florida, 20@30.

Endive: 45@50 per lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Iced, L. A., 1.75@2.50; Imperial Valley, 3.75@4.25 crate.

Olives: 5@9 per lb.

Onions: Cold storage, browns, firm, mostly, 6.75@7.25; White Globe, mostly 8.00@9.00; pickle onions, brown, 4.50@5.00; green onions, 2.10@2.25 per box.

Peas: 10@15 lb.

Peppers: Local bells, 10@15 lb.; Florida, 15@25.

Potatoes: Rivers, fancy, 2.10@2.40; Oregon Burbanks, 2.35@2.65 cwt.; Idaho Netted Gems, 2.40@2.65; Salinas, 3.00@3.25 cwt.

Pumpkins: Per sack, 75@1.00 per 90 lb. sack.

Rhubarb: 3.00@3.50 per apple box.

Squash: Summer, Brawley, 3.00@3.50, small crate; cream, 75@1.00 per lug; Hubbard, 1.00@1.50 per 90 lb. sack.

Spinach: Southern, 3.00@4.00 crate.

Sprouts: 15@16 lb.

Sweet Potatoes: Per cwt., 3.75@4.00.

Yams: 2.00@2.15; Arkansas yams, 2.00@2.10 per 40 to 50 lb. basket; New Mex., 4.00.

Tomatoes: Repacked, Southern, best, 75@1.15 crate; Mex., 4.50@5.00 per L. A. lug; off grades, 3.50@4.00; hothouse, 2.50@3.75 per small crate.

Turnips: 1.25@1.50 sack.

FRESH FRUIT

Apples: California Newtown Pippins, 4-tier, 2.10@2.25; 3½-tier, 2.35@2.50; 4½-tier, 1.75@1.85; B grade, 1.25@1.65; Langford seedlings, 4½-tier, 1.10@1.25; 4-tier, 1.40@1.60; Northwestern, Newtown Pippins, extra fancy, 3½ and 4-tier, 2.50@2.65; fancy, 2.15@2.40; choice, 1.60@2.00; Spitzenburg, extra fancy, 2.50@2.75; fancy, 2.20@2.40; Rome Beauty, fancy, 2.00@2.25; choice, 1.50@1.75; Bananas, extra fancy, 3.25@3.50; fancy, 2.75@3.00; Delicious, fancy, 3.50; Winesaps, 3.00@3.50.

Avocados: California, 4.00@8.00.

Mangoes: 5.00@5.75 doz.

Bananas: Eastern, 6½@7 lb.; Hawaiian, 6½@7 lb.; red, 7½ lb.

Cranberries: Nominal.

Grapefruit: California, fancy, special pack, 3.00@3.75 box; Arizona, 4.25@4.50; Imperial Valley, 3.75@4.25.

Lemons: Special pack, fancy, 5.50@6.00; others and poorer, 4.00@5.00. Lemonettes, 2.00@3.25.

Oranges: Special pack, 126s-100s, fancy, 5.00@5.50; 250s, 4.50@4.75; 200s-216s, 3.50@4.00; choice, 2.50@3.50.

Pears: Winter Nellis, 2.25@2.75 box; Beurre Clairgeau, 1.75@2.50; do, off grade,

1.00@1.75; De Anjou, 1.50@2.25; poor stone, 1.00@1.75.

Pineapples: 5.00@6.00 doz.

Tangerines: 2.50@3.00 per small box; do, fancy, 3.50@3.75.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

Choice.....In 50s.....@13

Extra choice.....@13

Fancy.....15 @15

Apricots

Slabs.....In 25s.....@18

Standard.....18½ @19

Choice.....22 @23

Extra choice.....23 @25

Fancy.....26 @28

Extra fancy.....28 @30

Moorparks, fancy.....29 @30

Moorparks, extra fancy.....31½ @32

Figs

California Peach and Fig Growers price

White.....Standard (in 50s)......07

Choice (in 50s)......08

Fancy (in 50s)......11

Bricks, 12 No. 10s.....1.10

Bricks, 24 No. 8s.....1.30

Bricks, 50 No. 6s.....2.30

Bricks, 70 No. 4s.....2.95

Layers, 10 lb., 4 row.....1.60

Layers, 10 lb., 5 row.....1.40

Callmyrna.....2.05

Bricks, 24 No. 8s.....2.05

Peaches

California Peach and Fig Growers price

Slabs (in 25s).....Yellow Mu......10

Standard (in 25s)......10

Practically peeled, Standard (in 25s)......11

Cartons, 30 11 oz., per case.....3.10

Cartons, 60 11 oz., per case.....6.00

Cartons, 24 2 lb., per case.....6.50

Cartons, 10 5 lb., per case.....6.60

Pears

Standard.....In 25s.....12@13

Choice.....15@16

Extra choice.....17@17

Fancy.....19@19

Prunes

California Prune and Apricot Growers prices:

Basis Per lb. in

Size 40s.....10 @10½

30-40s.....8½ @8½

40-50s.....7 @7½

50-60s.....6½ @6½

60-70s.....6 @6

70-80s.....6 @6

80-90s.....6 @6

90-100s.....6 @6

100-120s (in 50s, per lb.).....@6

120s up (in 50s, per lb.).....@6

Raisins

California Associated Raisin Company prices:

Seeded.....Sun-Maid, 16 oz.....14

Bakers (in 25s).....13

Loose Muscatels.....4 crown (in 25s).....15

3 crown (in 25s).....13

2 crown (in 25s).....12

1 crown, recleaned (in 25s).....13

Seedless.....Thompsons, 16 oz.....12

Thompsons, bulk (in 25s).....12

Thompsons, bakers (in 25s).....12

Sultanas, bulk (in 25s).....12

Bleached Thompsons.....Choice, sulphur (in 25s).....12

Fancy, sulphur (in 25s).....12

Extra fancy, sulphur (in 25s).....22

Soda dipped (in 25s).....Oil dipped (in 25s).....1

Bleached Sultanas.....Soda dipped (in 25s).....1

Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points.....16

Black grapes (in 25s).....Layers—All grades withdrawn.....16

BEANS

Below California Bean Growers Association shippers' prices choice recleaned

Large Whites.....5

Small Whites.....5

Pinks.....5

Mexican Reds.....4

Red Kidney.....6

Henderson Bush.....7

Cranberries.....7

Bayos.....5

Blackeyes.....4

RICE

Rice Association prices:

Bag, 2.40@2.55 f. o. b. points.

NUTS

IXL almonds, 25 lb.; soft shell almonds, 16; do, hard, 10; budded walnuts, 32; soft shell walnuts, 30; Manchurian walnut, 14; Brazil, 17; pecans,

GRAIN
Sales on Grain Exchange:
Barley: Feed, 1.22½@1.30; shipping, 1.30@1.35.
Wheat: Mill, 2.05@2.15; feed, 1.95.
Red Feed Oats: 1.40@1.55; do, seed, 1.75@2.10.
Corn: California yellow, 1.45@1.50; Eastern yellow, No. 2, 1.36@1.38; No. 3, 1.25@1.27; fluff, in bulk, 1.63@1.67; white Egyptian, 1.90@2.00; California red milo, 1.70@1.77½; do, bulk, 1.62@1.65; eastern red, 1.72@1.75; do, No. 2, 1.38@1.40.

Citrus Markets
AT THE AUCTIONS
February 13
Boston: 11 Nav. 3.45@5.40.
St. Louis: 3 or., 2 lem. Nav. 2.75@4.80, lem. 4.25@5.95.
Cleveland: 6 or., 1 lem. Nav. 2.40@4.55, lem. 6.35.
Philadelphia: 2 or., 3 lem. Nav. 4.10@5.65, lem. 4.60@5.35.
Pittsburg: 8 or., 2 lem. Nav. 3.30@5.30, lem. 4.85@5.80.
Cincinnati: 1 or., 1 lem. Nav. 4.05, lem. 5.10@5.15.
New York: No auction on account of holiday.
February 14
New York: 28 or., 7 lem. Nav. 3.50@6.10, lem. 5.45@7.00.
Boston: 9 or., 1 lem. Nav. 3.65@5.30, lem. 6.75@7.10.
Pittsburg: 2 or., 1 lem. Nav. 3.45@4.35, lem. 4.30@4.95.
Philadelphia: 2 or., 2 lem. Nav. 3.65@4.05, lem. 4.45@5.05.
Shipments
Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 5,105 cars; lemons, 1,895; total, 7,000. To same date last season: Oranges, 5,483; lemons, 1,685; total, 7,168. From Central California to date this season: Oranges, 4,174; lemons, 87; total, 4,261. To same date last season: Oranges, 3,999; lemons, 79; total, 4,078. From Northern California to date this season: Oranges, 368; lemons, 7; total, 375. To same date last season: Oranges, 301; lemons, 3; total, 304.

DUROC BARGAINS IN ASSOCIATION SALE
The annual sale of bred sows and gilts held by the California Duroc-Jersey Breeders' Association at the university farm, Davis, February 8, happened to fall on one of the most inclement days of the winter and as a consequence the attendance was limited to local buyers who were not disposed to set values in keeping with the offering.
Twenty-four head from 14 of the leading herds made the low average of a few cents under \$50. In general the offering was of uniform quality although there were some lots that hardly seemed in place in an association sale. Marked preference was manifested for animals showing advanced type and size, and buyers did not hesitate to loosen their purse strings on such lots. The cheaper sorts were all of useful character and will prove decided bargains for their new owners.
A fall yearling of correct type, with lots of size and quality, sired by Mammoth Sensation and out of Lucy Pathfinder, consigned by the Diamond Bar Ranch, topped the sale at \$205. She was taken by the Western Laboratories of Stockton. The same firm secured an outstanding gilt of like age, a daughter of Choice Wonder 3d, for \$125. Many regarded this gilt as the top of the offering.
The sale was completed by the association, with V. F. Dolcini of Davis acting as pedigree man, H. C. Witherow of Live Oaks as clerk, and Ord Leachman of Sacramento as auctioneer. The consignors were: University Farm, Davis; Golden Star Farm, Vacaville; W. M. Way & Son, Modesto; V. F. Dolcini, Davis; L. J. Beaver, Fresno; Harvey M. Berglund, Fresno; Diamond Bar Ranch; H. P. Clocum & Son, Willows; W. M. Cutler, Davis; A. D. Long, Davis; R. E. Clifford, Davis; C. L. Gregory; J. E. Thorp, Lockeford; Witherow & Stafford, Live Oak.
The offering was absorbed by the following buyers: Western Laboratories, Stockton; H. C. Kunze, Davis; L. A. Webb, Davis; R. H. Lippert, Sacramento; Witherow and Stafford, Live Oak; V. F. Dolcini, Davis; George Jefferys, Vacaville; J. F. Wilman, Dunsmuir; E. Griffith, Woodland; R. E. Clifford, Davis; F. W. Barclay, Tracy and I. W. Comstock, Winters.

DIRECTORY OF NURSERYMEN
The state department of agriculture has in bulletin form reprint of California laws affecting nurserymen, to which is appended a list of all California nurseries with their classification and location. Any interested may secure it by writing to the department at Sacramento.

DOLCINI HAS TOP SALE OF SEASON
The first public sale of Duroc-Jersey bred sows and gilts from the June Acres herd of V. F. Dolcini, was entirely successful and resulted in an average of close to \$60. Furthermore the sale demonstrated that there is no grounds for the dejected attitude of the majority of California swine breeders. There is no question but that California is way short on hogs and that ranchers, realizing that hogs offer them their most profitable outlet for grain, are in the market and willing to pay fair prices for breeding stock. The war is over and likewise war prices for breeding stock, and any breeder who is willing to offer breeding material at reasonable prices will find a ready trade.
The sale featured the services of the Dolcini herd boar, Choice Wonder 3d, the 1920 grand champion, and the result can be taken as evidence of the esteem accorded him by breeders and farmers. A \$200 top was established on the aged sow, June Acres Wonder Lady, purchased by A. D. Long of Davis. Aside from the top the balance of the offering sold at a uniform range of prices. Ord L. Leachman cried the sale.
The following appeared as buyers: A. D. Long, Davis; C. B. Phillips, Dixon; H. P. Slocum and Son, Willows; C. A. Graf, Winters; University Farm, Davis; George Jeffery, Vacaville; Fred Smith, Davis; C. L. Gregory, Shasta; C. W. Scott, Winters; H. W. Comstock, Winters; R. H. Lippert, Sacramento; Frank Campbell, Davis; L. A. Webb, Davis; H. C. Kunze, Davis; H. B. Traynham, Davis; G. C. Wood, Danville.

STORRS EGG LAYING CONTEST
(Continued from Page 197.)
Farm, 437; F. S. Chapin, 417; Charles H. Lane, 405.
White Leghorns
Goshen Poultry Club, 397; Hollywood Farm, 341; Small's Poultry Farm, 330; Meadowedge Farm, 329; L. E. Ingoldsby, 329.

CERTIFIED CHICKS IN ALAMEDA COUNTY
The poultry department of the Alameda County farm bureau has adopted a definite plan certifying chicks from inspected flocks. In addition to the rigid inspection given the breeding flocks this year (retaining only those birds of the required age which show good type, capacity, vitality and are laying during the September-December period) the male birds must have an authentic trapnested record on one side of at least 200 eggs and in addition conform to the type for the breed and be ten months old before being placed in the breeding pens. The following year the cocks must have a trapnested record of 200 eggs or better on both sire and dam side. The next year it must be for two generations. It is evident therefore that the Alameda County breeders have undertaken a sound and practical plan for flock improvement. Henceforth it is not enough to have just a "rooster"—he must be a "trapnested sire." The hatcheries are cooperating with the breeders and an agreement to handle only eggs from inspected flocks is in force.
Enough cockerels to supply the breeding pens with birds of the required standard have already been signed up for the 1922-23 season. These will be banded and registered with the poultry department of the farm bureau. The farm advisor's office has cooperated with the poultrymen in this movement.—Russell T. Robinson, County Agent.

QUERIES
(Continued from Page 183.)
through the ads in Eastern pet stock magazines would be the best way to get the information.
Producing Turkeys
Am raising turkeys without much success. Will you please tell me where I can get information on this subject?—Subscriber.
There have been several articles in the California Cultivator touching upon breeding and care of turkeys but

we regret that we have in our library no book on general turkey raising excepting Mrs. Koethen's "Poultry for Profit," which treats on turkeys in one chapter. This book, by the way, is the biggest value we know of for \$1 and if republished today would necessarily sell at \$2 per volume. This may be had by writing this office. Write the United States Department of Agriculture, Washington, District of Columbia, and ask for Bulletin 791. Also write Washington State Experiment Station, Pullman, Washington, and ask for Popular Bulletin No. 86, "Turkeys."

Wormy Pears and Peaches
Please let me know what kind of spray to use for codling moth in pears and peaches and when to use it.—Subscriber.
The method for handling codling moth is to spray with arsenate of lead about the time the trees are finishing blooming and again in two or three weeks with repetitions of the treatment and after that at intervals throughout the season of three or four weeks. In this spraying the only effort should be to get the spray on the fruit, especially in the blossom end. Formulae for the arsenate sprays may be found on page 314 of the spray special of September 24, 1921. By referring to peaches we presume the inquirer is asking as to the peach worm or twig borer. This pest affects both the twigs and the fruit. It may be controlled to an extent at least by spraying with lime-sulphur spray just as peach buds are beginning to swell. The state department of agriculture is issuing new information as to the control of this pest which will be given in a later issue of the Cultivator.

VETERINARY
(Continued from Page 195.)
and milking it out about three or four times a week until she is fresh. There is little or no use applying anything to the outside. If she refuses the salts you might drench her with some of it dissolved in water once or twice a week but if you can keep her bowels free by feeding green feed or some roots then do not bother with the salts. Reduce her feed until she

comes fresh even if she does lose a little flesh. Since she shows so little recation from the test you may as well forget it. There is no use of testing her over and over again.

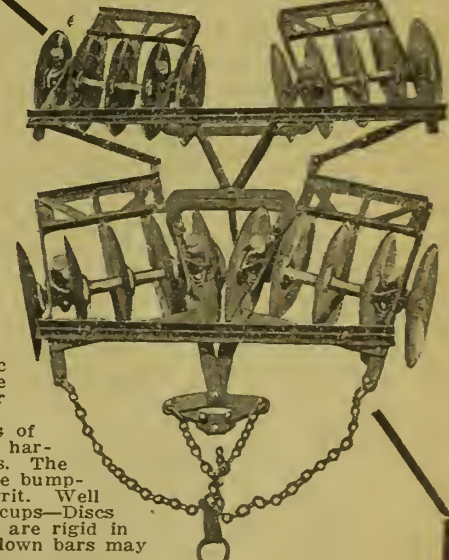
CHAMPION TURKEY
Mr. Van Ness of the Bronze King Farm of Merced writes regarding a recent purchase of a Giant Bronze cock turkey, Goldbank VIII. Goldbank was the first prize winning cock at Madison Square Garden, 1921. A winner at Madison Square has to be well up toward 100 per cent good. Goldbank was preceded in its trip to California by Goldbank Boy, a first prize winner. Presumably the price paid for such birds is in the class "strictly fancy prices." This progressive poultry farm has also secured this year's third prize cockerel at Madison Square Garden, being a grandson of Copper King V, and is now negotiating for and expects to secure this year's winning cockerel at the same show. The introduction of such blood will add materially to the wealth of California.

FIFTIETH ANNIVERSARY
Organized in 1872 with less than \$2,000 capital, Montgomery Ward & Company of Chicago has grown to be one of the greatest commercial institutions of the country. Both Montgomery Ward and his early partner, George R. Thorne, have passed, but the great concern continues to grow and make good its slogan, "Render the public a genuine service—sell only honest goods at lowest prices." Regarding conditions as they were at the time of the organization of the company the jubilee number of their catalog says: "There were no telephones in 1872, no electric lights, no electric street cars, no typewriters, no department stores. The first Atlantic cable had just been laid, and Chicago, a city of less than 300,000 people, was rising from its ashes. It was the year after the great Chicago fire, which burned over 17,000 buildings and made 100,000 people homeless."
This catalog, by the way, is a mammoth book of 642 pages with literally thousands of illustrations. Many of these are color plates giving a most excellent idea not only of style and cut but of colors and most delicate shades.

WEATHER REPORT
San Francisco, Feb. 11, 1922

Stations	Week	Season	Norm.	Max.	Min.
Eureka	3.12	18.07	27.41	54	34
Red Bluff	1.56	12.24	15.33	62	32
Sacramento	2.50	10.36	12.01	60	36
San Francisco	3.08	14.26	14.08	60	40
San Jose	2.12	11.26	10.07	68	34
Fresno	.46	6.98	5.77	68	37
San Luis Obispo	2.88	15.31	12.07	72	44
Los Angeles	2.16	15.30	9.30	70	40
San Diego	.45	15.33	6.04	72	42

THE KILLEFER
MEDIUM WEIGHT
AUTOMATIC DISC
HARROW
FOR LIGHT TRACTORS
FIVE FOOT
\$132.50



The Killefer Quality Automatic Disc Harrow at this new price offers the maximum of implement value for orchard and vineyard work.
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CALIFORNIA CULTIVATOR

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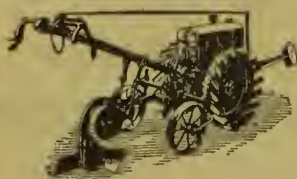
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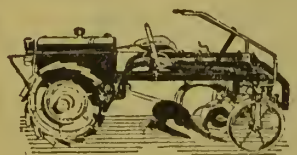
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Birdseye View of This and Past Years' Freezes in Southern California

A PROPER perspective is not an easy thing to acquire, whether it be physical or mental. However, in the consideration of past and present weather conditions it is not difficult to see the effects of this year's freeze from an airplane or, by means of climatological statistics, to compare this year with temperature records extending to 1877 in the case of Los Angeles and to 1852 of San Diego.

The writer made an extensive flight



Wasting Away to the Ocean
Photograph taken by Dr. Carpenter from airplane, February 6, 1922, showing Temecula River pouring its waters into the Pacific which is 30 miles away. Photograph was taken from a point about 1,000 feet above the river which is approximately 1,000 feet above sea level.

on February 6, 1922, over the greater part of the citrus district of Southern California, and a rapid and superficial survey was made of frost damage. By means of comparative curves of Los Angeles and San Diego this year's temperatures may be readily studied with reference to the occurrences of half a century and over. The result of such surveys may not be without interest at this time, when nearly every one is asking himself, "How widespread is the frost damage?" "Is the climate of California getting colder every year?" and "How best to prepare for infrequent but inevitable frosts?"

The basket of a balloon, the pilot's seat in a dirigible, or the cockpit of an airplane offer ideal observation points for the study of the ground. From an airplane last week it was possible to obtain a rapidly moving panorama of some of the relative damages to citrus plantings by noting the varying shades of color, which ran the gamut from the deep green of untouched orange groves to the seared yellow of the frozen lemon groves. Passing over foothill groves it was remarked that the plantings near the debouching valleys were generally untouched owing to the effective air drainage. The destruction of certain varieties of native growth in the river bottoms, which was evidently 12 or 14 years of age, was practically widespread. At an altitude of a couple of thousand feet the effect of artificial heating upon citrus groves was very

By Dr. Ford A. Carpenter, Manager Department of Meteorology and Aeronautics, Los Angeles Chamber of Commerce

apparent; the protected groves stood out by contrast like oases in a desert. Aviators report that during the protracted period of cold weather the smoke of the oil pots rarely extended above the 1,000 foot level and in no case reached higher than 1,200 feet. This year's frost is the tenth since 1877 and, although the most damaging since 1913, in all probability is only one of four or five serious freezes which have visited Southern California in the past half a century. Six features contributed to making the present frost an injurious one.

First, the enormous extension of the citrus industry. This is shown by the generous planting of lemons and oranges, whose acreage has become so great as to require unusual skill in marketing during the past decade. Such extensions mean greater aggregate frost losses.

Second, plantings have been made in localities where nature never intended tender trees should be grown. For the time being it was forgotten that Southern California has not a tropical, or, strictly speaking, a semi-tropical, climate.

Third, the present freeze was preceded by a long period of generally frost free years which produced overconfidence in the grower.

Fourth, the rains of the four or five weeks before the recent freeze were unusually warm, causing almost unprecedented growth and abundance of sap.

Fifth, this same rainy period interfered with proper placing and care of the artificial heating appliances.

Sixth, too much reliance was placed on so called natural immunity from frosts and inefficient frost fighting equipment.

A study of past frost records is most instructive, proving that Byron was right when he wrote: "The best of prophets of the future is the past."

The following table shows all occurrences of temperatures below freezing in the Los Angeles district during the past 46 years. Twelve frosty periods occurred during this nearly half century, or, on an average, one year in four. The frostiest group of years was from 1878 to 1880, inclusive, and the longest period without frost was between 1902 and 1912.

Days Temperature Below 32 Degrees at Los Angeles Since 1877

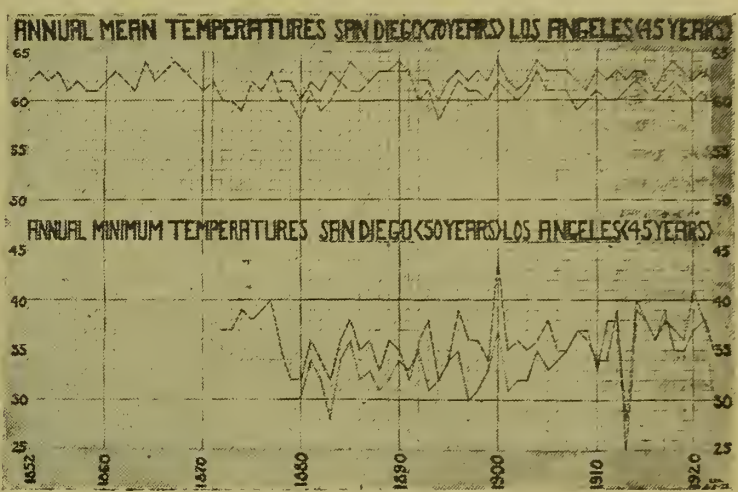
(Records of United States weather bureau, standard government roof exposure of thermometers.)

Year	Month	Date	Temp.
1878	December	14	30
1879	December	25	30
1880	January	29	30
1883	January	20	30
1883	February	3	30
1883	February	6	28
1888	January	9, 10, 16	31
1893	March	9	31
1897	December	21	30

1898	January	26	31
1901	December	13	31
1913	January	6	30
1913	January	7	28
1922	January	20	31

(Attention is called to the fact that the records reported by these figures are made in city environment. Orchard temperatures for the period reported are not available.)

In a majority of instances frosty years are wet years, and a group of dry years is invariably notable for warm winters. Such findings fit very well into the general scheme of things



"Is the Climate Changing?"
This question is frequently asked, and the answer is graphically given in this chart, decidedly replying in the negative. The recent cold spell with its attending destructive frosts impressed many with the belief that the climate of Southern California was becoming colder. Perusal of these comparative curves of temperature during periods of 70 and 45 years will convince the most skeptical that there is no progressive change in climate.

The record at San Diego, which began in 1852, is the longest record in Southern California, and one of the few uninterrupted governmental series of observations in the country. Charted with the San Diego record is the much shorter record of Los Angeles. These lines show two important facts: 1. The weather at San Diego or Los Angeles is not becoming warmer or colder with the progress of the years. 2. That temperature changes are general over Southern California, which fact is proven by the regularity of the difference between the temperatures at Los Angeles and San Diego.

meteorologically considered. It is an axiom that any disturbance in the delicate balance of weather equilibrium must of necessity find expression in extremes. We may visualize this if we recollect how when standing on the seashore we see the on-coming waves. Whenever there is an unusually high crest there is always a proportionately deep trough. So it is with the great atmospheric waves that follow in procession around the earth from west to east. They are shown on the weather maps as "highs" and "lows" and depict the existence of mobile areas of high and low barometer. A succession of areas of high barometer is in control during warm dry years, and cold and wet years are usually associated with prevailing low pressure areas.

The question most frequently asked during the recent frost was, "Is the climate changing?" and the answer is graphically given in the chart of temperatures. Perusal of these comparative curves of temperatures during periods of 70 and 45 years will convince the most skeptical that there is no progressive change in climate. The record at San Diego, which began in 1852, is the longest in Southern

California and one of the few uninterrupted governmental series of observations in the country. Charted with the San Diego record is the shorter record of Los Angeles; these lines show two important facts:

First, that the weather at San Diego or Los Angeles is not becoming warmer or cooler with the progress of the years.

Second, that temperature changes are general over Southern California, which fact is proved by the regularity of the differences between the temperatures at Los Angeles and San Diego.

Is it possible to predict frosts or other weather conditions a season, a month or a week in advance? Meteorologists answer in the negative. Weather depends upon a great number of very aptly termed "variable

factors," the most important of which is the irregular changes in the so called "solar constant." This now is being studied at Mount Wilson and other astronomical observatories throughout the world. It must be remembered that meteorology is one of the youngest of sciences, less than a century old, and we await some Newton to discover the great fundamental law which may bear the same relationship to weather conditions that the law of gravitation bears to astronomy. Meteorologists are agreed that there is insufficient evidence to support any relationship between sun spots and weather or the motions of the planets or the existence of periodicity or weather cycles.

Among precautionary measures which may be taken by the orchardists are the following:

First, proper selection of the regions to be devoted to citrus culture, realizing that local environment plays a most important part in temperature control. Second, individual preparedness. This was emphasized in an article by the writer in the Cultivator of last November: "The real preparedness for coming seasonal weather" (Continued on Page 223)

Agricultural News Notes of the Pacific Coast

Northern California

Sonoma County's farm bureau held its annual meeting and election on February 22.

Thirty farmers in the Roseville farm center of Placer County have just finished installing a telephone line.

Placer County orchardists are urging that the horticultural commissioner take charge of the fight against pear blight.

Yuba and Sutter Counties are discussing joining in the building of a new bridge over the Feather between Marysville and Yuba City.

Colusa County will probably hold a road bond election early in April. The good roads committee of the farm bureau is working for the issue.

The state highway commission has let contract for construction of 17 miles of highway between Forsythe Creek and Outlet Creek in Mendocino County.

R. B. Eason of the agricultural extension service has been in Shasta County this week giving demonstrations in the essentials of housing and feeding poultry.

Engineers gathering data on water resources of the state are now working out of Redding, Shasta County. They will next make survey of the Iron Canyon dam.

Many orchardists of the Coloma and Lotus districts in Eldorado County are trying out for the first time the long pruning method, following demonstrations by Dr. Whitten.

The Willets Farm Bureau is to build a community hall at Willets this summer. Wm. Clan is president. The Chamber of Commerce is cooperating with them in the matter.

A survey of the state to determine means of stamping out malaria has been undertaken by the state board of health in cooperation with the Rockefeller foundation of the International Health board.

Poultry Producers of Central California handled 662,606 cases of eggs in 1921, an increase of 44 per cent over 1920. Pool sales amounted to \$6,833,051, 1½ per cent less than the year before, because of lower prices.

Petitions have been approved by the supervisors for the formation of an irrigation district to cover 15,000 acres in the Fall River Valley of Shasta County. The district will include Glenburn, McArthur and Fall River Mills.

Three septic tanks have been built in different sections of Shasta County under supervision of H. L. Belton of the agricultural extension service. The plan is to build such a demonstration tank in each of the 15 centers in the county.

The California Beekeepers Association at its 33rd convention at Visalia elected Cary W. Hartman of Oakland president, Casper Hauser of Sacramento vice-president, and C. D. Stewart of Chico secretary-treasurer. Executive committee chosen: R. L. Watkins, Selma; Phil Strubel, San Francisco; J. A. Howard, Oakland.

Manager Tucker of the Almond Growers' Exchange has returned from the agricultural conference at Washington. He reports a general feeling among delegates in favor of a similar national gathering every year or biennially to work out agricultural problems and present the needs of agriculture to the government and the country.

Central California

Delano, Kern County, is shipping head lettuce. About 130 carloads will be sent out.

Farm center meetings in Kern County at Shafter, March 1; Arvin, 3; directors, Bakersfield, 4.

At Calwa, Fresno County, a \$150,000 addition to the ice plant for fruit cars has just been completed.

Plans are being worked out to consolidate the Bakersfield and Kern County libraries under administration of the county.

County Veterinarian Edwards of Tulare reports to the supervisors that there are no more cases of hog cholera within the county.

Breaks in the High Line irrigation canal near Turlock, caused by the heavy rains, put a section of the lowlands under 15 feet of water.

Contracts have been let for state highway construction in Santa Clara County between San Felipe and the eastern boundary of the county.

Petitions are being circulated for a project to store and distribute the waters of the Kern. Some opposition has developed in the Panama district.

About 1000 acres have been planted to peas around Waterford and Empire, Stanislaus County, on contract with the Pacific Pea Packing Company.

The Biola, Fresno County, fruit exchange refunded to members for 1920 crops \$7,873, more than double the amount for 1919. Sixty-two carloads of fruit were shipped in 1921.

Report of the Tulare Cooperative Poultry Association shows price of January eggs 35 cents compared with 48 cents last year. Total business for the month amounted to \$15,937.

Members of the Tri-City Citrus Club of Jasmine, Richgrove and Ducor are considering joining the farm bureau of Tulare County. There is talk of the farm bureau securing a citrus adviser.

The Western Citrus Honey Corporation has 25 men at work in its plant at Woodlake, Tulare County, preparing for the orange blossom season. It will have 4,000 stands of bees in the orange orchards.

Forest Supervisor Cunningham, whose headquarters are at Porterville, says that he expects the Sequoia national forest to be self supporting this year from power and grazing fees and camp fire permits.

The Tulare Cooperative Poultry Association reports last year's output far ahead of the previous year: four times as many baby chicks sent out, for one item. Also feed is but two-thirds of previous year's prices and the outlook is bright.

The executive committee of the proposed water storage district has issued pamphlet containing statement of the law and principal facts with which land owners should be familiar. These may be secured from W. F. Hume, secretary of the chamber of commerce at Los Banos, Merced County.

The Fresno chamber of commerce reports: California now has 35,000 acres of figs under cultivation, last year's crop exceeding one million dollars in return, according to A. E. Sunderland, secretary of the Peach and Fig Growers, Inc. The estimated value of the state's fig orchards is \$20,000,000.

Southern California

For the first time in years Lake Hemet is full and overflowing.

Saticoy, Ventura County, is hoping for location of a creamery there by a Tulare County concern.

The San Diego County farm bureau is backing plan to establish a free farmers market in San Diego.

Horticultural Commissioner Kellogg of Santa Barbara County has been re-appointed for another four year term.

Work will commence on the \$100,000 bridge over the Santa Ana at Riverside as soon as weather conditions permit.

The establishment of a deer park in the San Jacinto mountains is favored by the Riverside County farm bureau.

The regular meeting of the Elsinore farm center of San Diego County is held on the second Monday of each month.

The farm bureau centers of the Antelope Valley of Los Angeles County held a poultry show at Lancaster, January 27-28.

Ventura County will erect a vacuum fumigator at Santa Paula where all nursery stock entering county may be fumigated.

Imperial Valley lettuce growers are happy over present prices of their crop. February 15 prices were \$3.25-3.75 per crate.

The Duarte-Monrovia Exchange began picking navels February 15. About one-fourth of the crop in that district was shipped before the freeze.

Costa Mesa apple growers held their first annual meeting and election of officers February 14. Five hundred acres are represented in the association.

The Colorado River Commission met in El Centro, February 20, to discuss with irrigation experts a program of conservation and reclamation.

The rate raises recently ordered on electric lines by the state railroad commission are crystalizing sentiment in several sections in favor of publicly owned bus lines.

The Villa Park, Orange County, Orchards Association is planning expenditure of \$275,000 in construction of packing house with pre-cooling and pre-icing equipment.

At a special meeting of the sugar beet growers from Ventura, Los Angeles and Orange Counties, a resolution was passed urging the farm bureaus of these three counties to organize sugar beet growers departments.

Sugar beet growers of Southern California have asked the U. S. department of agriculture to undertake a special investigation of the principal insect pests of the beet which it is estimated each year exact a toll of millions of dollars.

District Agent Runge of the Southern Pacific announces the total cantaloup acreage for Imperial Valley for 1922 as 26,461, an increase of more than 4,000 acres over 1921, or 15 per cent. His estimate for Brawley is 6,734 acres.

The crystal test for frosted oranges has been given up by the state department of agriculture and the familiar "drying out" test will now be used by inspectors. This test was employed in 1919 and is the standard used by federal officials.

The Coast and General

The Pan-Pacific Commercial Congress will be held at Honolulu some time in June.

A farmer at Satsop, Washington, reports raising 18 tons of sunflower silage to the acre.

Mexico abolished on February 1 all passport restrictions on Americans entering that country.

A 10,000 acre irrigation project is proposed for the vicinity of Riverside, Okanogan County, Washington.

The recent agricultural conference at Washington unqualifiedly endorsed legislation authorizing cooperative marketing.

Work for the jobless in Sweden is to be provided by a special appropriation of \$21,000,000 to be expended on road work.

County Horticultural Commissioner Tanner of San Luis Obispo County is conducting a fight with carbon bisulphide against the squirrel pest.

A bill has been introduced in the New York legislature to consolidate some of the agricultural bureaus and eliminate others which have grown superfluous.

Phoenix, Arizona, is enjoying its new water system just completed at a cost of \$1,500,000. The supply comes from the Verde river through 30 miles of redwood pipe line.

Approximately 7,000,000 feet of timber was blown down and uprooted during the storm period on the upper Skagit, Sauk and Suiattle Rivers, according to word received at the office of the forestry service at Bellingham, Washington.

A Chehalis, Washington, judge has just rendered decision affirming binding power of the contract between the Lewis-Pacific Dairy Association and its members. The farmer against whom test suit was brought was delivering to other dealers.

A loan of \$100,000,000 by the government to the nation's farmers and revival of the United States Grain Corporation were recommended as agricultural relief measures by Benjamin C. Marsh, managing director of the Farmers National Council, testifying before the senate agricultural committee.

The public service commission of Nevada has recently issued an order requiring drivers of auto stages and trucks engaged in the transportation of passengers, explosives and inflammable liquids, to stop before crossing the tracks of any steam or electric interurban railroad and look in each direction for approaching trains.

The Whatcom County, Washington, Dairymen's Association in 1921 with 1,651 members, and 11,776 cows sold milk and butter to the value of \$1,053,111. Butter sold amounted to 2,220,668 pounds, the average price received being 40 3-5 cents. Powered milk to the amount of 1,295,141 pounds was sold. The average price paid for fat at the producer's door was 45 1-3 cents.

A cooperative marketing association has been incorporated by tobacco growers of Wisconsin, Indiana, Ohio, Kentucky, Tennessee, Virginia, West Virginia, North Carolina, South Carolina and Georgia. The form of organization is similar to that of the California fruit marketing associations, upon which plan it was modeled under direction of Aaron Sapiro of San Francisco.

White Yolo a New Grain Sorghum

By Professor G. W. Hendry, University Farm

THE chief objection to growing milo and Egyptian corn has been the high expense of harvesting. These crops have been so non-uniform in height, so goosenecked, and so heavily stooled that heading machinery could not be

stooled heavily and which do not stand more than four feet in height, may be cut with a rice or wheat binder and the entire bundles fed through the separator. This method has been used at Davis and was employed by the Sutter Basin Company, on some 1500

The problem of producing grain sorghums or Egyptian corn in California has been largely a question of devising more economical harvesting methods. These crops are more productive than Indian corn over large parts of the state and may be grown with less moisture supply. The state experiment station has been attacking the problem from the angle of breeding a variety more dwarf and uniform in growth and more easily harvested and implement manufacturers have been working from the angle of perfecting more efficient heading machines. On October 15 implement manufacturers met at Davis and tested various types of headers on various types of grain sorghums. Much intelligent discussion developed, new ideas were advanced, and as a result new types of machines are now being made, new varieties being distributed, and another step in agricultural advancement in California recorded. This article reviews the progress in this field to date.

used efficiently in harvesting them, and the common practice has been to pick the heads by hand. The high cost of this operation has deterred many from growing an otherwise productive and adapted crop. Many years of selection have given some improvement in the uniformity and dwarfness of milo but never enough to make it readily adapted to heading machinery, and the Egyptian corns, while heavy yielders, are still as irregular and as goosenecked as at the time of their introduction into California from Egypt in 1874. We have tried to grow the straight headed kafirs in California from the Middle West but have found them to require 160 days or more to ripen in this climate with its cool nights, and have consequently been obliged to discard them. Darso, hegaria, and spur feterita have been rejected for the same reason. Standard feterita is too tall, too hard to obtain a stand with and not productive enough. Milo was our best all round variety and the one recommended generally by the experiment station, but this has now been improved upon by White Yolo, a new hybrid bred and selected at Davis and bearing the name of the county in which it originated.

Yolo Easily Headed

Yolo ripens as early as milo and in yield tests at Davis for two seasons has yielded slightly more than milo. Its chief advantage over milo or other grain sorghum varieties however lies in the dwarf stature (4½ feet under average conditions), its uniformity of height, and its erect carriage of all of its heads. The 1921 crop of Yolo at Davis was easily and cheaply harvested with heading machinery. Three makes of headers were demonstrated on October 15 before a group of interested farmers and implement manufacturers and all worked satisfactorily. As a result of these tests a California manufacturer is preparing to put on the market next spring two machines, a one row and a two row header. This is an example of breeding a crop to fit the machine. No heading machine previously on the market has been able to operate satisfactorily on the non-uniform, goosenecked varieties in use, but a new type of nine foot header, made in California, which operates upon the principle of a stripper, has recently made its appearance and promises to solve the problem of machine heading irregular goosenecked grain sorghum varieties. White Yolo is as uniform in height as wheat or barley and the common grain header such as is used in the Salinas valley for barley and oats may be used to head it. Unfortunately no grain sorghum ever matures and becomes dry enough while standing on the stalk in the field to be cut and thrashed simultaneously with a combined harvester, and it will generally be necessary to first head, dry, and then thrash. There are always some green heads present, and the moisture in these is sufficient to cause heating of the other seed in the sack unless dried before thrashing.

Use of Binder

Light crops of milo, which have not

acres last season, but is possible only where the crop is light and poorly developed.

The one row corn binder is the machine generally used for harvesting (Continued on Page 208)



Field of White Yolo on University Farm at Davis. Field planted May 15 to 19. Land irrigated prior to planting, again on July 10. Yield of thrashed grain, 2,909 pounds per acre of recleaned grain, weighing 60.5 pounds per bushel, or 135 pounds per sack. Note uniform height, erect heads easily handled by header. Also see illustrations on cover page.

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A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established
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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

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Saturday, Feb. 25, 1922

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We guarantee our subscribers against
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in the Cultivator. We do not attempt,
however, to adjust trifling differences be-
tween subscribers and honest, responsible
advertisers, nor will we pay the debts of
honest bankrupts. Notice of complaint
must be sent us within 30 days from date
of the transaction, and the subscriber
must have mentioned the Cultivator when
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If among the more than 40,000
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any fall to find any article they desire to
purchase advertised in the Cultivator's
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to let your wants be known to the Cali-
fornia Cultivator and we will place you in
touch with proper parties.

EDITORIALETTES

"Handsome is that handsome
does" is illustrated on the cover. Cer-
tainly that sorghum grain is doing
handsomely. Fuller explanation of it
is given in Prof. Henry's article which
appears on fifth page. This new
sorghum grain, developed on the uni-
versity farm, has been named "White
Yolo." After reading the article turn
back to the lower of the photographs
on the cover and note the difference
in the two sorghums, White Yolo with
its uniformly erect heads, while at the
extreme right of the picture, grown
under equally favorable conditions, is
ordlary milo. It is badly lodged and
so uneven as to make harvesting with
a header an impossibility. With its
economical harvesting White Yolo is
also capable of producing nearly a
ton and a half of threshed grain per
acre.—Photos by Prof. Hendry.

Let us all keep in mind "Form
1040A" and "1040F." March 15 is the
limit and it is coming with wonderful
swiftness and our income tax return
should be in. Some are so fortunate
as to be able to make their return on
"1040," but in whichever class we are
let us not forget the "Ides of March."

WAKE UP

Unless the people of California
wake up there is danger that they
will lose a great heritage, that they
will be tricked out of it like Esau and
barter away their birthright for a
mess of pottage—and the pottage
which is offered to them is of such des-
perately thin consistency that it does
not have the flavor of even good water.
The hydroelectric power companies
wish control of the wonderful "white
coal" possibilities of California's

DESPISED HIS BIRTHRIGHT

And Jacob sold pottage: and Esau came from the field, and he was
faint: And Esau said to Jacob, feed me, I pray thee, with that same red
pottage; for I am faint: therefore was his name called Edom. And Jacob
said, Sell me this day thy birthright. And Esau said, Behold, I am at
the point to die: and what profit shall this birthright do to me? And
Jacob said, Swear to me this day; and he swore unto him: and he sold
his birthright unto Jacob. Then Jacob gave Esau bread and pottage of
lentiles; and he did eat and drink, and rose up, and went his way: thus
Esau despised his birthright.

mountains; further, they are going
to secure control of those possibilities
if it is within their power. The as-
tounding part of it is that they are
receiving aid and comfort at the hands
of those who should be stading for the
interests of the people. Some cham-
bers of commerce and many of the
newspapers representing rural com-
munities are advancing "reasons" for
votes against the California Water
and Power Act, the fate of which will
be decided by the voters at the next
general election in December. The im-
mensity of the wealth at stake is prob-
ably the cause of the bitter campaign
this early, and all too many of the
people seem ignorant of the fact that
their rights to this great wealth are
jeopardized. In their anxiety to se-
cure additional support hydroelectrics
are offering to those who will invest
interest returns nearly double what
the state may secure funds for to use
in development of its own resources.

Apparently many of these investors
covet a share of the wonderful wealth
which these companies are endeavor-
ing to secure possession of, and they
are putting up their money freely in
the hope that the people will be com-
pelled to purchase the power—which
they own—at prices which will justify
great return to the owner of stocks in
hydroelectric companies. This very
campaign of securing support of in-
vestors at the expense of the great
mass of the people should be sufficient
to startle the sleepers and prod the
believers in ownership of the peoples'
own by the people, which just at the
present time means fighting those who
are conducting the present campaign.

Users of hydroelectric power, wake
up! The Cultivator hopes to have
some "points" in early numbers.

One point which the "other fellow"
is giving to us through a central Cal-
ifornia paper is this:

"The power companies have at-
tacked the right of the irrigation dis-
tricts to store water for irrigation
purposes, and the new filing is made
for that purpose. Under the conten-
tion of the power company the dis-
tricts must make continuous use of
the water to hold it, and the new filing
will give the opportunity to test out
that contention."

All of which is only one of the first
steps in the big campaign to take the
people's property. It is not often that
we will see the mailed fist as in this
case for most of the campaign will be
conducted along a different line.

There was once a tribe of Indians
living on the banks of the Colorado.
They were contented and peaceful and
happy. For warmth and for cooking
they pulled from the swirling stream
driftwood which dried and served per-
fectly. Came one more civilized, and
with an idea of giving a higher civili-
zation to the savage, and he suggested
that hereafter he would take charge
of the division of the driftwood and
the natives would be permitted to re-
tain only one-half of the driftwood
drawn from the river. One is as-
tounded when he notes the number of
natives there still are along the banks
of California streams who are willing
and even anxious to receive from the
promoters a half of their own drift-
wood.

GEORGE HAROLD POWELL

G. Harold Powell is dead. He
died, as he had lived, in the midst of
intense activities. There was no stop-
ping to rest, no retiring from any of
the big things of life in which he had
engaged. He rendered service to his
country in scientific horticultural
work with the U. S. department of
agriculture, with Food Administrator
Hoover during the war, in the recent
agricultural conference at Washing-
ton and in many other conferences af-
fecting the welfare of the people. At
the Washington conference he was

United States and Canada, gives the
following condensation of his life his-
tory:

"Powell, George Harold, general
manag. Cal. Fruit-Growers Exchange,
Los Angeles, Cal. Hort. and ent., Del.
Exp. Sta., 1896-1901; asst. pom., U. S.
Dept. Agr., 1901-4; pom. in chg. fruit
transportation and storage invests.,
1904-9; asst. chief, Bur. Plant ind.,
1909-11; present position, 1911—;
chief div. perishable foods U. S. Food
Administration, 1917—. Del. from U.
S. to Inter. Assoc. of Refrigerating In-
dustries, Paris, 1908. Auth.: Coopera-
tion in Agriculture, 1913. b. Ghent,
N. Y., Feb. 8, 1872; s. Geo. T. and
Martha (Chace) P.; reared on farm;
m. Gertrude E. Clark, Jul. 1, 1896; c.
H. Clark, Geo. T., Lawrence C. B.S.A.,
Cornell Univ., 1895; M.S.A., 1896.
Sigma Xi; Kappa Sigma."

Funeral services, strictly private,
were held on Tuesday. Arrangements
are in the making for a public mem-
orial service which will give all coope-
rators, and especially citrus fruit
growers, opportunity to recognize the
great service rendered the fruit in-
dustry.

ORANGE SHOW RAIN

The state is getting another
drenching. It started in the north and
has gradually coasted down until it is
deluging the southern end of the
state. Producers are crying "enough"
and are wishing for an opportunity to
do some work. Even the citrus grow-
ers are anxious to begin picking,
which is impossible on soggy ground
and with soaked oranges.

The management of the National
Orange Show is looking at the leaden
clouds and reviewing history of past
orange shows and recalling the delu-
ge which visited the first one held a
dozen years ago.

But really the state is not worrying
greatly for a deluge is to be preferred
to a drouth.

The Orange Show



UT where the Colorado des-
ert once was the white man
came and planted dates. They
grew and bore abundantly.

The weather was not to the
man's liking, however, for it was in-
tensely hot. The heat filled the dates
with sugar. People liked them and
they sold at fabulous prices. Then
the grower boasted of the heat which
he had formerly excused. Another
great California valley where summer
prevailed was that of the San Joaquin.
It boasted of its heat and even made
virtue of the fact that in the moun-
tains along its eastern edge the snow-
fall was the greatest of any place in
America, and as a reason for the
boasting called attention to the fact
that the summer's sun and the win-
ter's snow banks brought together in
the vineyards of the valley resulted
in vast wealth because of the sugar
stored in the raisins. Following the
example of these growers, the grower
of the golden orange ceased apologiz-
ing for the weather which at times he
felt was unfriendly. When he saw
indications of mid-winter cold stalk-
ing through the orchards where the
citrus grows he said it is well and he
began to boast of the fact that of all
the places in the world where the
orange reaches greatest perfection in
flavor, in acid and in sugar, there is
none equal to that section where frost
danger is great. He pointed to tropi-
cal Brazil where none ever heard of
shiploads nor of 50,000 carloads of
oranges being shipped from that tropi-
cal country where the Washington
Navel orange originated. The islands
of the Caribbean, and in fact all other
places with tropical conditions, have
failed in producing the perfect orange.
But crowded up on the foothills of the
snow-clad mountains of California it
reaches perfection and wealth is in-
creased. So annually the growers of

the orange, the lemon, the lime, the
pomelo and the citron come together
with their products and make a show
national in scope and boast of the per-
fection of the orange. This year's ex-
hibition is the twelfth.

Several acres of Urbia Springs Park
were required to house the exhibits
and the attractions brought together.
There were three monster tents, the
central and larger being filled with
citrus fruits and citrus by-products,
the others with implements and equip-
ment used by orchardists and with
commercial exhibits. Perhaps one of
the most striking exhibits was that of
the by-products, a subject of particular
interest in a year like this. The prin-
cipal features of this exhibit were col-
umns six or eight feet high and nearly
a foot in diameter, made of monster
glass tubes filled with sliced citrus
fruits. There were by-products in the
form of confections, marmalades, jel-
lies, pies, cakes. There were oranges,
lemons, grapefruit and limes pre-
served. There were "straws" and
many other forms of candied and pre-
served peel, and nearly all of these
by-products were exhibited as the pro-
duct of the home kitchen. The Uni-
versity of California made its usual
exhibit of varieties, and here again
there were literally hundreds of dif-
ferent citrus fruits varying from the
tiny kumquat to the monster and
worthless Shaddock.

Newspaper people gathered on the
opening day and learned the lesson of
the citrus and commented on the ex-
cellence of the exhibit. All California
made greatest effort to bring of its
high quality fruit because of the sug-
gestion that had been given out after
the cold spell that a citrus exhibit this
year would be impossible. So when
the fruits came together it was found
that the judges had no light task in de-
ciding as to its superiority. It was
fine in appearance, it was fine in
quality.

And none of the exhibits was grown
in the tropics.

Bulk Grain Storage

CALIFORNIA is in the midst of a radical change, agriculturally. A gradual transformation from the wasteful method of handling grain in sacks to the system of up-to-date machinery and bulk handling is at present going on.

The start was made some 12 months ago, and while much opposition to the movement has been incurred from the various industries interested in the sack, progress is well under way for the present campaign which will put the finishing touches on last year's work.

Farm Storage the Primary Need

It was proven by last year's experience that instead of the necessity for country elevators being constructed first, the real necessity was for farm storage and that the need for the elevators naturally follows.

The reason for this is that the elevator, which would naturally hold but a very small percentage of the grain in a certain locality, should be operated for cleaning, mixing and loading of grain on cars and not be filled with grain at the early run of harvest, thereby blocking the very purpose for which the plant was built. If the country elevators were kept open so that a free flow of grain could be taken in, and the various qualities kept separate in bins reserved for them, then blended and loaded on cars, the elevators would be busy the year around, even in localities where the change from sack to bulk handling had not been completely accomplished. So operated, the elevator could earn adequate returns on the investment. Therefore it may be seen that the first logical requirement is some sort of storage the other side of the country elevator—that is, on the farm. From such storage the grain may be fed into the elevator as the market requires it. Then and then only is the bulk handling problem solved.

Savings Pay Cost

Figures taken from last year's experience prove that from 15 to 20 cents per sack was saved by bulk handling from the harvest field to aboard the cars. On the basis of this year's prices of labor and materials, the savings per sack reasonably to be expected from the adoption of bulk handling are about as follows:

Loss Eliminated by Bulk Handling

Cost of sacks, 7 cents; twine, 1/2 cent; storage, 7 1/2 cents; insurance, 1 1/2 cents; waste and spillage, ratage, etc., 4 cents; labor and material, repairing broken sacks, 1 cent; labor handling sacks, 2 cents. Total 23 1/2 cents.

Metal grain bins in the larger sizes cost approximately 20 cents per sack or about \$500 for one that will hold 2,700 sacks of grain. The bins are the principal item of expense in changing from sack to bulk handling; so it is evident that the savings on one or two harvests will be sufficient to pay all the costs of the change.

Avoiding the Harvest Rush

With the grain stored on the farm the grower will get away from the forced haul at harvest time (which in many instances is a long one) and may haul at his convenience later on. Men and teams may be spared for such work much more easily in October or November than in June.

Holding for Favorable Markets

At times the highest price being paid for barley may be in the middle west where they want the grain in bulk, or it may be sold in bulk for export to be shipped from San Francisco, and consequently shipments in bulk will be in order. Should these prices be out of line, and the highest prices obtainable in the poultry districts of Northern California or near Los Angeles, then shipments may be made in those directions. Some of the large dealers in the poultry districts buy their grain in bulk; but if sacking is required, it can be accomplished much more cheaply at the storage bin than in the field.

The prevailing daily market on all grains continually changes in the different market localities. Consequently if the grower will get in touch with other buyers than the one local buyer at his home station, and be

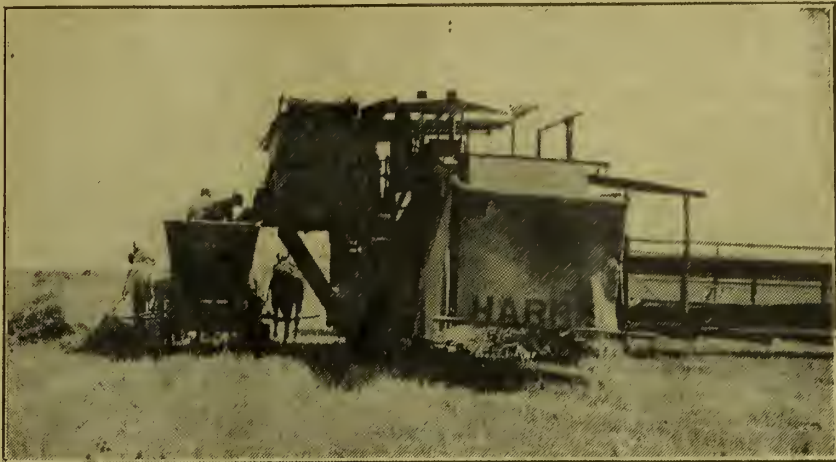
able to ship his grain either in bulk or in sacks, and when dealers or millers are most anxious to buy,

able at tidewater will be very useful in connection with grain that is to be exported. If, however, it turns out that better prices are to be had in the local or middle west markets, the farmer is much better off if the grain is still on his own premises, since

half way last year did not fare well; that is, those who sacked their grain, then hauled it to elevators and dumped their sacks did not achieve the big end of the saving; but the growers who went at the proposition in a full, confident way obtained more than they expected.

"Those Who Came to Scoff"

The logic of actual events has converted many doubters and scoffers into whole-hearted boosters. Some of the local warehousemen who were strongest in opposing the bulk movement last year, claiming that there would be no market for bulk grain, have themselves been the best buyers of bulk grain in their localities, and at the best prices. And quite a number of farmers have realized for the first time that there is really no need for the grain harvesting season being a time of tugging, sweating and swearing, since it can all be accomplished by machinery, regardless of the height of the thermometer, and with no one lifting anything heavier than a gallon oil can.



Delivering the Bulk Grain Direct to the Wagon
Scene on the Kilkeney Ranch, where the big combine is delivering the grain direct to wagon.

these seemingly small differences will net him several cents per sack more than he has usually received.

Terminal Elevators Essential
The terminal elevators now avail-

he can ship it out at any time in sacks or in bulk, and in any direction, subject to only one freight charge.

No Half Way Measures
Growers who made the attempt only

Dates chosen for Southern California fair at Riverside, October 9-15.

WATCH, CHAIN AND RING—all three articles sent without cost to boys and girls selling only 50 pkgs. assorted flower and vegetable seeds at 10c a pkg. We trust you — send no money, just postal with your name and address. Seeds easy to soil, many take a dozen packages. Choice of many other useful gifts if desired. **KEENEY SEED CO.** Box 714 Monongahela, Pa.

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Kentfield, Marin County, Cal.

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Seed in separate colors: Red, Pink, Variegated, White, Flesh Pink Frilled, Blue and Mixed.
Price, per package 50c



The DIENER TOMATO

30-40 tons of tomatoes to the acre. Most perfect tomato ever raised. Flesh is of a deep red color; it is free of the acid taste. THE DIENER TOMATO is drought as well as blight-resisting.

Price—Sample pkg., 25c; one-quarter of an acre pkg., 50c; per acre pkg., \$1.50.

Originators and Growers of the Largest and Finest Gladioli in the World.

You can't get any plants more profuse in worthwhile bloom, nor can you find any flowers superior for cutting. Spikes placed in water will bloom for weeks at a time; those in the garden will flourish over a long period. To acquaint you with some of our varieties, we make the following Special Offer:

A collection of 12 of our world famous named varieties (our own selection)\$1.50

GLADIOLUS Bulb. Doz.
"CAPTAIN ASHER CARTER BAKER"—Rich, velvety red with darker center; flowers 5 inches in diameter, spikes 4 to 5 feet high. (This was awarded the silver medal at the P. P. I. E., 1915, for the best of all the red Gladioli shown)\$.05 \$.50

GLADIOLUS
THOS. T. KENT—Rose-pink, with ruby running through center of each petal; very vigorous in growth. This is one of our largest varieties, one of the heaviest propagators. Flowers 6 to 8 inches in diameter, spikes 6 feet..... .25 2.50

GLADIOLUS
JACK LONDON—Light salmon with brilliant orange flame stripes; golden yellow throat with ruby striped center; flower 5 inches in diameter, spikes 5 to 6 feet. Exceptionally fine 50 5.00

GLADIOLUS
MRS. H. E. BOTHIN—Flesh-salmon pink, flame-scarlet center; large size, strong 4 to 5 foot spikes; a first-class show variety 50 5.00

GLADIOLUS
FRANK J. SYMMES—Salmon-rose pink with red center, ruffled edges; flowers 4 inches in diameter; spikes 5 to 6 feet high 25 2.50

DIENER'S HYBRID GLADIOLUS MIXED

This mixture contains all colors of the rainbow. Many of them are heavily ruffled and of very large size. There is hardly two alike. The most wonderful Gladiolus Mixture ever sent out. All of our own creation. We sell this Mixture in three grades. All are guaranteed to flower this summer. Prices:

Grade No. 1 Bulbs, \$2.00 per dozen
Grade No. 2 Bulbs, \$1.00 per dozen
Grade No. 3 Bulbs, 50c per dozen

We Pay All Postage

Awarded Grand Prize at the P. P. I. E., 1915
RICHARD DIENER CO., INC., Kentfield, Cal.
I enclose 25c for a copy of your 1922 Catalogue (To be refunded at any time I place an order.)

Name.....
St. or R. R.....
Postoffice.....
State.....

Entomology in China

We have referred to the fact that Prof. C. W. Woodworth, for many years connected with the University of California as entomologist, has taken up entomological work in China. We now have from Fu Huan Quong, secretary of the college of agriculture and bureau of entomology of National Southeastern University, Nanking, China, a letter in which he says:

"Enclosed please find the accompanied article: 'Prof. C. W. Woodworth becomes the director of the Bureau of Entomology, Kiangsu Province, China, with his inaugural speech,' and under separate cover I am sending you a photograph taken at the close of the ceremony. This is one of the most important facts toward the progress of Chinese agriculture and the news will have special interests to Americans because it relates to the coming of Prof. C. W. Woodworth to be the director and chief entomologist of Bureau of Entomology, Kiangsu Province, China, which

is newly established. We wish you will publish the same in front columns of your magazine as soon as you receive it, and we shall be very glad to supply you further information concerning the progress of the new bureau.

Secretary Quong adds: "Prof. C. W. Woodworth was invested with the office of director and chief entomologist of Bureau of Entomology, Kiangsu Province, China, on January 14, 1922, at a simple but most impressive ceremony in the Flowering Hall at Bureau of Industry, Nanking. The military and civil governors, the commissioners of industry, finance and education, educators and scientists of Nanking institutions and delegates sent from different districts of Kiangsu Province attended the inaugural ceremony.

"The exercises opened with music by the police band. Then the Com-

missioner of Industry reported the organization of this new bureau and the military and civil governors made short addresses. Prof. C. W. Woodworth delivered his inaugural speech, which was interpreted into Chinese by Prof. H. H. Hu, of the National Southeastern University. P. W. Tsou, dean of the college of agriculture of the above mentioned university, who initiated the organization of this bureau, and D. S. Chang, representative of Kiangsu Provincial Assembly, also gave short addresses. The exercise closed with a picture taken and a tea party.

"The speakers generally emphasized the urgent necessity for the establishment of the bureau of entomology and appreciated the kind response of Prof. C. W. Woodworth, who willingly accepted the new position. They all believed that Prof. Woodworth, with his profound experience on the line of entomology and his ardent interest in the welfare of Chinese farmers, will accomplish what he has done in the state of California.

"With the present organization as a foundation, the bureau will in the

near future be enlarged into a national one, having a branch in each province, for the Chinese realized that such step will reduce insects' damage to farm crops and eventually is a money saving policy. The present bureau is supported by the Kiangsu Provincial government, the Fong Tai reclamation companies and the bankers who issued loans for the above companies. It is located in one of the experimental stations, College of Agriculture, Southeastern University, Nanking. Prof. Geog. Park Jung, appointed as provincial entomologist, is now helping Prof. Woodworth to carry out his plans. Messrs. C. Francis Wu and H. S. Chang, graduate students at Cornell and California Universities, respectively, are invited by the bureau as entomologists, and they will return to China to assume their office after June."

SPRAY RESIDUE ON PEARS CAN BE AVOIDED

Growers of Bartlett pears have been troubled with arsenical spray residue on fruit shipped East during the past few years. Following the investigations by A. J. Ackerman of the federal bureau of entomology and conducted cooperatively with the California department of agriculture, recommendations have been made as follows:

The codling moth can be controlled and arsenical spray residues avoided by proper and thorough spray methods. Arsenate of lead should be used at the recommended strength of two pounds of paste or one pound powder to 50 gallons. Thoroughness of application, good equipment and high pressure are very important. Efforts should be directed toward thorough control of the codling moth in the early sprays to eliminate the possibility of infestation late in the season and the consequent very late applications.

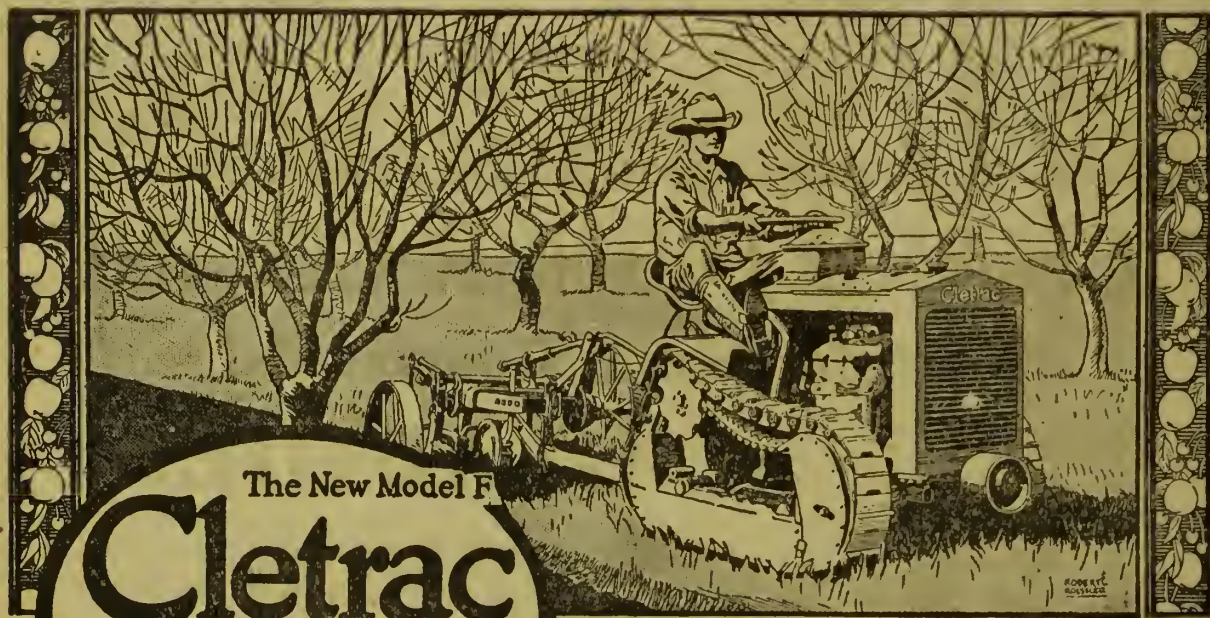
In pear orchards where the codling moth is not a serious problem three or four spray applications are sufficient. These sprays should consist of a calyx application, a second spray three to four weeks later applied before the earliest worms hatch, a third spray two to three weeks following the second just previous to the hatching of first brood worms in large numbers, and a fourth spray, whenever necessary, to be made about two to three weeks before the first picking of pears for protection against late worms. In orchards where the codling moth causes much damage it is advisable to apply a second calyx spray 7 to 10 days after the first one, making a total of two calyx sprays and three cover sprays.

To reduce to a minimum amount of spray residue on pears, coarse drenching sprays should be avoided. This can be accomplished by the use of nozzles with disk openings of about 1/32 inch for the cover sprays. With the fine mist sprays the particles of spray material are distributed uniformly as tiny spots over the fruit. Such a spray serves as a splendid protection against worms and at the same time it permits for weathering of the spray residue more rapidly than would result from a coarse spray. Even with the fine mist it is essential that the last cover spray be finished not later than two or three weeks before the first picking.

WHITE YOLO A NEW GRAIN SORGHUM

(Continued from Page 205)

tall growing varieties such as feteria, shaliu (Egyptian wheat), kaoliang, honey sorghum, orange sorghum and standard milo. These crops are too tall to head by either hand or machine and too bulky to handle with the rice binder. The old method was to bind with the corn binder, and shock to dry before thrashing. The heads were then cut from the bundles by hand and thrashed separately. Recently an eastern manufacturer has improved upon this process by putting out a kafir corn topping attachment for a separator, which is attached to the side of the thrasher in such a way that the bundles may be headed and the heads carried into the machine by simply holding the bundles up to the circular



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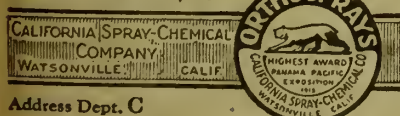
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saw cutting device. One of these machines has been loaned to the university farm and will be demonstrated next season together with several other new sorghum heading devices.

The introduction of Yolo it is thought has simplified the harvesting problem considerably and given the farmer a summer grain crop which may be cheaply harvested with any type of header. Already enough seed has been spoken for to plant 5,000 acres and much more will doubtless be planted. One company alone has purchased seed for 1,500 acres next season, and samples have been sent for test to all other state and federal experiment stations where sorghum is grown.

Yield Tests

It is yet too early to form an opinion as to how Yolo will compare with milo in yield under all conditions, but in two years field tests at Davis it has been slightly more productive. In 1920 White Yolo yielded 3,062 pounds of cleaned seed per acre and an adjoining check of a selected strain of dwarf milo yielded 2,837 pounds per acre. In 1921 our best field of Yolo yielded 3,397 pounds per acre and our best milo field 3,289 pounds per acre.

To compare Yolo and milo as to drouth resistance a winter plowed field was divided into two equal parts and half planted to Yolo and half to milo on the same day, April 22, 1921, and the two crops allowed to mature without irrigation. Both suffered from drouth but milo yielded 1,506 pounds of seed per acre and Yolo 2,016 pounds per acre. Milo stood more and exhausted the limited supply of soil moisture in producing a large leaf growth. Yolo stood less and was able to remain green longer and produce more well filled heads.

A few small lots of seed for demonstration plantings were sent out last season (1921), and the reports which have come to us tend to confirm the findings at Davis.

B. S. Cole of Hanford reports that Yolo yielded 25 per cent higher than milo.

Alton Sailors of Poplar, Tulare County, grew Yolo and milo under the direction of W. E. Gilfillan, assistant county agent, and reported Yolo to yield 6,323 pounds per acre and dwarf milo to yield 5,614 pounds per acre.

E. G. Case of Poplar also grew Yolo and milo as a demonstration under Mr. Gilfillan and reports Yolo to have yielded 5,789 pounds per acre and milo 3,900 pounds per acre.

B. Grogan of Ripon writes, "I planted nine rows of Gyp corn, 12 rows of Morse's white milo, and seven rows of White Yolo, side by side and all of equal length on June 1, 1921, no irrigations and one cultivation given. Gyp corn ripened three weeks ahead of the others, but I kept no account of the yield as I could see the others would outyield it. Twelve rows of white milo yielded 650 pounds of heads and seven rows of White Yolo yielded 750 pounds of heads."

A. R. Waybur of the Sutter Basin Company, Grafton, writes under date of December 19: "I beg to state that you sent us sufficient seed for two acres. We thrashed these two acres December 16, 1921, with a Russell rice thrashing machine. The corn had previously been cut and bound with regular rice binders and the bundles stood up in shocks to cure. This method of course meant that we knocked off a good many heads which were not harvested. The two acres, however, yielded 5,940 pounds, or 2,970 pounds per acre. 245 acres of our best dwarf milo yielded 1,740 pounds per acre. Grain harvested out of shocks with about 700 pounds left on the ground, heads knocked off by reels, etc., which we are now gathering and thrashing to make a second grade, will give us approximately 2,440 pounds per acre. We like Yolo much better than the other varieties. It doesn't shatter out so badly; it is easier to harvest and brings more money than red."

J. W. Adriance, county agent for San Joaquin County, conducted a test with five varieties in the Ripon district with the following result: Dwarf milo, 3,675 pounds per acre; White Yolo, 3,571; white Gyp, 1873; white milo, 1,633; feterita, 1,429.

"The white Egyptian corn was the earliest maturing, followed by Yolo about 14 days later, and the other milos and feterita took about one week longer than Yolo."

To win a race a Jockey doesn't put extra weight on the horse that helps him succeed

No man or woman who wants to succeed in the race of life can afford the handicap of headaches, insomnia, indigestion and debility. Nor can they afford to take anything that may keep up a continual irritation of the nervous system.

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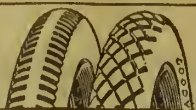
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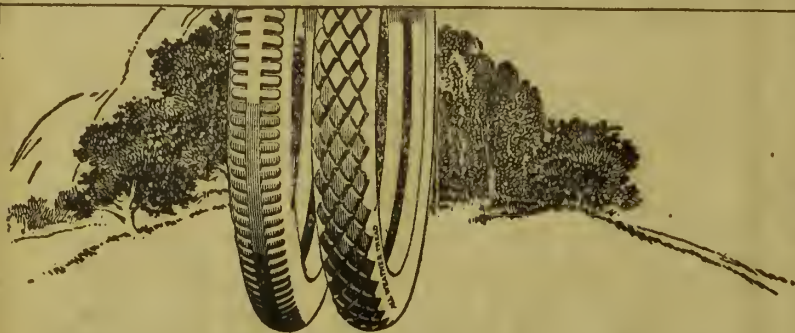
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Location of Pump

Will a pump do better work near the surface of the water than ten or 12 feet above, running the same speed at both places with water to be lifted 25 feet? Is it possible to run a centrifugal pump with a four cylinder automobile engine directly connected and not use any more fuel than a stationary belt drive of single cylinder?—Subscriber, Boonville.

If there is no variation in the level of the water from which the stream is being pumped, and the pipes are large enough to give a free flow, the pump will discharge the same amount of water whether it is placed under the water or within ten to 12 feet above the water. This is of course assuming that the water does not lower in the body from which it is being pumped and that the speed of the pump is constant. To get the best results a centrifugal pump should be run at an unvarying speed which is determined by the diameter of the runner and the height to which the water is to be raised. Automobile engines are not made for that purpose and if used for pumping would have to be fitted with a governor. An engine directly connected with the pump is not likely to give the satisfaction that a belt connection will give nor do as well as a direct connected electric motor. If there is a seasonal variation of height of the water surface belt connection will be the best at all times, as it allows change of sizes of pulleys to make the proper speed for the distance the water has to be raised. In actual practice the multiple cylinder engine is likely to use more fuel than the single cylinder.—J. B. N.

Rhizoctonia

It is said here that melilotus indica and sweet clover used as a winter cover crop "carry" the disease rhizoctonia and that oats, barley, rye, etc., do not "carry" it. Please inform me through your columns.—Subscriber, Van Nuys.

None of them "carry" this fungus. Under favorable conditions it may be developed in almost any soil.

Poisonous Parsnips

Do parsnips ever get poisonous? I have somewhere heard or read that they did after taking their second growth, and would like to know.—Subscriber, Lindsay.

The garden parsnip does not become poisonous. In its original wild state it was (and is) mostly leaves and little root, and the latter is somewhat poisonous. There is probably no danger in any garden escape or "hold over" of the garden variety.

Ailing Almond

I am sending branch of almond covered with scale. What causes it and what is the remedy?—Subscriber, Watts.

The piece of wood sent has been dead for some time. It contained no scale and there are no evidences of its having had scale. It has, however, evidently been badly affected with red spider during the past summer. A 2½ per cent solution of commercial lime-sulphur has been used with good results. The addition of four gallons of flour paste to the hundred gallons has made this spray more efficient through causing it to spread more evenly. The Los Angeles County horticultural commission reports the best success from using a spray of ten pounds of atomic sulphur to 100 gallons of water.

Seeding Sugar Beets

Will you tell me if sugar beets would go to seed if they were planted in September and let grow till next fall in an irrigated country, and what tonnage should be gotten to the acre and if they would be profitable feed crop for hogs and cattle.—Subscriber, Beaumont.

Sugar beets would probably not go

to seed under the conditions you mention. The beet is a biennial. It makes its root growth the first year and flowers and seeds the second year. It needs all of the first summer to mature the root and will not seed until root has been first matured. In cold countries beets are taken up in fall and roots for flowering and seed re-set in spring. In California they may be left in soil over rainy season or so-called winter. The crop tonnage is extremely variable, it all depends on soil and care given, the latter mainly dependent on irrigation. Beets are a profitable stock crop where conditions are favorable.

Starting in Rabbits

I am a boy 12 years old and I am going to get some rabbits. Will you give me full instructions on their care? What kind of houses should they have? Is it better to have a run for them? What kind of feed and



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how much should I feed them? I am hoping to get an early answer.—Frank Robbins, San Gabriel.

We have in hand an article written by W. D. White, a long time rabbit grower. If it is not in the present week's issue it will be within a very short time. Meantime we would advise Frank to visit as many rabbit producers as possible and see their hutches and learn from them their methods of handling. Many very successful producers are producing rabbits without any runways whatever. We may also suggest that many helpful hints may be had from the "Rabbitt Book—Belgian Hares, Flemish Giants and Others," by F. L. Washburn and published by the J. B. Lippincott Co., Philadelphia, at \$2. It is a 200 page book giving much information about rabbits.

FARM BUREAU

Plans for a vast extension of the bulk handling of grain in California, especially in the San Joaquin, Sacramento and Salinas Valleys, are being worked out and put into practical operation by the California Farm Bureau Elevator Corporation, according to Secretary Heileman.

This is the second season that the bulk handling method has been in operation generally. The present plan is to construct from five to seven new elevators at various points throughout the three valleys and in other parts of the state. At the present time Heileman, A. E. Lindstrom, president of the Farm Bureau Corporation, and an assistant are in the field doing organization work preparatory to the building of elevators.

One of the principal advantages of bulk handling and the storage of grain in metal bins is the prevention of loss from torn, gnawed or broken sacks. This metal grain bin storage not only permits of holding the crop until market and shipping conditions are favorable but protects the grain against attack by rats and mice and destruction by fire. Other advantages of storage on the farm, as stated by grain growers, are the saving in fire insurance and the protection of grain from dampness.

FREEZING POINT FOR VEGETABLES AND FRUITS

The freezing points of a large variety of vegetables and fruits, which are likely to be subjected to freezing condition during harvesting, handling, or marketing, have been the object of special studies in the bureau of plant industry of the United States department of agriculture. Between 15,000 and 20,000 determinations have been made, including the freezing points of 25 varieties of apples, 22 kinds of strawberries, 18 varieties of potatoes, 19 different types of sweet potatoes, 19 tomato varieties, and many varieties of cherries, grapes, peaches, plums, blackberries, raspberries, cranberries, and some cut flowers, particularly peonies, roses, and lilies. Besides this general study, the work is being continued with the principal fruits and vegetables which are liable to be in danger of freezing either in transit or on the market. In this work the methods of detecting freezing injury, the rate at which fruits or vegetables freeze in constant low temperatures are determined.

The freezing points were determined for 18 standard varieties of Irish potatoes, grown under the same cultural conditions, harvested at the same time, and stored at the same temperatures. The freezing point apparently varies with the variety and shows a tendency to vary with the family group. It has been shown that potatoes can frequently be exposed to temperatures much below their freezing points if they are not disturbed until the temperature is again above the freezing point. This is an important consideration to potato growers and handlers.

PROBABLE NEW LEADER OF BLOC

Senator Capper of Kansas is being mentioned as leader of the agricultural bloc in congress to succeed Senator Kenyon, who was removed from active work by acceptance of an appointive office from Pres. Harding. Senator Capper is said to be the general choice of both Republican and Democratic members of the bloc.

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750	18	5 9	4 11	580	30.75	12,000	285	13 10 1/2	11 11
1,000	24	6 6	4 11	655	35.25	15,000	357	15 6	11 11
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2,000	48	8 1 1/2	5 11	975	52.50	25,000	593	18 4	13 11
2,500	60	8 4	6 11	1,145	60.75	30,000	714	20 2 1/2	13 11
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3,000	71	8 5	7 11	1,290	69.00	50,000	1190	24 0	15 11
4,000	95	9 10 1/2	7 11	1,555	87.00	60,000	1428	26 3	15 11
4,000	95	9 2 1/2	8 11	1,580	87.00	70,000	1666	28 4	15 11
5,000	119	10 11	7 11	1,745	98.25	80,000	1904	30 3	15 11
5,000	119	10 3 1/2	8 11	1,790	98.25	90,000	2142	30 2	17 11
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7,000	166	12 1 1/2	8 11	2,160	118.50				
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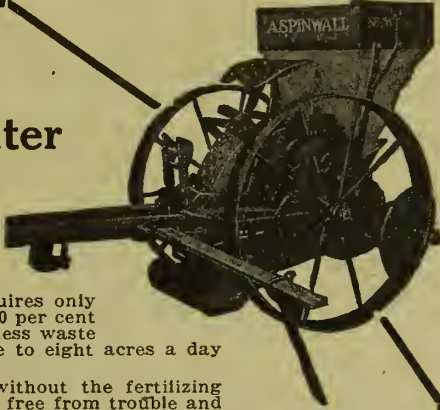
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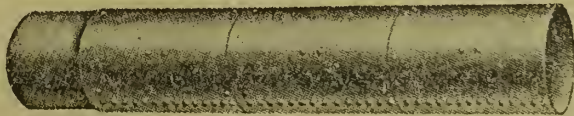
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on the trolley, bound Alice knew no whither.

"Indeed I'm not. I wouldn't have missed it for anything."

Peggy beamed. "We're going to



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I've lived through forty kindly years—
I've been a little boy at play,
My mother used to dry my tears
And kiss my little hurts away;
I've trudged to school against my will,
I've wondered why I had to go,
I've been through many a childish ill,
All boyhood's joys and cares I know.

I've been the dreamy, sallow youth
Who thinks himself so very wise;
Once on a time, to tell the truth,
I placed much stock in fancy ties
And pointed shoes and yellow spats,
For I was only twenty then.
But now I've but one regret, and that's
The way I sneered at older men.

I've been impatient to succeed,
I've dreamed my dreams, and some in vain,
I've pictured many a splendid deed
By which my goal I should attain;
I've played the sighing lover, too,
I've stood to grief and suffered woe,
All that a man must journey through
At some time has been mine to know.

And this I've learned, that one and all
Follow the common path of life,
We share its game as children small,
And later share the days of strife,
Now, looking backwards, I can see
That much I rallied against was good,
When time had made it plain to me
And what seemed harsh, I understood.
Edgar A. Guest.

HER AUNT MARGARET

(Continued from last week.)

Alice's heart went out to the wearer of the pink rose. It was going to be delightful to have such a cousin. That must be what she was, of course. She was probably one of the uncle's daughters. Alice felt just a bit shy about asking. The girl had taken for granted that she would know who Peggy was. Probably they hadn't understood here in the East about mother's ways, and loyalty closed Alice's lips. From the conversation she would surely be able to pick up enough facts to carry her through without awkwardness. Presently she would inquire about Aunt Margaret, unless Peggy spoke of her.

Peggy chattered of everything else. "We'll have lunch first before we go home. You must be starved. Have you ever—But of course not! You've never been in Boston before. Oh, I hope you'll like it!"

"I'm sure I shall. I like it already." "That's good. Do you mind my saying how relieved I am to see you? I was afraid you might be—well, dreadfully superior, you know."

"Superior?" "And fearfully intellectual." Alice laughed. "Oh, I see! You think that because mother wrote books that aren't fiction. I'm not a bit like mother."

"I try to read her books," confessed Peggy, "but I never make much headway. I haven't a notion what she's talking about."

Alice nodded. "I never knew," she said simply. "Mother was terribly brilliant. Brainy people always admired her. I'm not a bit that way."

"You suit me just as you are. You don't mind my saying so, do you?"

"I like it." It was very odd that Peggy didn't speak of Aunt Margaret. The puzzle teased Alice's brain as the two girls chatted over their salad and rolls, and incidentally took stock of each other.

"There's another place where they have better ice cream," said Peggy. "Don't you like a progressive meal?"

It was at the other place, a candy shop, where Alice made her discovery. She thought she would buy a box of candy to take to Aunt Margaret. But when she put her hand into her silver mesh bag for her purse, it wasn't there.

"My purse is gone." Peggy was very much excited. She had to look at the bag and think back along the way they had come, and her conclusions were immediate.

"Some one took it in that crowd we pushed through on the last corner, slipped the bag open and stole it."

"But how could anyone?" "They jostled you. I've heard it is done that way. Did you have much money in it?"

"Only a few dollars. The rest"—"Yes, I know—stuffed away somewhere inside."

Alice didn't answer, for just then she had an uncomfortable thought. What did she really know about this girl who called herself Peggy? True, the girl wore a blue suit and a pink rose, but that might have been an accident. But she hadn't given her

self any last name, or called her companion anything at all, and it was very suspicious that she hadn't mentioned Aunt Margaret. Suspicion was preposterous, yet wasn't that exactly the way things happened in books?

The thought, once in Alice's head, refused to leave it. Reason couldn't banish it. Something was wrong.

This girl had mentioned mother, hadn't she? But that, Alice remembered now, was only after Alice herself had fairly put mother into her mouth. Peggy might be a thief; though she certainly did not look like a thief. The boldest crooks never did.

Deliberately Alice came to a momentous decision. In fact, it was not so much a decision as a discovery. She discovered that she could not do without Peggy. Whatever Peggy was, thief or no thief, Alice must keep her. She had lost her heart to Peggy.

"Never mind, Peggy," she said. "It's gone. Let's not bother."

Peggy's eyes shone. "You're a sport," she declared. "Oh, I like you!"

"Do you?" Alice flushed with happiness.

"I was so afraid," Peggy confessed; "that I might not, and you don't know what a tremendous load is off my mind to find you as you are. The whole thing is so weird. Don't you think so?"

"Very." Alice was mystified.

Peggy laughed heartily. "My dear, when I told the girls, I thought they'd die. Every time I meet Jane Somers—you'll like Jane Somers—she has something to say about it. But when they actually see you, I don't know what they will say."

Something cold gripped Alice's heart. Her lips stammered. "But why?"

"You're so tall and so statuesque and so grown up," chattered Peggy, "and I—I'm so little."

"I wish I were little. I always did. You—you're too cute for words."

"There, you've said it—'cute'! Jane will perish when she hears this! And I don't suppose the boys will ever let us alone. I hope you don't mind being teased, for there's so much of it done in our family."

Alice's dismay deepened. Peggy had met the wrong person. The room swam giddily; a great loneliness engulfed the traveler. This charming, friendly girl was no kin at all to her. She had merely made a mistake at the station.

In a flash Alice saw the thing she ought to do. She ought to speak out at once simply and frankly, ask the girl's name, tell her own, explain, and depart for Aunt Margaret and Milton. It would be easy enough to find the way.

"I don't feel a bit like going home. Besides, there's no one there. Are you tired?"

"Not in the least."

"Then let's play about awhile, do something jolly this afternoon. What do you say?"

"I'd—I'd like to."

Impetuously Alice made another decision. It might be reprehensible, but she wanted Peggy. She was bewitched by Peggy. What was one afternoon out of a lifetime? If she spoke and straightened things out, she would never see Peggy again. She forgot to think of the other girl, that girl presumably somewhere at the station, for whom Peggy had really been looking; dismissed with a vague generality Peggy's statement about not being able to read mother's books. That another girl arriving by the same train should have possessed a mother given to writing incomprehensibly might be odd, but didn't quantities of people write books? Deliberately Alice chose Peggy.

It was a wonderful afternoon. The beauty and charm of it took zest from its danger. At any minute some chance word might precipitate calamity. Alice knew her happiness swung by a thread. All her will was bent to keeping the talk in safe channels, away, at all events, from reminiscence and personality. What they did, what they said wove for the lonely girl a shining pattern of delight. Toward evening, when they went "home," wherever home might be, she would pay for it. Then the truth must come out. But she would not grudge payment. She would have her day, always to be remembered.

"You are tired," Peggy accused her

have wonderful times together. Oh, I'm so glad you've come! The next corner is ours."

Alice braced herself. Would they find the other girl waiting? For the first time it occurred to her to wonder how the other girl had made out. And hadn't her infatuation for Peggy herself been disloyal to Aunt Margaret, the aunt she had so wanted to see?

Peggy flung wide a gate. A brick, herringbone-patterned path led to an old-fashioned, brick house bowered in trees.

"I wonder," said Peggy, "whether any of the boys are at home."

As they approached the door it opened and two young men stepped out. One was tall, with crisp curly hair and a firm, pleasant mouth.

"So you got her all right, did you, Peg? I began to think something had gone wrong. Glad to see you, Alice."

The younger, much shorter, round and roly-poly, twinkled all over like a jolly sort of boy-in-the-moon. "How are you, niece?" he murmured, shaking hands impressively. "Peg, have you been introducing our niece to the town?"

"Just a bit. It was good fun, too. These are two of them, Alice, Don and Ralph."

Alice' thoughts whirled. "Two of—of my uncles?"

"They don't all live at home now," Peggy said hastily.

Alice, completely bewildered, turned to her escort. "But you—who are you?" she stammered finally.

"I'm your Aunt Margaret. Didn't you know?"

HINTS FROM HOUSEKEEPERS

Two Good Salmi Recipes

Salmi of Game.—One tablespoon butter, 1 cupful stock, $\frac{1}{4}$ teaspoon lemon juice, 1 tablespoon oil, 1 teaspoon catsup, 6 button mushrooms, 2 or 3 drops onion juice, 1 cup cooked fowl, cut in even, delicate pieces. Melt and brown the butter, add flour and stir until browned. Add stock, stir until it begins to thicken, then add the meat and mushrooms. Stir gently until thoroughly heated and when ready to serve add the catsup, onion extract and lemon juice. Season to taste with salt and pepper and serve. — From Enterprising Housekeeper, by Helen Louise Johnson.

Salmi of Lamb.—Cut cold roast lamb in thin slices. Cook five minutes 2 tablespoons Crisco with $\frac{1}{2}$ tablespoon finely chopped onion. Add lamb, sprinkle with salt and pepper and cover with 1 cup cold lamb gravy seasoned with Worcestershire sauce. Cook until thoroughly heated. Arrange slices overlapping one another lengthwise of platter, pour around sauce and garnish with toast points. A few stoned olives and mushrooms improve this sauce.—From "A Calendar of Dinners." Tested by Marion Haris Neil. — Yorba Linda Subscriber.

HOUSEHOLD QUERIES

Spanish Herbs

In regard to the Spanish herbs mentioned in recipe for cooking pink beans in Cultivator of April 10 last year: Is the oregano the same as sweet marjoram, called *origanum marjoram*? My druggist thought perhaps it was. I have tried a number of grocery stores without success.—Inquirer, Pasadena.

The oregano as purchased at Spanish groceries is a dried herb which looks like sweet marjoram, tastes like it—no doubt is just that. The comino is a seed, cummin, we take it. Five cents worth of each will be sufficient for family use for a long time. No doubt the grocers sell it more reasonably than the druggists. The comino seed is stronger than the herb and generally used in half the quantity. We are mailing inquirer address of grocers in Los Angeles who handle the herbs. This recipe for pink beans, using Spanish herb seasoning, has proved exceedingly popular, every one seeming to like the flavor.

Crumb Pie—Bran Cookies

There are two recipes I am very anxious to find. One is for crumb pie; the other for bran cookies made with honey. My husband is always talking about the crumb pie his mother made, but I have never been able to get a recipe. Then I tasted



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—Belle DeGraf
Domestic Science Director



Surprises!

Prune Steamed Pudding

One cup soft bread crumbs; 1 cup chopped suet; 1 cup chopped apples; $\frac{1}{2}$ cup brown sugar; 1 cup chopped, uncooked prunes; $\frac{1}{4}$ cup shredded citron; 1 cup flour sifted with $\frac{1}{2}$ teaspoon each of salt, soda, nutmeg, cinnamon, cloves and allspice; $\frac{1}{2}$ cup molasses; 3 eggs, beaten separately. Mix in the order given, folding in the beaten white of egg at the last. Grease a pudding mold, pour in the mixture, having mold only two-thirds filled. Adjust cover and place on a rack in a kettle of boiling water and steam about three hours, having water boiling constantly.

Prune Bread Pudding

One cup prunes, washed, soaked, pitted and put through food grinder. 2 eggs, beaten; add $\frac{1}{2}$ cup sugar, 2 cups scalded milk; $\frac{1}{2}$ teaspoon each orange and lemon extract, prunes and 1 thick slice of bread cut in small cubes. Pour into buttered baking dish, set in pan of boiling water. Bake in moderate oven until custard is firm in center and bread is browned.

Prune Charlotte

Cooked prunes, pitted and rubbed through a coarse sieve, having one cup of prune pulp. Add $\frac{1}{4}$ teaspoon cinnamon, 1 unbeaten white of egg; $\frac{1}{2}$ cup of sugar. Beat with a whip egg beater until consistency of whipped cream. Fill individual dishes two-thirds full and pile sweetened whipped cream on top. Garnish with a cherry.

Prune Soufflé

Take 1 cup cooked prunes that have been pressed through a colander. Beat whites of 4 eggs until stiff, add 4 tablespoons sugar, 1 teaspoon vanilla and carefully fold in the prune pulp and $\frac{1}{2}$ cup chopped walnuts. Pour in an ungreased pudding dish, set in pan of hot water, bake in a moderate oven until firm. Serve with custard sauce made of yolks of 2 eggs and 1 cup milk or with whipped cream.

Prune Cream Pie Filling

One cup prunes put through coarse sieve; $\frac{1}{2}$ cup chopped walnuts; 1 cup scalded milk; 2 eggs; $\frac{1}{2}$ cup sugar; 1 teaspoon flour; 1 teaspoonful vanilla. Mix sugar and flour; add to beaten eggs; pour the scalded milk over the egg mixture. Add prune pulp and walnuts, mix well and pour into a pan lined with pastry; sprinkle nutmeg over the top. Bake as for custard pie.

Prune Parfait

One cup prune juice, 1 cup cooked prunes; 1 cup sugar; juice and grated rind 1 orange; 2 egg whites; 2 cups whipping cream. Cook prune juice, add sugar with grated rind and orange juice until when the syrup is dropped in cold water it forms a soft ball. Pour gradually, constantly beating, over the stiffly beaten egg whites; beat until cold; add prunes which have been pitted, cut in small pieces and fold in the whipped cream. Turn into a mold and pack in 2 parts finely cracked ice to 1 part rock salt. Let stand at least two hours before serving. To unmold dip mold in cold water, then turn on serving plate. Garnish with pitted prunes stuffed with marshmallows.

Prune Pudding—Delmonico

One cup cooked prunes; 2 cups scalding milk; 4 level tablespoons cornstarch; $\frac{1}{2}$ cup sugar; 2 egg yolks; 1 teaspoon butter; 1 teaspoon vanilla. For meringue 2 egg whites; 4 tablespoons sugar; $\frac{1}{2}$ teaspoon vanilla. Put prunes with a little juice in a pudding dish. Scald milk in a double boiler; mix sugar and cornstarch until well blended; add to hot milk and cook fifteen minutes. Pour over the beaten yolks of eggs and mix well. Turn the custard over the prunes. Beat the egg whites until stiff; beat in gradually 2 tablespoons of sugar; fold in remaining sugar; add vanilla. Spread on top of pudding and bake in a very moderate oven about eight minutes.

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some delicious bran cookies at a friend's house, that she said were made with honey. She is ill and I don't want to bother her for the recipe, so I am turning to the Cultivator household department for help and will appreciate it very much.—Subscriber, Healdsburg.

Crumb Pie.—This is an old time Southern recipe: Line pie tin with good pastry and fill with mixture of four cups bread crumbs, one-half pound seeded raisins, one-half pound currants, three-quarters cup cider vinegar, one cup brown sugar, one cup molasses, one teaspoon soda, three and one-half cups cider and a seasoning of cinnamon, cloves and nutmeg. Cover with pastry and bake 40 minutes.

Honey Bran Cookies.—Here is a recipe sent out by the beekeepers during Honey Week: Three cups bran,

one-half cup sugar, one-quarter to one-half teaspoon soda, one-quarter teaspoon cinnamon, one-quarter teaspoon ginger, one-half cup honey, one-half cup milk, one-half cup melted butter. Mix sugar, cinnamon, ginger, and soda with the bran and add the other ingredients. Drop from a spoon upon a buttered pan and bake about 15 minutes.

Hard Soap

In the February 4 issue of the Cultivator is a query concerning scorched lard. I had the misfortune to scorch quite a quantity two years ago. I got concentrated lye and followed the directions on can for making hard soap, and it came out beautifully white and nice. It is easily made and a good bleaching soap though rather strong for the hands. Take any

shallow box and line it with strong wrapping paper, just folded in so it will come up on the sides. It is safer to pour it in out of doors, and keep pets and chickens, etc., away until it hardens. While still soft cut in cakes. Some add borax or gasoline while hot.—Former Subscriber, Modesto.

Italian Salami

This recipe was given me by an Italian woman. They make it every year and it is good:

Take whatever amount of lean pork you wish to make up (by lean I mean most of the fat trimmed off), season with pepper and salt and the following spices to taste, ground cinnamon, allspice, cloves, nutmeg, and whole black pepper. Just a little saltpeter may be used to draw out water, etc., from meat, if intended to keep for any length of time, otherwise it is not necessary.

Run meat through grinder, season and stuff in beef casings and hang up to dry for three or four weeks. Salami may then be smoked or submerged in lard until ready for use when lard may be scraped off and the lard used as usual, as the salami does not injure it in the least.

Lean beef may be added to pork in proportion of five pounds beef to 15 pounds pork if desired. In this case, one bottle of good wine may be added which keeps it from being quite so dry.—Mrs. S. J. Osborne, Arlington.

Sausage

Am sending a recipe for sausage which may do for the subscriber from Lompoc. I never heard of putting wine in and besides where could we find any unless it is home brew?

For each one pound of meat use one heaping teaspoon salt, one teaspoon pepper, one teaspoon sage, and for every three pounds meat one teaspoon each allspice, cloves and ginger with summer savory if liked, and for every 12 pounds meat one-eighth ounce saltpeter. I hope the lady can use this.

We enjoy the paper very much. I am making a cook book of the good things to eat. The only thing is there are so many.—Mrs. L. E. Brookman.

To Clarify Scorched Lard

Use 1 tablespoon baking soda mixed in a little cold water to each gallon of lard. Melt lard and add baking soda solution, let boil and skim all scum that rises. When no more scum rises put in raw potato sliced thin and cook lard slowly till potato is crisp and brown. It will depend on how badly the lard is scorched how much potato has to be used and the lard must not be boiled hard or fast during the process. We used this method several years ago on the ranch when we had some scorched lard and it came out very much improved.

Hope this will help the parties making the inquiry and that they can use this to their benefit. We take the Cultivator and like it very much.—Mrs. R. V. Henderson, Fresno.

CHEESE SUBSTITUTES FOR MEAT

By Mary Ann Gray, State College, South Dakota

The following are good meat substitutes for the noon meal menu:

Cheese Cutlets

Scald $1\frac{1}{2}$ cups milk in double boiler. Stir $\frac{1}{4}$ cup each flour and cornstarch, $\frac{1}{4}$ teaspoon each mustard, paprika, and 1 teaspoon salt, with $\frac{1}{2}$ cup cold milk. Add to scalded milk and cook until the mixture thickens. Add 2 egg yolks, 1 cup cheese in small cubes, and 3 tablespoons butter. Stir until cheese is thoroughly dissolved. Turn into a buttered pan so as to make a sheet $\frac{1}{2}$ inch thick. When cold cut into cutlet shapes, roll in cracker crumbs and fry in deep fat.

Cheese Scuffle

Two tablespoons butter, 3 tablespoons flour, $\frac{1}{2}$ cup scalded milk, $\frac{1}{2}$ teaspoon salt, few grains cayenne pepper, $\frac{1}{4}$ cup grated cream cheese, yolks and whites of 3 eggs. Melt butter, add flour, and when well mixed add scalded milk gradually, then salt, pepper and cheese. Take from fire, add yolks beaten until lemon colored, cool mixture and cut and fold in whites of eggs beaten dry. Pour into buttered baking dish and bake 20 minutes in a slow oven. Serve at once for best results.

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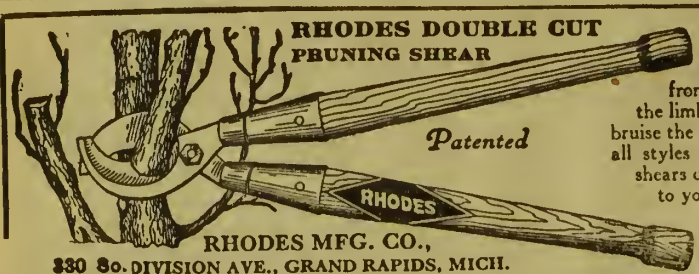
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Diablo, Contra Costa Co., California

WOOL!

Foreign Domestic

Write for Our Quotations
We Will Send Our Buyer

Staunton Bros.

Phone Douglas 6133-6132
787 Mills Building San Francisco

IMPORTED Corston Masher

Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and helpers, some with calves at foot, and rebred to the above bull. Most of the helpers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

Warm Creek Land and Livestock Co.
J. Selby Badt, Pres. & Mgr., Wells, Nevada

DIAMOND G HEREFORDS

I now offer 10 extra good open registered helpers, at real bargain price, sired by a son of an International Champion. Start your herd with these.

H. H. Gable Esparto, Cal.

Write for Free Booklet on Orchard Pests

Are you fighting peach moth, twig borer, leaf curl, brown rot, thrips, aphids, scab and codling moth, scale, red spiders, lichens and other tree-destroying, fruit-destroying vermin?

The subject of Orchard Spraying is too big to be treated here. But send for our booklet on insecticides and fungicides! It goes into the subject most fully. It will help you. It will cost you nothing.

Our years of experience in the chemical business have not only taught us the causes of orchard pests and their effect upon trees and vines, but we have also learned how to combat such pests. It will pay you to use—



Arsenate of Lead
Lime Sulphur Solution
Atomic Sulphur
Bordeaux Mixture
Universal Oil Sprays

When you write, tell us fully about the condition of your trees and vines. S. W. Foster, our entomologist, will give you the benefit of his suggestions. He has had years of experience in Pacific Coast orchards.

General Chemical Co.

Dept. B, 710 Royal Insurance Bldg.
SAN FRANCISCO, CALIFORNIA

G-01:2-4

THE 1922 GUARANTY SALE

"The Pacific Coast Holstein Classic"

60 SELECT FEMALES and BULLS

This is the fifth Guaranty Sale to be held in California, and the four previous sales have fully measured up to the idea behind their creation—to give buyers an opportunity to select some of the best Holsteins in the west from an offering that has been carefully picked from leading herds.

There will be a wonderful collection of young females in this year's offering, ranging from open heifers up to four year olds, and a few mature cows of excellent breeding and type. The sale will be held on

Wednesday, April 5, 1922

at
Rhoades & Rhoades
Sale Pavilion
Hynes, Calif.

This is the opportune time to buy foundation breeding Holsteins, when the future of the business was never brighter, and the cattle in this offering are essentially foundation material of wonderful quality.

Cattle for this sale were selected by R. A. Condee, Chino; Kenneth W. Abbott, Los Angeles; W. J. Higdon, Tulare; J. M. Campbell, Escalon; F. L. Morris, Woodland; and C. L. Hughes, Sacramento, acting as a Committee for California Holstein-Friesian Association.

WRITE FOR CATALOG NOW

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager,
Sacramento, Cal.

UNIVERSITY APPOINTS DAIRY SPECIALIST

Dairy interests of this state are manifesting much satisfaction over the announcement that the extension division of the University of California has secured the services of Noel Negley as dairy specialist.

Negley is one of the best trained dairy experts in the west. He was at one time associated with the Wisconsin agricultural college and later was with the United States department of agriculture. For several years he was stationed at Salt Lake City and was in charge of the western division of the bureau of dairy industry and was largely responsible for the development of cow testing associations. Recently he has been engaged in dairy farming near Escalon.

For several years there has been an insistent need for the services of a dairy expert in the extension division of the California college and it is doubtful if a more satisfactory appointment could have been made. Negley will at once bring to that important division a wide experience and an intimate knowledge of the dairy problems of this state.

JANUARY COW TESTING

No exceptionally heavy producers were developed in the test of the Southern Los Angeles County Cow Testing Association during the month of January. Supervisor Birge reports highest per cent herd test, that of J. G. Gains with 53.7. The highest five cows were in the herd of John Van Ruiten, with total of butterfat 435.6. The second highest was the herd of George Webb with 390.1 pounds. Highest cow in pounds fat is from dairy of J. Van Ruiten, 98.3. Highest average in number of pounds fat, Van Ruiten, 55.1. The average fat per herd of the association, 44.

Cows with a monthly production above 45 pounds fat were found in the herds of George Trail, 45.1; S. W. Bockema, 46.5; Paul Taylor, 47.6; D. H. Dillon, 48.9; John Van Ruiten, 55.1; Wilber Bros., 48.2; J. Verburg, 53.2; George Haight, 46; George Webb, 45.

UNIVERSITY BUYS NEW DUROC BOAR

The Duroc-Jersey boar Ainti Sensation was recently sold to the University of California to head their herd at Davis. This purchase marks another step in the advancement of the breeding industry in California, for in the past the university has always found it necessary to go into the herds of the Middle West to secure the correct type of sire for student judging and for use as a breeding boar. This boar was purchased from Wm. V. Mong of Whittier. He was bred by Diamond Bar Ranch and sired by Mammoth Sensation Jr. He is the junior champion of the 1921 state fair, and with his litter mates won more premiums at the strongest California fairs than any one litter has taken in the last five years.

1922 FAIR AND SHOW DATES

The following dates for 1922 fairs and shows have been announced by the Western Fair Association. H. E. Patterson of Fresno was elected president of the association.

Sonoma County fair, Santa Rosa, August 23-27.

Colusa County fair, August 24-27.

State fair, Sacramento, September 2-10.

Fresno County fair, September 25-30.

Orland fair, September 18-23.

Red Bluff fair, September 11-17.

San Joaquin Valley fair, Stockton, August 16-22.

Tulare County fair, September 12-19.

Hanford fair, September 20-23.

Anderson fair, September 28-30.

Bakersfield fair, October 2-7.

Butte County fair, October 2-7.

Ventura fair, October 3-8.

Riverside fair, October 10-15.

San Francisco Livestock show, October 18-22.

Imperial Valley fair, October 24-30.

Orange and Olive festival, Oroville, November 28-December 2.

California rodeo, Salinas, July 24-29.



FISK

TIRES

RED-TOPS

proved their merit—
sales grew five-fold

IN a mountainous region in a Southern state, where there is not a single good road in four counties—

— Fisk Red-Tops have increased in sales five-fold in three years.

— Because they gave remarkable service, where other tires were ground up and torn to pieces on the flinty shale and racked highways.

This is only one of the many instances where Red-Tops won out against all competition on merit alone.

Comparison tells the story

Time to Re-tire?
(Buy Fisk)

Trade Mark Reg. U. S. Pat. Off.

A NATIONAL EVENT

American Berkshire Congress

SALE AND SHOW

Fair Grounds, Riverside, California Feb. 27th, 28th

RHOADES & RHOADES, Auctioneers

Monday, 27th. Auction Sale, 30 Berkshire bred sows and gilts. Choice animals from leading herds in Iowa, Indiana, Ohio, Pennsylvania and other Eastern States will be offered at your price at your own door.

Tuesday, 28th. Greatest show of Berkshires ever held in the West. Nearly 200 head on exhibition. Fat Barrow Show. Boys' Judging Contest, Men's Judging Contest, Women's Judging Contest.

\$650 in premiums, besides large number of silver cups. Visit the Orange Show. Come and meet your Eastern friends and compare Eastern and Western hogs.

Annual meeting of the Western and Southwestern Berkshire Congresses. Banquet. If weather is bad, convention will be held in warm buildings on Fair Grounds. Everything free. Everybody come.

HOLSTEIN

Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Ayrshire
Cattle

H G RANCH

Buellton,
California

Twenty head of high grade Ayrshire heifers bred to pure bred bull.
Ten head of high grade cows, seven-eighths or better. Good milkers.
For sale at reasonable prices. Apply C. G. Lamb, Supt.

Straloch Farm

Davis, Cal.

(2½ Miles West on Highway)

Shorthorns

Herd Sires:

California Model 635776

Imp. Braywood Collynie 951409

California's latest triumph, the winning of Grand Championship over all breeds in the fat classes at the Chicago International by Lulu Mayflower, sired by Sultan Mayflower, the sire of our senior herd bull, California Model, maintains the reputation won in 1916 by California Favorite, the Grand Champion steer at the same show, whose dam, Glenbrook's Marvel, is the dam of our California Model. Such honors prove the worth of the breeding of California Model.

Visit the farm at any time.

J. I. Thompson C. Harold Hopkins
Manager Owner



ABSORBINE STOPS LAMENESS

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. \$2.50 a bottle delivered. Horse Book 9 R free.

ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; heals Sores. Allays Pain. Will tell you more if you write. \$1.25 a bottle at dealers or delivered. Liberal trial bottle for 10c stamps.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.



Plenty of Milk Freely Given

One of the most common causes of milk loss is overlooking the apparently little injuries or troubles with the udder and teats. The slightest hurt makes milking hard, makes the cow nervous and irritable and means a sure holding back of the yield.

Bag Balm is made for just such a use—to quickly heal any cut, bruise, chaf, or inflammation. Its great penetrating and restoring qualities put the tissues back to normal condition, make the cow comfortable and the milking easy. Bag Balm gives quick relief in case of Caked Bag and for treating Bunches and Cow Pox.

Your feed dealer, general store or druggist sells it at the reduced price of 60c.

DAIRY ASSOCIATION CO., INC. Lyndonville, Vt.

BAG BALM
MADE BY THE KOW-KARE PEOPLE

There are so many every-day uses for this great healing ointment that no dairy ought to be without a package at single day. The big 10-ounce package lasts so long and gives such complete satisfaction that thousands of cow owners consider it a most necessary aid to profitable dairying. Write for free booklet, "DAIRY WRINKLES."

Kow-Kare and Bag Balm distributors for California,
Germain Seed and Plant Co., Los Angeles, Cal.

Sir Aaggie DeKol Mead



Bred in the richest Aaggie Acme-De Kol of Valley Mead cross, he should be one of the greatest young sires of the breed.

Five of his seven nearest dams average:

Butter	2 Years.....	2,040.97 Pounds
Milk	2 Years.....	41,547.20 Pounds
Butter	1 Year.....	1,130.66 Pounds
Milk	1 Year.....	23,096.60 Pounds

His seven nearest dams average:

Butter	7 Days.....	30.47 Pounds
Milk	7 Days.....	627.60 Pounds

His calves are just what we could expect from a long succession of great sires and dams, and in their present state of development fulfill every promise in the pedigree of their great sire.

Good business judgment will eventually prompt you to place at the head of your herd a bull of Aaggie Acme-De Kol of Valley Mead breeding.

OWNED JOINTLY BY
Fred Hartsook and **A.W. Morris & Sons Corporation**
LANKERSHIM, CALIF. WOODLAND, CALIF.

Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

Look for Rosebud Shorthorns

We are consigning a few carking good young bulls to the Davis Sale. They are right in every way—bred right, raised right, and will make good on California ranges. Look them up.

Edinger-Johnston Co., Hood, Calif.
(Just South of Sacramento)

Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Berkshires

February 27-28, American Berkshire Congress Show and Sale, Riverside.

Eldorado Veeman Segis, a junior two year old daughter of King Sadie Vale Idyl Segis, recently made the splendid record of 25.48 pounds butter from 407.1 pounds milk in seven days. She is out of Jeanie Veeman of Sunnyside, who in turn is out of the well known 30 pound cow, Melba Hengerveld. She is owned by M. P. Christensen, Norwalk, who purchased her in the Alex Whaley dispersal at Tulare last November.

Members of the Oregon Dairymen's Cooperative League have voted to liquidate the affairs of the organization and a committee of nine, three from each of the three zones in the state, have been appointed to arrange a reorganization.

Chas. W. Lucas of Honolulu has been visiting Holstein breeders in this state and has selected a number of high class females for exportation to the islands. From William Dreher, of Sacramento, he secured the 1033 lb. cow, Sugar Queen Topsy, her six year old daughter, Sequoia Sugar Queen Hengerveld, and her four year old daughter, Sequoia Pontiac Cris. The acquisition of this trio gives Mr. Lucas a splendid foundation from a family that promises much and the additional honor of exporting the first 1000 pound cow to the islands. Mr. Dreher also furnished the three year old Susie Fobes and the two year old Jettine Ruby De Kol Posch 2nd. Mr. E. F. Gleason of San Juan Bautista. Lucas selected six head, including Segis Woodcrest Maid, a 25 pound three year old; Steno Alta Pietertje Posch, a 19 pound senior two; Liscomb Aaggie Korndyke, a 23 pound junior three and three two year old heifers. Vern Heath who has been associated with the Gleason herd, assisted in the selections and expects to take the cattle to the islands. It is probable that Heath will locate there.

In the recent dispersal of the well known Poland China herd of Fran Winn, Kansas City, Missouri, M. Bassett and Sons, of Hanford, secured two of the top sows. Both are two year old daughters of W's Giant and are said to have splendid records as producers.

The regularity with which the daughters of the Bridgford Holstein Company's herd sire, King Segis Alcartra Prilly, are registering outstanding records in making a deep impression in California Holstein ranks. We have already reported five remarkable records, including one world record, and now comes the sixth daughter, Maid Pontiac Prilly, freshening at the age of two years and two months, with 26.75 pounds butter from 540 pounds milk in seven days. King Segis Alcartra Prilly now has six first-calf heifers with average production of 26 pounds butter and 518 pounds milk.

C. L. Hughes, secretary of the California Holstein-Friesian Association, and manager of the California Breeders' Sales and Pedigree Company, is temporarily out of commission and will be confined in the hospital for ten days or two weeks. Hughes contracted a severe cold with complications following a trip to Reno, Nevada, where he addressed a group of dairymen.

The top Poland China sale of the season made an average of \$175 and was held by Lester Glover of Missouri. The top price of \$1,000 was paid for the aged sow Lockridge's Giantess.

H. M. Barngrover, well known Hereford breeder, has removed from Santa Clara to Stockton and expects to maintain part of his herd at that place as soon as a suitable location can be found. His main herd will continue at Taylorsville, Plumas County.

At a recent meeting of civic and business interests in San Francisco

the matter of permanent exposition building suitable for housing the California National Livestock Show was discussed and it is expected that favorable action will be taken early this spring. Once a permanent building is provided for that livestock event California breeders can be depended upon to do their part in establishing one of the great shows of the United States.

Cattlemen of Nevada say that practically all the available bulls in that state have been taken by range interests and that many outfits will be forced to come to this state to fill their needs. Prices have ruled strongly with a distinct preference manifested for bulls of quality.

Professor Gordon H. True of the animal husbandry division is recovering from an attack of pneumonia contracted on his recent trip to the National Livestock Association meeting at Colorado Springs. Professor True expects to be able to participate in the events scheduled for Stockmen's Week at the university farm.

Livestock consisting of more than 9,500,000 cattle, sheep, horses, swine and goats, grazed on the ranges of the national forest during the past fiscal year.

During the recent National Western Livestock Show at Denver 44 head of Herefords made a general average of \$380. The bulls averaged \$391 and the females \$363.

An organization, including 350,000

Cattle Owners!

Save Your Calves



We will send you absolutely free valuable information on

Abortion in Cows

We will tell you how this disease can positively be prevented and overcome—why two treatments a few days apart are sufficient and how you can apply it yourself at small expense.

We Guarantee Our Treatment

WRITE TONIGHT

THE STREBOR LABORATORIES
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D Los Angeles, Cal.
E Sales Pavilion
S Stock Yards at
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SALES OF
REG. DAIRY CATTLE
R GRADE CATTLE
H GEN. FARM SALES
O in all parts of
A Calif. and ad-
D joining States.
E Satisfaction
S guaranteed.
Write for dates
and terms.

members from the middle western states, to be known as the Farmers' National Livestock Marketing Association, was formed recently at Kansas City, Missouri, the object of which is the cooperative marketing of cattle to eliminate the payment of commission to outside agents.

SUMMARY OF PETALUMA COW TESTING ASSOCIATION

The Petaluma Cow Testing Association finished this year's testing August 31, 1921, having tested 1,350 cows. The average of these cows was 248 pounds butter fat per cow. This includes every cow in the association, regardless of the length of her lactation period. The association shows an increase of 23.8 pounds per cow over the average of the previous year, which is 10.8 per cent additional production for each cow. The highest herd average was 396.8 pounds per cow, this herd being a pure bred Jersey herd of 36 cows belonging to A. B. Purvine. The number of poor cows, or those producing less than 200 pounds was decreased from 721 in 1920 to 373 in 1921; and the good cows, or those producing over 300 pounds, increased from 149 to 319. There were 17 herds that were tested for the last two years, and these increased from 241.6 in 1920 to 284.3 in 1921, or an increase of 42.7 pounds butter fat per cow, against the increase of 23.8 per cow for the whole association. In other words, those testing the previous year, showed the influence of testing not only through a higher average last year, but an increase this year greater than the average run of dairymen in the association.

Last year there were quite a number of grade and scrub bulls in the association, and this year the association started with six grade bulls. During the year three of these dairymen purchased purebred bulls at the annual farm bureau bull sale, which reduced the number to only three grade bulls in the association.

During the year 235 culls were sold as a result of the testing, which eliminated 18.6 per cent of the cows that were the lowest producers. Aside from the value that the dairymen have received from the testing work, they have adopted more progressive methods in management and have fed much more scientifically than heretofore. The results will show up even more in the years to come than they have in the comparison between the two years of testing that this summary contains.

Below is given in statistical form a few of the facts:

	1919-20	1920-21
	Lbs.	Lbs.
Average production per cow of butterfat.....	223.8	248.0
No. cows producing less than 200 lbs. butter fat	721	378
No. of cows producing between 200-300 lbs. butter fat	593	568
No. of cows producing between 300-400 lbs. butter fat	133	267
No. of cows producing between 400-500 lbs. butter fat	13	43
No. of cows producing between 500-600 lbs. butter fat	3	8
No. of cows producing between 600-700 lbs. butter fat	4	1
Av. production of herds which were tested both years	241.6	284.3
No. of grade bulls at beginning of year.....		6
No. of grade bulls replaced by pure breeds.....		3
No. of culls sold during year		235
Per cent culls sold during year		18.6

PERTINENT PARAGRAPHS

By A. L. Spellmeyer

It has taken two years of tremendous effort to convince this generation that city prosperity depends upon country profits.

Abandoned farms dot our congested population states. Spendthrift of natural resources, we move to new land, as average profits are too small to renew exhausted soil.

Total dairy and beef cattle have declined over 8,000,000 head in this country, and most of the range cattle

have declined in quality and breeding during the last three years, owing to drought and heavy money loss, which did not permit bull expenditure.

Even the California farmer has his difficulties this year, beans don't sell, and beets run against a low sugar price, raisins get early showers, hay is hit in the field, fruit in the blossom, and finally oranges are frosted.

The country is being taxed heavily. Ranches that have not produced a dollar profit for two years are forced to pay double the taxation placed upon a city building of equal value, in many instances.

A semi-peasant state with a bare margin to existence would result in a permanent continuance of existing agricultural conditions.

A Chicago banker tells us all to work hard, and we will be prosperous. We would ask, WHY when the more we raise the more we lose?

Harriman's theory was that banks should conserve in good times and loan to a bare bone margin in depressions, but our bankers are not Harrimans. A bank that has a hundred and fifty millions in idle deposits and less than thirty million out in loans in these times should add, the words, "SLACKER" to its window sign.

Henry Ford and Hugo Stinnes are two men who have built up during the depression period. Henry Ford the American and Hugo Stinnes the German Jew have followed one funda-

mental procedure, different in application and motive, but identical in the fact; it is complete control of their products from the mine to the consumer, and all the middle profits. There is a lesson in this for producers.

WASHINGTON DAIRYMEN WIN

The Washington Farmer announces that an agreement has been signed in Spokane between the Inland Empire Dairy Producers' Association and all of the principal milk distributing companies of that city except one, under which the distributors agree to purchase practically all of their milk supply for a period of three years from the cooperative association. The price to be paid at the present time is \$2.85 per 100 pounds net to the producers' association for 3.7 per cent milk. All the milk will pass through the by-products plant of the association, where it will be weighed and tested, but each private distributing company will process its own milk in its own plant. The producers' distributing company, which is composed of former milk drivers, will continue to receive its supply of processed milk direct from the producers' by-products plant.

The agreement also provides that the retail price of milk in the city of Spokane shall be 13 cents per quart, instead of ten cents, which it has been for several months as a result of the milk war between the producers' association and the private distributors. The new price is already in effect.

BERKSHIRE SALE AT RIVERSIDE

The American Berkshire Congress Sale and Show at Riverside, February 27-28, is rounding up in good shape. The sale catalog will be ready for mailing in a couple of days, and it includes an attractive collection of Berkshires, rarely offered at public sale. The Berkshire breeders seem to have caught the promotion spirit and are outdoing themselves in consigning the best in their herds.

An idea of how the Berkshire breeders are backing up this event may be gathered from the fact that to date 22 breeders have entered animals in the show. Among them are Fred Sinnes, Prosser, Washington; State Agricultural College, Corvallis, Oregon; Hazen Cornelius, Ontario; Mary Beard, Cucamonga; University Farm, Davis; Italian Vineyard, Guasti; L. L. Clark, El Monte; Van Fleet, Cucamonga; Donald Clement, Chino; R. S. Jones, Etiwanda; Stella Mae Dillard, Etiwanda; Chester T. Johns, Cucamonga; Beard Bros., Cucamonga; California Truck Co., Los Angeles; H. V. Nelson, El Monte; Homer Banillas, Cucamonga; Iowa Farms, Davenport, Iowa; Rockwood Farms, Ames, Iowa; E. J. Barker, Thorntown, Indiana; F. L. Hall, Perris.

Over 20 high schools of the southern section are entering teams in the junior department judging contest. R. (Continued on Page 219)

DEPENDABILITY

WIZARD

4-PULL TRACTOR

Why These Features are Tremendously Important to You.

1. Rigid 4-Wheel Drive.
Shoes on all four wheels are set at an angle that literally gears them to the ground, giving the Wizard all the traction of a track type tractor, and under some conditions more; but, without the never-ending up-keep expense of the track machine. Steers by slowing wheels on one side. Most easily handled under all soil conditions.

2. No Oil or Grease Cups.
The Wizard is automatically oiled thru-out. Not a single oil or grease cup to fill. Hours of time saved every week.

3. Completely Enclosed.
Every working part—except wheels and fan—is absolutely protected against dust and dirt.

4. 35% Reserve Power and Strength.
The motor—when doing normal work—still has 35% of its power in reserve. The rest of the Wizard is built with over-size parts to support this extra performance whenever needed. Bosch magneto. Timken mounted throughout.

A PROVEN TRACTOR

The Wizard is the result of 30 years of experience and development by practical tractor men. It is a **perfected tractor**. All the experimenting has been done and paid for by the manufacturer. It works 99% of your work day. It is the lowest priced per drawbar horse-power of any tractor on the market when days of work are considered.

We want you to know all about this revolutionary tractor. Send for the complete story of the Wizard.

Kroyer Motors Company

LOS ANGELES HARBOR SAN PEDRO, CALIFORNIA

WIZARD

A Revolutionary 4-Pull Tractor

With These Fundamental, Exclusive Advantages:

1. The only tractor with a rigid, 4-wheel drive.

2. The only tractor built without a single oil or grease cup.

3. The only tractor that is absolutely enclosed.

4. Has 35% reserve strength after delivering normal pull.

WIZARD

4-PULL TRACTOR



DURABILITY

A PROVEN TRACTOR

The Wizard is the result of 30 years of experience and development by practical tractor men. It is a **perfected tractor**. All the experimenting has been done and paid for by the manufacturer. It works 99% of your work day. It is the lowest priced per drawbar horse-power of any tractor on the market when days of work are considered.

We want you to know all about this revolutionary tractor. Send for the complete story of the Wizard.

Kroyer Motors Company

LOS ANGELES HARBOR SAN PEDRO, CALIFORNIA

QUALITY

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4½ cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Profitable Poultry News—Capacity 200,000
Chicks—hence prices surprisingly low for quality. One recent order of a Farm Advisor's was 5000 White Leghorn, 2500 Brown Leghorn, 850 Red Chicks. Farm Advisors are leading Agricultural College graduates and practical experts employed jointly by National, State, County governments. His orders are coming after two years' extensive trial of our chicks throughout his county. These strains 180-290 egg Leghorns, Rocks, Reds, Anconas, Wyandottes, Minorcas, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys, yearly lead many egg-laying contests, supply foundation stock, fill repeat orders for hundreds. Why? Electric hatched, vigor, growth, winter-laying, profit, guarantee. Booking for immediate, future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. **Albert Sly, 1642 C. Middleton Place, Los Angeles.**

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the Vineburg Hatchery. All baby chicks guaranteed safe delivery. **Vineburg Hatchery, Vineburg, California.**

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Soquel, Santa Cruz County, California.**

White Leghorns: Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." **Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.**

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each, Bronze Turkey eggs 50 cents, and Pekin Duck eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address **Bracmar Ranch, Santa Barbara, California.**

Baby Chicks from the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. **The White Leghorn Hatchery, Pomona, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. **Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.**

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.**

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live, vigorous chicks guaranteed. Prices on request. Reliable since 1898. **MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, **W. C. Smith, Prop., Corning, California.**

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Barred Plymouth Rocks, "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voddan, Los Gatos, California.**

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, **Watsonville, California.**

POULTRY

Eggs and Stock For Sale—Booking orders for White Muscovy Quackless Duck eggs 35c each. White Wyandotte eggs \$1.50, \$3, \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners 50c, \$1, \$2, \$3 each. Pearl Guineas \$5 a pair; eggs \$2 a setting. White King Pigeons \$3 unmated pairs, mated working pairs \$5. Special price on 10 or more pair. White Leghorn eggs from standard and utility stock \$1.50, \$3, \$5, \$10 per setting. White Pekin Duck eggs 35c each. Partridge Plymouth Rock eggs \$3 and \$5 per setting. All our stock are from prize winners at various shows. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

Our Prices Are Right For

SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? **White Leghorns Only—the laying strain.**

Custom Hatch—20 per egg

We have the capacity for you.

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. 1, San Diego, California.**

White Leghorns, 287 egg strain, vigorous Hoganized two and three year old hens on green range insures strong chicks. Full count live chicks \$15 per hundred. Hatch each Monday. **Mrs. Robert Goddard, Los Gatos, California, Route A, Box 122.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.**

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. **Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Penn's Quality Barred Ply. Rocks and **Ferris heavy-egg-type White Leghorns.** Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM, Porterville, California.**

Baby Chicks: From carefully selected two year old hens. **Hogan Strain White Leghorns \$14.00 per hundred; R. I. Reds, Larin Strain \$18.00 per hundred.** 25% with order, balance C.O.D. Also hatching eggs from above stock. **Oroville Hatchery, Oroville, California.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Baby Chicks—Barred Rocks, R. I. Reds, Anconas, and White Leghorns. All chicks from carefully selected stock. You want the best, we have it. Write for circular. **Hargett & Son, Route 2, Box C, Compton, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Baby Chicks, Barred Rocks, R. I. Reds, White Rocks, Leghorns, Purebred heavy laying strains. Delivered free by parcel post. **J. V. Tracy, RD 1, Glen Lily Ranch, Santa Barbara.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns—Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 198A, Sunnyvale, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Beautiful Chinese Ringnecked Pheasants, \$12.00 per pair. **Pause Pheasantry, Fair Oaks, California.**

For Sale: Thoroughbred Single Comb Black Minorca cockerels and one rooster. **C. F. Schwab, San Fernando, Cal.**

POULTRY

NOTICE

Note the similarity of the names, **Warren, Warner, Werner, Barred P. Rocks, the M. A. Warren Strain of B. P. Rocks, 1921, 12 hens averaged 223 eggs. Eggs 15, \$5.00 per sitting, mated with cockerels from 1921 record pen. Sittings from the flock, \$2.50. Ex. prepaid, sealed and in proper containers. Send cash with orders under registered mail to avoid delay and loss. Address Mrs. M. A. Warren, P. O. Box 517, San Jose, California. We have no agents. Yards at 36 Little Delmas Ave. Last orders cancelled, if the output is sold, for each month.**

Hatching Eggs—White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. BLUE ANDALUSIANS, high class stock \$3.50 setting. GOLDEN CAMPINES and LAKENVELDERS from best yards in America. Supremely beautiful fowls, mature early, heavy layers of white eggs, \$6.00 setting. Golden Campine Cockerels. J. B. Crawford, Route 2, Compton, California. Phone Compton 748.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. **J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.**

Baby Chicks hatched in Petaluma Incubators are a superior class. Strong, vigorous, sturdy, grow rapidly, lay early. Buy chicks from hatcheries using Petaluma incubators. You will find one near you, if not, write us. Catalog free. **Petaluma Electric Incubator Co., Petaluma, California.**

Baby Chicks that are hatched right from our heavy laying strain of Ferris and Hollywood Farm White Leghorns, also Brown Leghorns and Barred Rocks. Our prices are right. **Oak Knoll Poultry Ranch, T. E. Blake, Prop. Santa Cruz, California.**

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. **Bonnie Brae Farm, Burbank, California.**

Parks P. R. Pedigreed Cockerels and eggs for hatching (230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. **San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.**

Beautiful R. I. Red and Brown Leghorn prize stock. Eggs, per setting, \$2.00 to \$5.00 per 15. Fertility guaranteed. **Persian Kittens** from prize stock. **Mrs. Eva V. Conklin, 1445 Portola Avenue, Los Angeles, California. Phone Garvanza 3034.**

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. **S. H. Evans, Chowchilla, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

Ancona Hatching Eggs—Select laying stock. Mated for heavy egg production. Settings or hundreds. Write for mating list. **R. Baugh, 3534 Allendale Ave., Oakland, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Baby Chicks—White Leghorns from our own stock, well selected and Hoganized. We are taking orders now for spring delivery. **Garcia & Sarich, R. F. D., Box 346, Sonoma, California.**

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

Light Brahmas—A few young cocks. Setting eggs, \$5.00 per 15. **Keys Ranch, El Monte.**

Light Brahma Eggs for hatching, \$2.50 per 15, large stock. **J. M. Sigler, Puente.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

DUROC-JERSEYS

Weanling Boars and Glits by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glits. **Derryfield Farm, Capital National Bank Bldg., Sacramento, California.**

Greenwood Farm Durocs—Moderate prices on bred glits and weanling boars. Select individuals. Most popular breeding. **H. C. Witherow, Mgr., Live Oak, Sutter County, California.**

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. **J. Boyd Harrold, Dixon, California.**

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA, CALIFORNIA.**

Big Type Durocs—Better Durocs at right prices. **Harvey M. Berglund, Dixon, California.**

BERKSHIRES

Berkshire Glits—Bred for late spring litters. Boar pigs of breeding age. **Calac Orchards, Martinez, California.**

HAMPSHIRE

Hampshire Swine—always top the market. We have for sale, purebred Hampshire Hogs of all ages. Write us what you want. Address **Braemar Ranch, Santa Barbara, California.**

SEEDS AND PLANTS

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

Cory's Thornless Blackberry—Selected, well-rooted tips, \$2.40 per dozen, \$15.00 per 100, \$120.00 per 1,000. 50 at 100 rate or 500 at 1,000 rate. **Black Zante Currant Grape (Panarit),** heavy 2 year old vines, \$5.00 per 100. Packed free. **Sylvan Nurseries, Lincoln Highway, Roseville, California.**

For Sale—500 pounds Klondike Watermelon seed, best brown varieties at \$2.00 per lb. 100 pounds black seed Chileans \$1.00 per lb. All seed guaranteed to grow if planted at proper time. **Sam Oskey, 2005 Audrey Street, Los Angeles, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest, Standish, California.**

Cory Thornless Blackberry, Large vigorous well rooted plants, True to Name. St. Regis red everbearing and Columbia Black Cap Raspberries, Loganberries, Winter Rhubarb, Rooted Grape Vines. **Phone 692, Los Nietos Valley Nursery, Downey, California.**

Strawberries—21,600 boxes per acre, from July to November 1921, from Hewitt's Improved Mountain Grown Everbearers. Profits sooner and greater than any other crop. Descriptive folder. **Carl N. Hewitt, Summit, California.**

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. **Georgia Yams or Southern Queen (White),** \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. **B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.**

Berry Plants, Grapevines, Rhubarb, Roses, Annual and Perennial Flowering Plants. Sent postpaid. Special price list. **Hopkins Nursery, 153 So. Hartwick Ave., Eagle Rock, California.**

Cory's Thornless Blackberry Plants, extra fancy, 15c each, or rates by the thousand. **Corner Inglewood Ave. and Arborvitae, Inglewood, California. C. C. Bryson.**

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas E. Mortensen, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower. **Wm. Mortenson, Route 1, Lodi, California.**

100,000 Grape Rootings, Thompson and Muscat. 10 kinds of cuttings, nursery stock. Farm, garden seeds and plants. Write for circulars. **Box 501, Fowler, California.**

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.**

For Sale: Strawberry plants, Klondyke, Brandywine, Gibson and Senator Dunlap, \$5 for 1,000. **Cumberland Black raspberries, \$3.50 per 100, \$35 per 1,000.** **S. R. Moore, R. F. D. 3, Box 19, Inglewood, Cal.**

Blackberry Plants: Cory and Burbank thornless varieties. Order now, 10c each. **Miller Ranch, 1 mile west of Mt. Vernon on W. Highland Ave., San Bernardino. Phone 7304.**

Cory's Thornless Blackberry—Well-rooted plants, \$1.50 per dozen. **Loganberry, \$1.25 per dozen.** **C. E. Jenkins, 127 Luther, Riverside, California.**

For Sale—Rooted Grape Vines, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 336, R. 2, San Gabriel.**

For Sale—Government tested alfalfa seed, dry land Chilean variety. Prices and samples on request. **O. L. Divens, Dos Palos, California.**

Save Work—Plant Irls and Perennials; a \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurtt, San Bernardino.**

Alfalfa Seed—Certified Haiy Peruvian, Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, San Jose.**

Mason's Everbearing Strawberry Plants, New Variety, Hundred \$1.50. **Klondike \$5 thousand.** Postpaid. **L. Specht, Galt, California.**

Strawberry Sugarloaf, nothing like it! Plant now! 25, \$1; 100, \$3. **Jno. F. Horsley, Upland, Cal.**

Zante Currants: One year rooted vines, about 5,000 for sale at \$45 per M. **C. H. Wilder, 2429 E. 22nd St., Oakland, Cal.**

For Sale—Carolina strawberry plants, \$10.00 per thousand. Write for quantity price. **Louis White, RR 2, San Gabriel. G. A. Price, Miranda, California.**

Rooted Grapevines, Malaga and Thompson, \$40.00 per thousand. **A. A. Wilhelm, San Gabriel, 548-J-3.**

Florida Sour Orange Seed and California Sweet Seedling orange seed for sale. **Milo Hunt, Whittier. Phone 250.**

\$1.00 Will Deliver You 6 Assorted small roses, or 3 large ones, or six berry vines, or one pomegranate and one seedling fig. **Bishops Nursery, Highland, California.**

TREES

Notice to Planters—Having checked our orders we offer 3000 Tuscan Cling and Royal Apricot—1 to 6 feet—\$350.00 per thousand. 1000 Satsuma plum, 35c up according to height. All home grown. Himalaya Blackberry, \$5.00 per hundred. Commercial orchard trees—home garden and citrus trees, grapes, pears, evergreens, etc., reasonable. Snyder Nurseries, opposite the High School, Burbank. Telephone 122-J.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Garter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Hachiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Avocado Seedlings in individual paper pots (two by eight) ready to line out in nursery rows or plant where they are to grow. Plants are from one to ten inches high. Not touched by the late frost. Price and further particulars on application to Wm. Chappelow, route 1, box 433, Monrovia, California. All are from hardy (Mexican type) seeds.

For Sale—Concord grape vines and cuttings. Kadota and Black Mission fig trees. Kadota cuttings. Hachiya Japanese persimmons, walnuts, peaches, plums, apples and general assorted fruits. Good trees at reasonable prices. Fred W. Kelsey, South Rosemead Avenue, near Valley Blvd., 2 miles west El Monte. Phone Alhambra 919-J-3.

Avocado Trees: I have 300 field grown, thoroughly hardened Fuertes, one and one-half and two years from bud. Large balls of dirt. No better stock to be seen anywhere. \$4 each in quantities, \$5 each for single tree. W. A. Spinks, Duarte, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVELE, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Nursery Stock at bargain prices. Prune, 12c each; grafted walnuts, \$1.00 each; pears, 20c each; Blackcaps, \$20.00 per 1,000; other stock at bargain prices. Submit your want list and send for planters' list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 53, Chico, Cal.

For Sale: Valencia Late, Washington Navele, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Fine lot Florida sour stock orange seedlings, budded orange trees, grafted walnut trees. A. G. Snow, Oxnard, California.

For Sale—A few Eureka Walnut Trees left. Also Eureka Scions, The Walnut Nursery, Whittier, California. Phone 6294.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

Placencia Walnut Trees on Northern Black root; 4 to 10 ft., \$1.00 to \$1.50. A. E. Nelson, El Monte, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. W. Irwin, Lindsay, California.

Nursery Stock: Valencia orange trees, 1 year old. H. Meier, Phone 256-W Orange, East Chapman Ave.

For the Cheapest and Best nursery stock call or write the Home Nursery, Los Angeles, Box 1335, Maywood.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Trees—Free Mammoth Bartlett-tack up signs, Zinfandel grapes \$30 thousand, \$5 hundred. Cash Nursery, Sebastopol.

Black Mission and San Pedro Fig Trees. 7000 Malaga grape vines. L. A. Tuttle Nurseries, R. No. 1, Pasadena.

DUCKS

Mammoth White Pekin duck eggs for hatching, \$1 per dozen. A. Surtman, Petaluma, Cal.

MACHINERY

Ten Foot Fairbanks Morse Wind Mill and two thousand gallon galvanized tank, 50 ft. wood tower and number 5 late Byron Jackson centrifugal pump with foot valve, also second deep well propeller pump, 8 inch diameter, eighty feet deep. This stuff has got to be moved and a real bargain for quick action. Address—L. A. Turner, RD 2 Box 850, Los Angeles, California.

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Fine Deep Well PUMPING PLANT, 15 h. p. Western engine, just rebored. Famous double acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well; for cash or trade for late model Dodge auto. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

For Sale at Bargain Prices—One 750 gal. heavy steel oil tank and wagon; one six foot land leveler; one International feed grinder; one four-gang Stockton plow. Drew Carriage Co., Ontario, Cal.

MISCELLANEOUS

A Good 80 bbl. per day capacity flouring mill with all up to date machinery, run either by steam or electric motor, to sell for less than the machinery would cost. 1500 ton warehouse in connection, RR siding on one side, State Highway on other side, in good town and a good wheat producing country. A country store, a money maker if you can stand to be away from the movies and bright lights. Also a country hotel and soft drink joint. Also a good sheep ranch. Will surprise you on the price of any of the above. C. P. Gould, 1032 Junipero Ave., Long Beach, California.

Bargain—We have taken over a large stock of hose, absolutely new, and will ship any quantity you may desire. This hose is manufactured by the most reputable hose factory in the country. 10,000' 3/4" seven-ply hose @ 14c per foot. 80,000' 3/4" five-ply hose @ 10c per foot. 40,000' 5/8" five-ply hose @ 9 1/2c per foot. This shipment of hose will be ready for distributing February 5th. Send for sample. American Machinery Co., 518 Fourth Street, Oakland, California.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Attention Property Owners—Don't guess at it. Have your Septic Tanks built by an expert. Satisfaction guaranteed. Write for price to August Nelson, 215 East Main Street, Santa Maria, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco, smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

TURKEYS

TURKEYS—Purebred Giant Bronze. Four famous Madison Square Garden winners heading this season's flocks:

GOLDBANK VIII, grand champion 40 lb. yearling cock 1921;

GOLDBANK BOY (his son) first prize cockerel 1921;

GOLDBANK KING, first prize cockerel 1922 (grandson GOLDBANK VIII and son of GOLDBANK IX, this year's champion first prize yearling);

COPPER KING'S BOY, third prize cockerel 1922; and

COPPER KING JR., being grandson and son respectively of famous COPPER KING V, grand champion of 1919, that weighed 38 lbs. as a yearling. All mated to choice 20 lb. hens. Eggs in season; prices reasonable. Bronze King Farm, Route 2, Box 88A, Merced, California.

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

For Sale—White Holland Toms from blue ribbon stock at \$15, and eggs in season 50 cents each. Order early if you want them this spring. L. A. Robinson, Hemet, California.

Turkeys—Mammoth Bronze—About 30 young hens, nicely bred, \$7.00 up. A few good young toms, \$15.00 up. Eggs, 35c, 50c and \$1.00 each. Keys Ranch, El Monte.

Thoroughbred White Holland Turkey Toms, a few beauties at \$12.00. Three hens for \$20.00. Pause Pheasantry, Fair-oaks, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

FARM LAND FOR SALE

320-ACRE FARM WITH TEAM 11 CATTLE, 30 HOGS, 30 SHEEP. Vehicles, tools, poultry, hay, etc. included; section rapidly rising values, convenient live RR town, advantages; rich loamy tillage, adjoins free open range; estimated 275,000 ft. timber; 50 apple, 30 peach trees, pears, plums, cherries, grapes, berries; comfortable cottage, spring water; 2 barns, tenant, smoke and poultry houses; owner's other interests force sale, all \$3500, part cash, easy terms. Details page 88 illus. Catalog 1100 Bargains. FRIED. STROUT FARM AGENCY, 831 H. K. New York Life Bldg., Kansas City, Mo.

120 Acres Farming and Grazing Land, fenced and cross-fenced, 6 room house, barn and out houses, good well, ideal chicken ranch, 3/4 mile from town. Free mail every day, school bus runs by door, 60 acres plowed ready to put in. Price \$40 per acre, easy payments. This place in Cholame Valley near Parkfield, Monterey County. C. P. GOULD, 1032 Junipero Ave., Long Beach.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Priced \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

IRRIGATED FRUIT LAND Fruit makes California the "Safe Farming" state. Irrigation makes fruit farming safe. We offer irrigated bottom land, best for big yields of fruit, at liberal terms. We have a real opportunity for you.

SUTTER BASIN COMPANY 304 California Fruit Bldg. Sacramento, Cal.

For Sale—10-acre apple orchard, Yucaipa, twelve year old, standard varieties. Fully equal to best in the valley. Extra water stock. Eighty acres irrigated land, Delta, Utah, exceptional bargain. Experienced farmer can double value in two years. Address the owner at Room 2, 5619 Pasadena Avenue, Los Angeles.

For Sale—Some of the Finest Orchard Land in Southern California, in a rapidly growing community, \$10.00 to \$50.00 per acre. Water available if desired. Call or address Adelanto Fruit Co., Adelanto, California.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. F. M. Dyke, Real Estate.

Merced: Yosemite's Gateway, offers best values in irrigated fruit and alfalfa lands. Free information; reference to reliable dealers. Insist your title be certified. Merced Title Guaranty Co., Merced.

3 Acres—8 blocks from heart of El Centro for sale or exchange. Box 101, Ramona, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Innisfall Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Lessees, Davis, California.

Ridgewood Ranch—Registered Herefords. Choicely bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Some Choice Registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

POLAND-CHINAS

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Brood Sow and Gilt, Registered Poland China, also 1 boar, eight months old, sired by prize winner. Glen Lily Ranch, J. V. Tracy, Rural 1, Santa Barbara.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

WANTED

Wanted—Established California concern wants men, with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address J. H. Yetter, 317 Central Ave., Los Angeles.

Wanted—To contract for the purchase of five to possibly ten thousand seedless grape fruit nursery trees for delivery Spring of 1923. Address G. A. Lathrop, Imperial, California.

Wanted to Buy Weanling Pigs. H. Garlon, Box 259, Oatman, Arizona.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Edway 5401 Los Angeles, Calif

GOATS

For Sale—Goats, 800 Angoras, mountain raised, mostly young. Kidding April 1st to May 15th. Registered sires. I. B. Putnam, Visalia, California. R. A. Box 284.

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatsery, El Monte, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press 236 Court St Los Angeles.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St. Los Angeles

DISPERSAL

20 Registered Holsteins

Owned by

John S. Braman, El Monte, Cal.

Selling at

RHOADES & RHOADES
SALE PAVILION

HYNES, CALIF.

Thursday, March 16, 1922

Practically the entire offering is made up of young cows and heifers of substantial breeding, mostly descendants of the former world's record cow, Aralia De Kol, who heads one of the few three generations of 1,000 pound cows.

TUBERCULIN TESTED
GUARANTEED BREEDERS

Catalog Free on Request

Management

CALIFORNIA BREEDERS SALES
AND PEDIGREE CO.

C. L. Hughes, Sales Manager.
Sacramento, Calif.

TOSANTOS HERD

Bull Calf, Born Oct. 15, 1921.

Sire—The 34-lb. Sir Aaggie Hiske Walker.

Dam—Princess Hartog Walker, a daughter of Prince Gelsche Walker.

The 7 nearest dams of calf average 26.48 lbs. butter in 7 days. Price \$50

E. D. Barry, Jr. Covina, Calif.

Workman and Azusa Ave.

BARREN COWS are the results of CONTAGIOUS ABORTION

Prevent this by using ABORNO. Easily administered by hypodermic syringe. Kills abortion germs quickly without harming cow. Write for booklet with letters from users and full details of Money-Back Guarantee.

ABORNO LABORATORY
15 Jeff St. Lancaster, Wis.

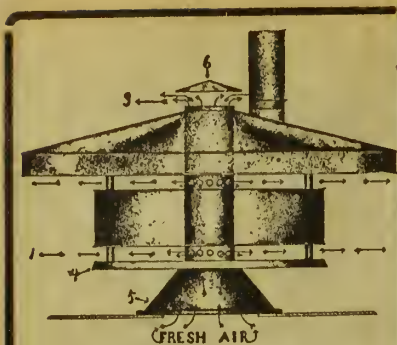
BERKSHIRE SALE AT RIVERSIDE

(Continued from Page 217)

A. Condee of Chino has been appointed superintendent of the contest work.

The silver cup offered by the Southwestern Berkshire Congress to the winning judging team is on display in a store window at Riverside along with about six others which have been donated by progressive business firms who are cooperating with the Berkshire boys in boosting the livestock industry of the West.

C. I. Hood, owner of Hood Farm, Lowell, Massachusetts, and one of the most constructive breeders of Jersey cattle and Berkshire swine, died February 5. Hood Farm came into prominence through the development of the Sophie Tormentor strain of Jerseys.



If You Are Going to Brood

anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be. write us for our

Literature on KRESKY STOVES

Ask for Literature No. 70, which describes all sizes.

Kresky Brooder Stove Co.
Petaluma, Cal.

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 29, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 237.09 eggs each, all in one sock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, nothing like it anywhere. Perfect ventilation. We are exclusive hatchers for spring of 1922, for F. R. Richardson, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

B. R. HOLLOWAY
Box K. Van Nuys, Calif.

"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

PIONEER HATCHERY
320 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"

"PIONEER" Valveless Blue Flame Brooder
So Good You Can
Write Your Own Guarantee
54-Inch Size Only \$25.00



Send today for circular. If interested in Incubators ask for 48-page Pioneer Incubator Catalog.

PIONEER INCUBATOR CO.
444 N. Andrews, Los Angeles, Cal.

The Redwing Hatchery

Incubates 250,000 Eggs Every Three Weeks being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders. No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY,
2030 E. Florence Ave., Los Angeles, Calif.

Vitamines

SAYS the Cooperative Poultryman:

A man who thought himself a scientist was remonstrating with a farmer for feeding his hogs so much succulent green feed. "Why, man, 90 per cent of that green feed is water." "Well," said the farmer, "it is mighty good water anyway and the pigs thrive on it." These two men were discussing the influence of vitamins, but neither of them knew it. Years ago our experimental stations found that milk fed swine gave results far in excess of the actual solids present. What we now call vitamins produced these remarkable results.

Millions of people on the east coast of Asia have been using sprouted beans as an article of diet because experience has taught them that the young sickened and died from malnutrition when subsisting on grains and, in addition, the beans prepared in an unsprouted condition. The partially civilized people probably never heard of vitamins, but at least they saw results.

In like manner it has been noted for a long time that feeding sprouted oats and barley to hens, especially during the fall and winter months, tended to produce more eggs. Hundreds of poultrymen have failed to make the poultry game pay because they depended exclusively on mangels, cow melons and pumpkins for green feed. Books told them that these were valuable, but the hens lacked something essential notwithstanding the advice on the printed page, and that something we call vitamins.

There is some connection between vitamins and available organic ash. Fed the milk of an ill nourished cow, a calf does not thrive naturally. Chicks hatched from eggs laid by poorly fed hens have small frames with puny legs and feet. Vitamins have some control over the availability of the organic ash used to build up blood and bone.

The basic facts involved in a discussion of vitamins were noticed and dimly understood generations ago, but the great benefit derived from more recent investigation has been to confirm with scientific accuracy what some close observers had believed was true. Some folks think that the conclusions arrived at in working out this whole problem have been in the nature of rebuke to those extreme materialists who thought they could measure the deep things of life by chemical formulae rather than by exhaustive feeding tests. The conclusion reached in regard to vitamins refutes the claim that so much protein, carbohydrates, fat and ash, chemically determined, will represent the food value of any material under discussion. We only know that some foods tend to produce natural growth when fed to the young and other foods do not. Some foods tend to prevent the diseases resulting from a ration improperly balanced; lacking these foods, birds and animals suffer the ills of malnutrition.

What does a vitamin look like? Nobody ever saw one. It is true that by the use of metallic salts material containing vitamins may be concentrated to a remarkable degree; however, complete separation has not yet been accomplished. One of the disconcerting facts about some vitamins is their unstable and perishable characteristics. They exist so near to nature's wonderful laboratory that often high temperature or contact with so harmless a compound as baking soda destroys them. One of these vitamins is called "Fat Soluble A." As a person would expect, it is found in certain fats, not all fats, but only a few. This is the vitamin which exerts such a powerful influence on the growth of the young creature. We find it in butter fat, the fat of egg yolk, the internal fat of animals and fish, and to some degree in the fat of the rice kernel. During the past few months Japan has shipped thousands of tons of rice polish and high grade rice bran out of California to improve the ration of her people because it has been found that these rice by-products cure some of the ills of malnutrition.

While the intelligent poultryman has received much light on the whys and wherefores of poultry feeding, and as a result has received help with some of his problems, yet investigation of the so-called vitamins has not tended to revolutionize the best ideas on poultry feeding. It has rather tended to confirm present ideas than to suggest different methods of feeding. Those who have seriously investigated the production of hatching eggs have observed in a crude way what our learned friends have now demonstrated with greater accuracy in tabulation and other detail.

The advantage of using milk in the poultry yard is more firmly established than ever. The fact remains that a certain amount of non-rancid fat is a great advantage, not only to the laying hen but to the growing stock. The problem naturally will be to prevent excess of rancidity. Growing green feed cannot be wholly displaced by any succulent material such as mangels, cow melons and pumpkins without producing serious results. While the sprouting of grain is not absolutely essential when growing green feed is supplied, yet it tends to supply those vitamins which exert some control over making the organic ash content of feed available. In conjunction with tender green feed and properly sprouted grain the organic ash found in wheat bran and fine bone, for example, becomes more available, not only to laying hens, but also for chicks and growing stock.

Even the candler of market eggs can usually tell by the density and other characteristics of the egg in his hand whether the hen producing it has been fed properly, which usually means whether her feed contains material rich in those growth elements which we now call "vitamines" for want of a better name.

Poultry Queries

Conducted by Jean A. Koethen

Turkeys in Coachella Valley

What information can you give regarding turkey raising in Coachella Valley? What are the special problems there?—Subscriber, Indio.

As far as I know the problems are the same as in all our warm, dry, interior valleys. Shade and abundant green feed must be provided, and insect pests, which are always a more difficult problem in a hot climate, must be kept under control. It is generally believed that turkeys do better in these dry, interior valleys than near the coast. We should be glad to hear from Coachella subscribers on this subject.

Milk for Turkeys

What would you feed young turkeys if sour milk is not available? Is there a substitute just as good? Do our large turkey raisers depend on sour milk?—Subscriber, Turlock.

If there is a substitute just as good it is the bugs and worms that are found on moist, green range. In fact, the bugs and worms are the poul's natural food, and sour milk is the best substitute. When sour milk cannot be had beef scrap in the mash is a fair substitute, but some large turkey raisers start their birds on the familiar bread and egg and greens or rolled oats, egg and greens, and continue to feed a little egg till the birds are from six weeks to two months old, when they are shifted onto bran and barley with no animal food at all.

Old Hens

We have 1,200 hens that will be two years old in March. They have been laying very well. Shall we keep them another year or are they too old to be profitable?—Subscriber, Cupertino.

Never sell a hen that is laying satisfactorily, no matter how old she is. Some hens are profitable in the third and even in the fourth year, but the majority are not. The thing for you to do is to cull out this coming spring and summer every hen that stops laying for any reason whatever. If she

The Cause of White Diarrhea

White Diarrhea is caused by the bacillus *Bacterium Pullorum* transmitted through the yolk. There is scarcely a hatch without some infected chicks. The germs multiply very rapidly and one infected chick may infect the entire brood. The germs can be killed by the use of preventives. Intestinal Antiseptics to kill the germs should be given as soon as the chicks are out of the shell. It is much easier to prevent than it is to cure.

How to Prevent White Diarrhea

Dear Sir: Last spring my first incubator chicks when but a few days old began to die by the dozens with White Diarrhea. I tried different remedies and was about discouraged. Finally, I sent 50c to the Walker Remedy Co., Dept. 593, Waterloo, Ia., for a box of their Walko White Diarrhea Remedy. It's just the only thing for this terrible disease. We never lost a single chick after the first dose. We raised 700 thrifty, healthy chicks, where before we never raised more than 100 a year. I'd be glad indeed to have others know of this wonderful remedy. Ethel Rhoades, Shenandoah, Ia.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send 50c for box on our guarantee—money back if not satisfied. Walker Remedy Co., Dept. 593, Waterloo, Ia.

Stop Hatching Weak Chicks

Chicks that hatch a few days mean out weak and wobbly, and live but nothing to you but trouble and loss. with cheap incubators. Remember, it is not how many you hatch that counts but how many you raise.

Queen Incubators

produce large hatches of strong, vigorous chicks that live and grow. The Queen is accurately regulated—taking care automatically without attention of a variation in temperature of 70 degrees without danger to the eggs. It is built of genuine Redwood—very scarce in these days of imitation. Redwood does not absorb the odor from hatching chicks. Cheaper woods and strawboard or composition lining in iron or tin machines, retain the odor, to weaken and kill the chicks of later hatchery.

Queen Incubators and Brooders are sold by dealers everywhere. Send for Free Book. (42)
QUEEN INCUBATOR CO. Lincoln, Nebraska

GERMAIN SEED & PLANT CO.
Los Angeles, Cal.

Distributors of Queen Incubators

The E. Z. CLOVER CUTTER



\$8.50

Postage Extra
For small Poultry Plants. Made of the best material and fully guaranteed. Cuts dry or green feed. Weight, 15 pounds, crated. Ask your dealer or write for circular.

R. W. W. GRIGSBY
125 W. Avenue 29, LOS ANGELES, CAL.



Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

Fancier's Exchange

640 So. Main St., Los Angeles, Cal.



Try the Coulson System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars. Coulson Co., Petaluma, Cal.

LEE'S LICE KILLER

Kills lice, mites, bed bugs, etc. affecting poultry. Spray or paint on roosts, etc. Gets body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or bandaging. Saves lot of unpleasant work. At most towns, at stores handling Lee Poultry Supplies. Write for information and FREE Book. GEO. H. LEE CO., Dept. F-30. OMAHA, NEBR.

goes broody before July or more than once after July 1 remove her. If she begins to moult before September 1 remove her. If her comb becomes pale and withered or she shows any indication of weakness or sickness remove her. If, after you have removed all hens that are evidently not laying, production should drop below the proper average for the time of year, go through the flock and remove the hens with hard abdomens and stiff pelvic bones. All hens that are still laying in October should certainly be kept.

Home Made Brooder

J. H. Ritchey of Runnington sends the following directions for a home-made brooder in which he brooded 100 chicks for two months last fall:

The lid of a medium sized zinc trunk was lined with a sheep skin and two small doors chiseled in the front. With the west side closed tight and the doors open toward the east and bottom covered with straw, this brooder, which was placed on the south side of the barn, successfully housed the 100 chicks till they grew too large for it. Then a lined box the same height was added, and both banked with dirt.

Mr. Ritchey also recommends keeping sulphur in a box in the hen house where the hens have constant access to it. This is a preventive of chicken pox and also a help in molting.

The Family Flock

I want to raise about a dozen hens to supply our household with eggs and raise a few baby chicks occasionally. What varieties do you recommend and what are the food requirements for a laying hen?—Subscriber, Pasadena.

You will make no mistake in selecting one of the three American breeds, Rocks, Wyandottes and R. I. Reds. A dozen hens of either of these breeds will provide all the eggs your family can use (unless it is exceptionally large), hatch and rear 75 to 100 chicks in the spring, furnish fryers for all summer and roasting hens for your winter Sunday dinners, with a fine young rooster or so for the holidays. You can have your pick of colors: white, red, buff, barred, black and white or laced, and keep them in a small pen where they will be in nobody's way. Grain once a day, a laying mash always before them, and all the greens they can consume are the feed requirements of the family flock. Add to these your table scraps and kitchen waste cooked up once a day and thickened with bran or with the regular mash and you should have eggs every day in the year.

Vegetables as Greens

Are stock beets and carrots as good green feed as alfalfa or clover?—Subscriber, Eureka.

Certainly not, for they are not green. They contain some of the mineral salts and a good deal of fiber, as well as a considerable amount of sugar and starch, and are valuable feeds in their way, but they are not green, and do not take the place of succulent greens, alfalfa, clover, green barley, kale, chard, alfilaria, etc.

Chick Feeding

I would like to know more of the Poultry Division's method of feeding baby chicks, as referred to in the article "10,000 Dozen Eggs from 600 Hens." To whom shall I write for information?—Subscriber, San Jose.

Write to the University of California, College of Agriculture, Berkeley, for circular on the care and feeding of chicks.

Culling Pullets

At what age should pullets be first culled by the process of finding the space between pelvic and breast bone? Would you mind telling us just what process of culling you use in your own flock? If you have a previous article on this subject perhaps I can obtain that number. We are new subscribers.—Subscriber, El Centro.

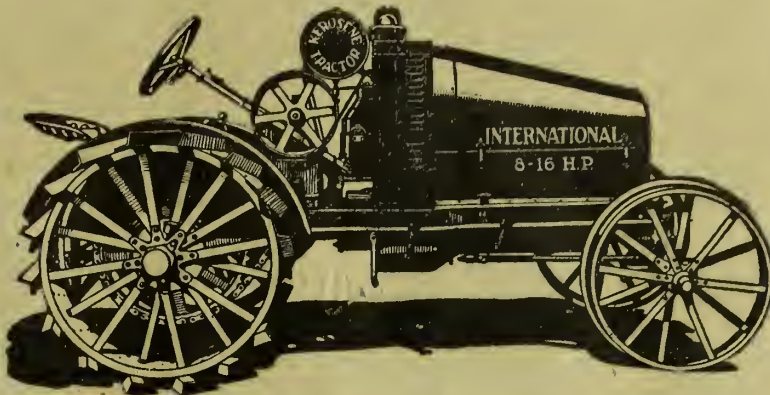
Culling in general was discussed in the issue of May 28, 1921. Hoganizing, as the method of culling to which you refer is called, is used for

(Continued on Page 223)

International 8-16 Cut \$230

Now \$670 f. o. b. Chicago

and a P&O 2-furrow Plow FREE

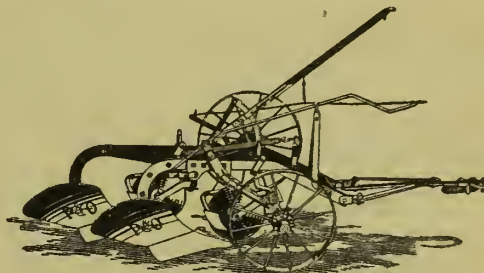


The International 8-16 is not a stripped tractor pared down to make a price, but complete with all essential equipment—*belt pulley, fenders, platform, throttle governor, adjustable drawbar, angle lugs, brakes.* This equipment, worth more than \$100 and necessary on any tractor to make it serviceable and safe, is included in the new \$670 price. *No extras to buy.*

Titan Price Now \$700 f. o. b. Chicago

This new Titan price is sure to interest any man who wants a real 3-plow tractor, with belt power in proportion. Remember that 3-plow capacity cuts the labor cost on every field operation. Note that until May 1, 1922, every farmer purchasing a Titan tractor covered by the Special Offer will be given a P&O 3-furrow plow free. If the purchaser now owns a suitable plow we will substitute a tractor disk harrow.

Greatest farm power values ever offered. Neither horses nor any other tractor can equal them.



Special Offer Expires May 1st. See the McCormick-Deering Dealer Now!

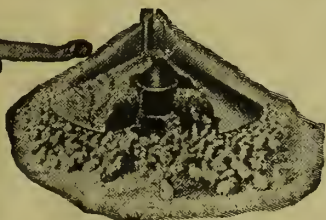
INTERNATIONAL HARVESTER COMPANY

CHICAGO

OF AMERICA
(INCORPORATED)

U S A

The Key to Success in Poultry Raising



RELIABLE brooding equipment is the one sure way to success

in poultry raising. Proof of that reliability is determined from the experience of raisers. Hundreds or thousands of successful poultry raisers depend absolutely upon

Buckeye "Colony" Brooders

The demonstrated ability of Buckeye "Colony" Brooders to raise every raisable chick has made big profits for Buckeye users. Ask them.

Buckeye "Colony" Brooders entirely prevent that awful mortality that has made chick raising so risky. They grow three chicks where one grew before at a fourth the labor and half the expense.

Unconditionally guaranteed by 15000 dealers the world over. Burn coal, gas or oil. Three sizes. Let us send you proof of your own ability to make chick raising pay with Buckeye "Colony" Brooders. Ask for our new booklet, "The Revolution in Chick Raising"—sent free upon request.

The Buckeye Incubator Company

World's Largest Manufacturers of Incubators and Brooders

913 Euclid Avenue SPRINGFIELD, OHIO
Distributors: Portland Seed Co., 180-186 Front St., Portland, Ore.; Spokane Seed Co., 906 First Ave., Spokane, Wash.; Coulson Poultry & Stock Food Co., Petaluma, Cal.; Ansel W. Robinson, 1275 Market St., San Francisco, Cal.; Darrow Bros. Seed & Supply Co., 325 Shoshone St., West, Twin Falls, Idaho; Porter Walton Seed Co., 522-34 S. 3rd West, Salt Lake City, Utah.

Chickens---6000---Chickens

Public Auction

At the Weaver Poultry Ranch, ¼ mile north of the Pasadena Avenue Bridge,

Tuesday, March 7th, at 10 A.M.

Autos take Pasadena Ave. to Ave. 66, or first road west of bridge, turn north to ranch. Signs will direct.

To the Highest Bidders Without Limit or Reserve

Approximately 250 males, averaging yearlings; 800 five months old pullets; 1,200 March pullets, and the balance yearlings and up. All WHITE LEGHORNS.

Brooder house, with gas regulators, four electric brooder houses, fences, chicken houses, drinking fountains, crates, Dodge touring car, and Ford ton truck with cord tires.

TERMS CASH Free Lunch at Noon

Chas. C. Weaver, Owner

Rhoades & Rhoades, Auctioneers

Bee Hives and Supplies

Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

The A. I. ROOT COMPANY, Dept. B, 1824 E. 15th St., Los Angeles, Cal. PACKERS OF AIRLINE HONEY

Los Angeles Markets

Los Angeles, February 22, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 46 cents.

CHEESE

Brokers' prices:
California firsts, 24@26.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 24; case count, 22½; pullets, 21.

POULTRY

Price to producers: Hens, 26, colored, 26; broilers, 36@39; roasters, 34; old roosters, 16; fryers, 39; ducks old, 20; ducklings, Pekin, 3½ up, 23; others, 23; geese, 23; turkeys, live, young tom, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, Feb. 21.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 7.50; medium, 7.00; cows, good, 6.00; medium, 5.50; calves, 125 to 150 lbs., 8.00;

150 to 225 lbs., 8.50.

Sheep: Ewes, 4.00@4.50; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 1.00@1.10. Stocktons: Burbanks, per cwt., best, mostly 2.40@2.60, few best, 2.75@2.85; poorer, 2.00@2.25. Idahos: Russets, best, mostly 2.25@2.50; bakers, 3.00. Sweet Potatoes: Movement moderate, market weak. Locals, No. 1, best, per lug, 85@1.00; poorer, 60@75 per lug. Arkansas: Nancy Halls, per bu., 2.25@2.50; per lb., 5.

Onions: Demand moderate, market strong. Stocktons: Per cwt., White Globes, best, mostly 9.00; browns best mostly 7.50@8.00; lugs, whites, best, 2.75@3.00; browns, 2.50@2.75. Garlic: 7@9 lb.; poorer, 5@6.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, February 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.75@2.25; poorer, 1.00@1.50.

Brussels sprouts: Mostly 18@22 per lb. Sacked vegetables: Beets, 2.50@2.75; carrots, 2.25@2.50; turnips, mostly 1.00@1.25; parsnips, 1.50@2.00.

Bunched vegetables: Per doz. bunches: Turnips, 40@50; carrots, 80; beets, 80; radishes, 25@30; parsley, 15@20; spinach, 50.

Cabbage: 2.50@2.75. Cauliflower: Market stronger. Wide range in quality. Per field crate, mostly 2.25@2.50.

Celery: Market stronger. Locals: Best, 5.00@6.00; few, 6.50; poorer, 3.50@4.00; San Diego fancy, 8.50.

Cucumbers: Market steady. Hothouse, mostly 1.00@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 1.00@1.15 crate.

Lettuce: Demand moderate, market steady. Locals, quality poor; field crate, 2.25@3.00; Imperial Valley, 3.50@3.75 for packed crate.

Parsnips: 90@1.10.

Onions: Green, 15@20 bunch.

Peppers: Mexican chili, mostly 10@12; Bcll, fancy, 25@30.

Rhubarb: Box, 2.25.

Tomatoes: Market weak. Mex., lug, repacked, 3.25@3.75; per lb., 10@12.

CITRUS FRUITS

Grapefruit: Movement slow, market dull. Californias: Northern: Packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50. Imperial Valley, 3.75@5.00. Arizonas: Seedless, 3.75@4.75, mostly 2.00@3.00.

Lemons: Demand and movement moderate. Market dull. Locals: Loose boxes, mostly 2.25@2.75.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 5.00@5.25; market pack, 2.50@4.50, according to size and quality; culls, 50@1.00 per field box.

Tangerines: Demand and movement light, market dull; mostly 5@6; poorer, 3@4.

HAY

Alfalfa Growers of California report: There were 1,230 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending February 13, with 220 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, February 21, 1922.

BUTTER

Extras.....45

CHEESE

Dairy Exchange quotations:

California Young America, fancy.....26

Oregon Trips.....27

Oregon Young America.....26½

EGGS

Dairy Exchange quotations:

Extra.....28

Extra Pullets.....24½

POULTRY

Prices furnished by the state department of agriculture, division of markets:

Broilers: 1 to 1½ lbs., 40@42 per lb.; 1½ to 1¾ lbs., 38@40; 1¾ to 2 lbs., 37@38 per lb.

Colored Fryers: 2½ to 3 lbs., 37@39 per lb.

Colored Young Roosters: 3½ to 4 lbs., 36@38 per lb.; over 4 lbs., 35@38; staggy, showing spurs, 23@27 per lb.

Colored Old Roosters: 18@20 per lb.

Leghorn Old Roosters: 16@18 per lb.

Leghorn Hens: 2½ to 2 lbs., 25@26 per lb.; 3 lbs. and over, 28@30 per lb.

Large Colored Hens: 28@30 per lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 34@36 per lb.

Dressed Turkeys: Young, 42@45 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@25 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guinea: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Co. quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7@7½ lb.; second quality, 6@6½; cows and heifers, No. 1, 5@5½; second quality, 4½@5; bulls and stags, 3½@4½.

Calves: Light weight, 8@9; heavy, 6½@7½.

Sheep: Wethers, 6½@7; ewes, 3½@4.

Lambs: 9@10½.

Hogs: Lard, fat, grain-fed, weighing 125 to 200 lbs., 11½ lb.; do, 200 to 250 lbs., 10½ lb.; do, 250 to 300 lbs., 9½ lb.; light sows, 9½ lb.; heavy, 8½ lb.

California Farm Bureau Marketing Association reports:

Turlock, Feb. 15

No. Hogs Av. Wt. Dock Price

15 181 9.50

21 206 9.00

36 hogs, 8 consignors, \$631.02.

Madera, Feb. 16

51 166 20 9.75

8 121 9.70

8 201 9.25

18 229 8.75

7 383 7.00

92 hogs, 1 car, 9 consignors, \$1553.89.

Fresno, Feb. 17

38 178 9.80

25 198 9.55

66 238 9.10

1 stag 610 5.10

130 hogs, 2 cars, 12 consignors, \$2596.88.

Bakersfield, Feb. 18

41 166 9.75

17 227 9.00

1 380 7.25

59 hogs, 6 consignors, \$1,017.64.

Totals for the week, 317 hogs, 4 cars, 35 consignors, \$5,799.43.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Fancy, 20@22; off grades, 16@18.

Bunched Vegetables: Carrots 50@60 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20; radishes, 30.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 4.00@4.50 crate; poorer, 2.00@3.00 crate.

Eggplant: Quality poor, 5@10 lb.; poorer low as 2; Florida, 20@30.

Endive: 45@50 per lb.

Garlic: 4@6 per lb. for medium grades, poorer quality, less.

Lettuce: Imperial Valley, 4.25@4.75 crate; poorer, 3.25@4.00.

Onions: Cold storage, browns, firm, mostly, 6.75@7.25; White Globe, mostly 8.00@9.00; green onions, 2.50@2.75.

Peas: Mex., 25@30.

Peppers: Local bells, 10@25 lb; Florida, 25@30; chilis, 15@25.

Potatoes: Rivers, fancy, 2.10@2.40; Oregon Burbanks, 2.35@2.65 cwt.; Idaho Netteed Gems, 2.40@2.65; Salinas, 3.00@3.25 cwt.

Pumpkins: Per sack, 75@1.00 per 90 lb. sack.

Rhubarb: 3.00@3.50 per apple box.

Squash: Cream, 1.25 per lug; Hubbard, 1.25@1.50 per 90 lb. sack; So., 3.00@3.50 per cwt.

Sprouts: 15@16 lb.

Sweet Potatoes: Per cwt., 3.75@4.00.

Yams: Arkansas yams, 2.00@2.15 per 40 to 50 lb. basket; New Mexico, 4.25@4.75.

Tomatoes: Repacked, Mex., 3.25@3.75 per L. A. lug; off grades, 2.50@3.00.

Turnips: 1.25@1.50 sack.

BEANS

Below California Bean Growers Association shippers' prices choice re-cleaned

Large Whites.....5.45

Small Whites.....5.35

Pinks.....5.40

Mexican Reds.....5.80

Red Kidney.....6.60

Henderson Bush.....7.35

Cranberries.....7.15

Bayos.....5.75

Blackeyes.....5.00

RICE

Rice Association prices:

Bag, 240@2.55 f. o. b. points.

NUTS

IXL almonds, 25 lb.; soft shell almonds, 16; do, hard, 10; budded walnuts, 32; soft shell walnuts, 30; Manchurian walnuts, 14; Brazil, 17; pecans, extra large, 23; Filberts, 14 lb.

HONEY

California Points: Prospects for next season's crop considered favorable, both as to volume and quality, if spring rains are normal. The prolonged cold spell earlier in the season caused a setback to bees in some sections, with many colonies considered depleted in numbers. Prices show a little change over those prevailing two weeks ago. Since the heavy rains, many bee keepers have disposed of their reserve supply of honey, and those still holding are increasingly inclined to sell.

"Honey Week," authorized by proclamation of the governor of California for February 6 to 11, inclusive, may slightly have helped retailers to dispose of their surplus stock, but apparently has not as yet stimulated buying from the brokers. Quotations continue largely nominal. Recent carlot sales of light amber alfalfa are reported at 6½ cents per pound; one of light amber sage at 7½ cents, and one of white orange blossom and sage at 11½ cents per pound. Other flavors can be quoted nominally about as indicated in the last report.

HAY AND FEED

A. W. Scott & Co. says:

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the markets in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added, according to conditions).

Wheat hay No. 1.....17.00@19.00

Wheat hay, fair grade.....14.00@17.00

Tame oat hay.....15.00@18.00

Wild oat hay.....11.00@13.00

Alfalfa hay.....13.00@16.00

Stock hay.....7.00@10.00

Rolled Barley.....29.00@30.00

Ground Barley.....30.00@32.00

Oats, Rolled Feed.....34.00@35.00

Bran and Millrun.....25.00@28.00

Middlings.....43.00@45.00

Coconut Meal.....22.00@25.00

Alfalfa Meal.....21.00@23.00

Cottonseed Meal.....40.00@42.00

Sugar Beet Pulp.....27.00@29.00

Molasses Tanks.....17.00 Barr. 25.00

Milo.....35.00@38.00

Cornmeal and Cracked Corn.....33.00@38.00

Scratch Feed.....43.00@45.00

GRAIN

Sales on Grain Exchange:

Barley: Feed, 1.25@1.32½; shipping, 1.32½@1.45.

Wheat: Mill, 2.15@2.25.

Red Feed Oats: 1.40@1.55; do, seed 1.75@2.10.

Corn: California yellow, 2.10@2.20; eastern yellow, No. 2, 1.40@1.43; No. 3, 1.25@1.27; kafir, in bulk, 1.70@1.72½; white Egyptian, 2.00@2.10; California red milo, 1.85@1.92½; do, bulk, 1.75@1.80; eastern red, 1.80@1.80½.

Citrus Markets

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California:

Oranges, 5,702 cars; lemons, 2,031; total, 7,733. To same date last season: Oranges, 7,027; lemons, 1,827; total, 8,854.

From Central California to date this season: Oranges, 4,194; lemons, 97; total, 4,291. To same date last season: Oranges, 4,027; lemons, 88; total, 4,115.

From Northern California to date this season: Oranges, 369; lemons, 7; total, 376. To same date last season: Oranges, 305; lemons, 4; total, 309.

Vive La France, the Jersey cow that recently completed her fifth great record, dropped her sixth living calf on January 1, 1922, and immediately started on her sixth consecutive record. Her first five records are the most sensational ever produced by any dairy cow, living or dead, for a like period. Her total butterfat production is 4415 pounds as against her nearest competitor for a like period with a record of 3860 pounds. Not only has Vive been a consistent butter producer, but she is also remarkable from the fact that she has six living sons and daughters all born before Vive was eight and one-half years of age. She has won three gold medals and three silver medals on her remarkable records, and now holds the world's record over all breeds for five consecutive years' production. She is the only cow in the world with two yearly records each above one thousand pounds of fat. At the Pacific International exhibition in 1919, in a competition of 187 animals, she won first prize and grand championship.

Carnation Stock Farms, Seattle, announce the purchase of practically the entire Holstein herd owned by F. R. Beals of Tillamook, Oregon. The deal included 68 head for which an average price of over \$500 was paid. Among the females secured was the northwest champion, Lady Aaggie Ormsby of Rock.

Dr. W. H. B. Medd, V. S., and Raymond Gard have bought Hampshire hogs and poultry of the Braemar ranch. Dr. Medd has had wide experience in handling pure bred stock. The firm will specialize on Bronze turkeys, Buff Orpingtons and Pekin ducks. This ranch recently supplied H. E. Horner of Atascadero foundation stock for a flock of Bronze turkeys. The same ranch also supplied to Griesdale ranch of Nevada a fine yearling Bronze tom topping the scale at 33 pounds.

BRANCH OF BIG HOUSE

In order to more quickly supply the farmers and orchardists of Orange County with implements and parts it has been announced that the L. M. Rallsback Company has opened a branch at Anaheim. All the well known lines now carried by this firm will also be in stock at the new location.

A complete stock of tools and parts will be on hand at all times and service men will be ready to attend to the needs of farmers and orchardists on short notice. It is said that the new branch will carry the largest and most complete stock of implements in Orange County. The branch will cooperate with other dealers in Orange County, as it is planned to operate a retail and jobbing business.

WEATHER REPORT

San Francisco, Cal., Feb. 18, 1922.

Rainfall.....Temp.

Week Season Norm. Max. Min.

Eureka.....2.89 20.95 23.08 62 33

Red Bluff.....13.02 18.26 58 31

Sacramento.....46 14.72 15.17 61 41

San Francisco......04 11.31 10.88 66 31

Palo Alto......01 6.98 6.95 70 31

San Luis Obispo......01 15.32 12.75 70 41

Los Angeles......00 11.56 10.14 76 41

San Diego......01 15.59 6.55 72 41



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will burn coal, coke, wood, or briquets. The only safe and reliable method of brooding chicks. Queen stove has patent draft that controls heat perfectly. Write for catalogue, also ask for general catalogue of full line poultry supplies.

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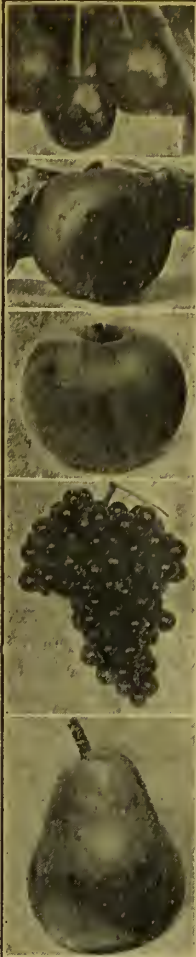
BIRDSEYE VIEW OF THIS AND
PAST YEARS' FREEZES IN
SOUTHERN CALIFORNIA
(Continued from Page 203)

er, whether it may be wet or dry, hot or cold, is in making provision for the extremes. It is the farmer who does his regular fall and winter plowing at the appointed time by the calendar who will be ready for the rains when they come. It is the thoughtful fruit grower who within the next few weeks takes an inventory of his oil pots, storage tanks and thermometers who will be ready for the autumn and winter frosts. The fruit grower this season will use his experience of last year and check up his temperature indicators, those invaluable adjuncts to fruit protection. If in the past he has not availed himself of the opportunities offered to have his thermometers tested he will see to it that the Thanksgiving frosts do not find him unprepared." Third, the systematic, businesslike administration of orchard heating. Artificial heating of an orchard should be classed with such necessities as irrigation and fumigation. Proper orchard heating apparatus should be the rule, not the exception; small heaters should be scrapped, and heat, not smoke, the object sought. This phase of the problem must be given that earnest, thoughtful attention which it deserves from such eminently practical men as the citrus fruit growers of California. Fourth, the study of local temperature records (being careful to destroy those false watchmen, inaccurate thermometers, of which there are hundreds in California) and their application through the nearest weather bureau records and local 12 to 36 hour forecasts of frost probability. Fortunately the weather bureau officials were in the field this winter with elaborate and efficient apparatus for the study of frost so that much will be gained from this season's experience for the future use of the fruit grower.

A consideration of the frost problem, which by reason of its far reaching effects demands more than ordinary attention, inclines the more thoughtful to the belief that the successful fruit grower is one who unprejudicedly considers the situation in all its unpleasant but necessary details and is willing to profit by experience. He will find that this year's frost was not more severe than half a dozen frosts within the past 50 years, but was more damaging because of the aggregate plantings and the absence of suitable preparation for frost protection in many localities. He now sees the necessity of careful research into the heating problem, realizing also that accurate thermometers are essential to effective application of heat to his groves; that all groves should have ample frost insurance, i. e., proper heating devices; that the value of the premiums thus paid is trifling compared with the 50 per cent loss without such protection; that a small grower will be successful only by close cooperation with his neighbors; that immunity from frost one year is no guarantee of immunity in another; and that no region is absolutely frostless.

POULTRY QUERIES
(Continued from Page 221)

grading the pullets before they begin to lay, but is only one of several tests which are employed for weeding out the unprofitable members of the flock. Pullets which go broody too soon or too often, pullets which molt too early, pullets which stop laying before molting time for any reason, should all be eliminated. The color test, which is applied any time from May to September or October, is one way of picking out the early molters. The hen with bright yellow legs in September is usually the hen that has already molted. The hen with bright yellow legs in May has not molted, but neither has she been as industrious as her more faded sisters. As my own flock is small and does not consist of Leghorns, I go more by comb and distance between pelvic bones than by color. A hen with a shrunken comb and pelvic bones that are stiff and close together is not laying, that is sure. How soon she will lay again depends on her age and the time of the year and also on how fat she is. A Rock or Red that once gets too fat to lay is apt to be hopeless.



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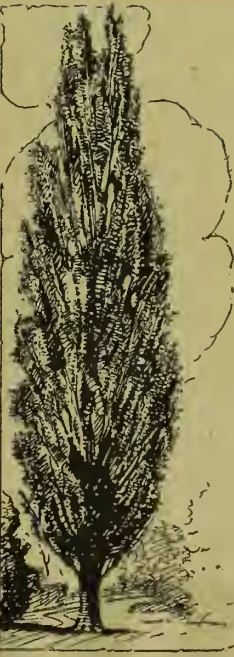
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Next in order among the Poplars is the Carolina Poplar of a more spreading growth, and larger leaf than the preceding. While this variety makes a beautiful avenue tree, its principal value is in its dense shade.

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-to-
luck



or

trust
-to-
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THE difference between a poor-paying flock and a profit-paying flock is the difference between take-chances and take-NO-chances. Indifferent, haphazard, "trust-to-luck" feeding will never pay. It can't! Nothing will rob you of your rightful profits as quickly as blind feeding. True, your hens may live and be fairly healthy on a poor ration. But—

You are in the poultry business to make money. The more eggs you get the more money you net. You must realize, then, that it takes an excessive amount of a hen's energy to convert poor feed into money as against converting good feed into money. So that—far from saving money—the only result of a "cheap" ration is a *higher cost* for each dozen eggs produced.

A tasty, well-balanced ration is absolutely necessary for maximum production—that's sure! Equally sure is the fact that a uniform, quality-feed like SURELAY pays its way—and more! Its slight added cost comes back to you many times over in the extra eggs produced.

Have you ever compared the results you're getting from "trust-to-luck" feeds with the results other poultrymen are getting from SURELAY? After all, the real profit-point is this: What do your *hens* think of the feed you give them—and what do they do with it?

Why not put this egg-production question squarely up to your hens? Feed them SURELAY—a prime, true-to-test formula that has weathered the years—and let the results speak for the feed and for us. Meanwhile we suggest that you write for your copy of the new, enlarged edition of "Makes Hens Happy." It is the most complete and helpful handbook on poultry husbandry we have ever issued—and it's free. Simply clip the coupon—and mail today!

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An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

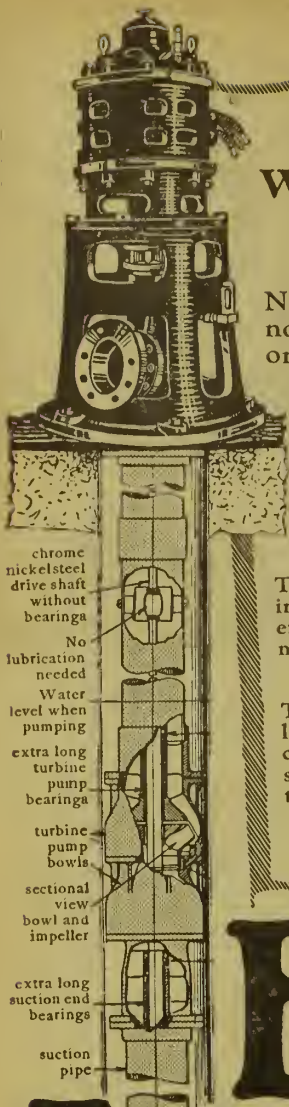
March 4, 1922

No. 9

Four of a Kind and All Ready to Work



Well matched in weight, in color and in disposition. Four willing workers on the Santa Anita Ranch, Los Angeles County. Property of Mrs. Anita Baldwin. The drafter is proving marketable and at a most satisfactory price. The wagon horse is proving a favorite with the farmer. This is a horse weighing from 1,400 to 1,600 pounds and running from 15 to 16 hands. Another type proving a favorite is the "farm chunk," a horse running from 1,200 to 1,400 pounds. But in every case, nowadays, the demand is for pure blood of highest quality in the sires. To secure greatest efficiency modern equipment, especially a well fitting harness, is essential. Too few of the workers with horses understand the necessity for a perfect fitting collar and a harness resting lightly. Not all horses may have the beautiful dress shown above but there must be equal comfort.



A Pump without lubrication troubles

No lubrication troubles because there are no under-surface bearings to lubricate. The only lubrication required in the New Bean Turbine is in the head, where a radial thrust bearing operates in an oil bath. We have eliminated all drive shaft bearings through improved construction. The advantages of this construction are at once apparent.

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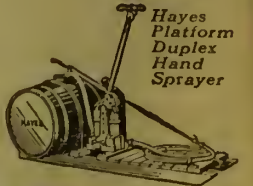
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California Cultivator

Vol. LVIII, No. 9

Los Angeles, March 4, 1922

One Dollar Yearly

Stockmen's Week a Big Event

By R. P. Royce

WITH the stage all set for what promised to be the greatest livestock gathering ever held in California

"Stockmen's Week" at the university farm, Davis, February 20-24, while in no sense a failure, fell considerably short of meeting the expectations of the members of the animal husbandry division and the various participating organizations. Just why this important event failed to gain the wide support it deserved at the hands of the livestock men of this state is not entirely clear. The weather, which was particularly nasty, was an important factor and the epidemic of influenza throughout the state undoubtedly operated to keep many away. But after giving due weight to the weather and the flu the fact remains that California ranchers and farmers were not present in numbers that the present situation or the excellent program merited. And one additional fact is certain: The very men and women who needed most the help suggestions and inspirations such meetings offer were conspicuous by their absence and for the most part their seats were occupied by men and women who had attended former sessions and who represent, if you please, the more progressive elements of our livestock husbandry—men and women who had come to an appreciation of the need and value of better methods and improved livestock in their operations. How to reach the thousands who are plodding along in the old ruts is the real problem that remains to be solved if these annual events are to occupy the important place in our agricultural affairs that they should.

California agriculture has not as yet reorganized on a peace basis. Too many of our producers are either in the depths of despair or are waiting in expectancy with the hope that some miracle of organized effort will make their business more profitable and too few have gotten their feet on solid ground and their minds made up to the recognition of the fact that the Lord helps those who help themselves—and in just the proportion to the thought and hard work that they put into their business, too many of our producers have their eyes fixed on increased prices for their livestock productions to the extent that they are overlooking the vital necessity of trimming their sails and shaping their operations to a basis of more economical production that can and will come through the use of better breeding material and more efficient management. It is to such men that these annual gatherings should bring inspiration and determination. Especially is this viewpoint needed at the present time by our livestock producers and general farmers. California agriculture must change in many ways during the next few years and nothing is more certain than that one change will be toward more livestock. We are not producing enough beef and pork to supply our needs; our dairy cattle are not producing enough milk and butter fat to justify land values in most dairy sections; we have a surplus of grains and hay and our soils are beginning to call for additional and available plant food. We cannot continue to produce grain crops for marketing for cash with competition from the world. With six to ten dollar alfalfa and cent and a quarter barley it ought not be necessary for this state to bring in 74 per cent of our pork and trainloads of cattle. That is the condition that is obtaining at present in this state and such meetings as were held at Davis last week should help to establish a different order—but they must receive the support of the public to a greater degree than was manifested last week if the situation is to change very rapidly. In short, California ranchers

need to develop a livestock consciousness.

The big features of the week were the various sales of registered cattle and swine and the annual dinner that was served Wednesday evening. The sales were fairly well attended and the values established, while low as compared to a year or two ago, offered cattlemen exceptional opportunities to secure breeding material at prices that make scrub sires look mighty high.

The opening session Monday afternoon was occupied with a meat cutting demonstration that sought to and did, prove the fallacy that heifers do not kill out as well as steers. An experienced butcher cut the carcasses and established a range of prices. He did a good job too—and managed to cut himself a profit that makes it all the more certain that the retail butcher is the nigger in the wood pile in matter of the cost of meat. Following the cutting, H. J. Baade, farm advisor of Napa County, explained the operation of fresh meat rings in that community. Under the plan used, details of which will be given later, Napa County farmers are able to enjoy fresh meat at a minimum cost.

Frank S. Hastings, manager of the great S. M. S. ranches of Texas was present on Tuesday and gave one of the most informative addresses ever listened to by California cattlemen. Hastings, who is regarded as one of the foremost authorities in America, has made a notable success in building up what is generally regarded as the greatest range herd in this country and the facts he placed before our producers were practical. Hastings gave it as his opinion that the cattle business has turned the corner and declared that there existed at the present time the heaviest demand for cattle—feeders and she stuff—that he had known in more than 20 years. Furthermore, he stated that there was a greater scarcity than for years and said that his own outfit, which annually markets about 15,000 head, was entirely sold out whereas last year they had carried over 4,000 head. Hastings urged that cattlemen adopt a definite program of improvement and while he laid great stress on the quality of the bulls he advocated a closer culling of the females as the only way of accumulating an efficient herd. The dominant thought of his entire talk, and the thought that should be studied by all cattlemen was this: "It pays to improve your herd, no matter how!"

H. C. Carr of Porterville, a banker who has always manifested a keen interest in livestock, urged cooperation on the part of the cattlemen. He declared that there was plenty of money available to finance legitimate livestock operations and that any banker who stated otherwise was, in effect, "talking through his hat."

At the close of the session, Chairman Ramsey asked those present to stand a moment in silent tribute to G. Howard Powell whose death occurred a few days before.

The afternoon was given over to the annual spring sale of the Pacific Coast Hereford Cattle Breeders' Association in which 67 head of bulls and females made a general average of \$165.

An evening program was arranged for the visiting stockmen and the student body. President Barrows of the university spoke of the importance of the livestock industry in this state and offered assurance that the university was in close sympathy with the industry and its problems. Dean Thos. F. Hunt of the college of agriculture reviewed the agricultural situation in Europe and pointed out

that in the recovery of Europe it was to their economic interest to produce as much of their food as possible. He also pointed out that such farm products as they imported must be paid for by the exportation of manufactured articles produced by cheap labor. If the United States expected to export quantities of foodstuffs we must be prepared to receive payment in cheap labor as represented in the manufactured articles which in turn would compete with our factories. Dr. Hunt made plain that in the end all countries must buy and sell on somewhere near a level.

During the evening Mr. Hastings, whose book "Recollections of a Rancher" has been recently published, talked in an extremely happy and entertaining way of many of his recollections. Hastings, by his practical accomplishments as a cowman, his charming personality and literary ability is representative of the highest type of men engaged in this great industry. He was "lionized" by the boys and at all times was surrounded by a group of eager students.

Wednesday concluded the activities arranged for the beef cattle men. During the morning session Professor True made a progress report on the extensive range cattle experiment being conducted in El Dorado County where the university owns a 2000 acre ranch near Shingle. The project contemplates to determine the practicability of developing a feeding industry in California; investigation of successful range management as regards breeding and handling the breeding herd and handling ranges. The herd has been divided into four units. From one unit the calves are brought to the university farm at weaning time in the fall to be fed out until marketed. A second unit furnishes yearling steers and the third unit furnishes two year old steers. The fourth unit consists of native range cows maintained at the university farm. Professor Howell gave some results from the feeding operations.

Wednesday afternoon the California Shorthorn Breeders' Association held its annual sale and sold 80 head of bulls and females for a general average of \$170.

Following the sale, the annual dinner was held in the university farm dining hall. More than 200 guests were at the tables.

Thursday was the "big day" and included meetings of the swine growers, dairy interests and wool growers.

The California Swine Breeders' Association elected Alex M. Wilson of Guasti president to succeed J. I. Thompson of Davis and Professor E. H. Hughes of the university was re-elected secretary. President Thompson called attention to the fact that the outlook for hog raisers was particularly promising at the present time and gave it as his opinion that there was more profit in hogs now than at any time during the past several years. Thompson declared that there were fewer hogs in California than had been for years and cited the fact that our markets were ruling higher than eastern markets due to the differential in freight rates. Thompson urged the breeders and producers to face the future with confidence and determination. He advocated an extension of and greater support to the farm bureau auctions: Increased exhibits in the barrow classes at the state fair and wider support to the local fairs and finally he stressed the necessity of the use of better boars.

Professor A. W. Oliver of the Oregon agricultural college explained the swine extension program in his state. He said that Oregon needed more

hogs and that the college was proposing to increase production on the basis of one hog to each of the 376,000 dairy cows; one hog to each ten acres of grain and one hog to each farm. Oliver also gave the results obtained in utilizing Oregon feeds.

Dr. Robert Jay, swine specialist of the United States department of agriculture who is stationed at Davis, extended his services to the swine interests of California.

Roy M. Filcher of Corcoran told of the success of the farm bureau auction plan of selling. Filcher was another to remark on the real shortage of hogs in California. He likewise urged farmers to raise more hogs and predicted that the market would continue satisfactory for the man who produces the right kind of hogs.

Professor E. H. Hughes gave the results of two recent rice feeding experiments at the university farm in which rice in various forms was fed. Space does not permit the detailed results but they will be published in subsequent issues.

Thursday afternoon 22 Poland China sows and gilts of excellent quality were sold at auction for an average of \$60.

The California Wool Growers held an important meeting the chief result of which was the adoption of a new constitution and the engaging of a paid secretary and fieldman to attend to the details of the association. For this work L. W. Wing, a graduate of the college of agriculture was secured. It is proposed to maintain headquarters at San Francisco and the principal activities of the new secretary will be directed along the lines of developing the spring lamb business in California. In this connection the association passed a strong resolution urging California sheep men to patronize the Wool Growers' Commission Company, a cooperative organization operating on the leading sheep markets.

There was a fair turnout of dairymen at the various meetings held on Thursday and Friday. Professor W. E. Tomson gave a report on the experimental feeding of sunflower silage at the university farm. His conclusions were that under ordinary conditions where corn and the sorghums could be satisfactorily grown that it would not be advisable to grow sunflowers. However, in the foothill regions it is possible that this new silage crop will prove of value as its feeding qualities are practically the same as corn silage.

The California Jersey Breeders' Association, the California Guernsey Breeders Association and the California Ayrshire Breeders' Association held business meetings Thursday afternoon.

Thursday evening was featured by the announcement of the winners in the state dairy cow competition that was conducted for 17 months, beginning September 1, 1920. During the competition 1260 cows from 64 herds were entered for prizes amounting to more than \$5,000. The detailed list of the winners will be given later.

B. H. Rawl of the California Central Creameries and Sam H. Greene, manager of the California Dairy Council, addressed the evening meeting. Mr. Rawl, who was former chief of the dairy division of the United States department of agriculture stressed the need of better cows and better methods in the scheme of economical production. Rawl pointed out the necessity of all factors in any dairy community working together inasmuch as the prosperity of the individual dairyman bears a direct relation to the prosperity of the community as a whole. He told of the splendid work in Humboldt county in replacing scrub bulls with pure bred

(Continued on page 246.)

Agricultural News Notes of the Pacific Coast

Northern California

Tehama County fair will be held September 11-17.

Colusa County fair will be held at Arbuckle, August 24-27.

Santa Rosa is making plans for celebration of its Rose Carnival in May.

There is reported to be more snow in the Sierra Nevada than for 20 years.

G. W. Harney has been reappointed county horticultural commissioner of Yuba County.

Sonoma County supervisors have called for bids for construction of the Pocket Canyon road.

Supervisors of Glenn County have appointed a farm home demonstrator in response to petitions by farm women.

The Sebastopol Apple Growers' Union will build additions to its packing plants at Forestville, Healdsburg and Stony Point.

The road between Dunsmuir and Weed in Siskiyou County was opened February 15. The roadbed was 14 inches of packed snow.

A modern fruit packing and cold storage house is being built on the university farm at Davis and will be ready for the fruit season.

Rominger Bros. of Sutter Basin say the wild geese have "sheeped off" their young barley, causing it to stool out and put forth better growth.

Electric lines of the Sacramento Northern Railroad Company, connecting with the Western Pacific, have been taken over by the Western Pacific.

Pomona Grange of Siskiyou has elected J. J. Murphy of Weed, master; Halbert Smith of Greenview, overseer; Mrs. Daisy Bray of Yreka, secretary; P. H. Lund of Hills, treasurer.

At its recent annual meeting at Sebastopol, Sonoma County, the Sebastopol Apple Growers' Association elected as directors E. C. Merritt, H. R. Harbine, D. D. Sinclair and J. H. King.

School consolidation, rural mail delivery and poultry and dairy improvement are the four major projects constituting the 1922 program of work adopted by Kenwood farm center of Sonoma County.

Manager Cable of the Sebastopol Apple Growers, who has spent the past seven years in the East as market director for the association, says that the eastern market can absorb 100 carloads more of loganberries.

The Shasta County fair association will be incorporated to make an annual feature of the fair at Anderson. The Intermountain fair will not incorporate but will be continued under management of the farm centers on the east side of the mountains.

On Saturday, February 4, the executive committee of the California Association of Nurserymen met at the Fairmont Hotel, San Francisco, to discuss nursery inspection and legislation. A second meeting is to be held in Los Angeles in about a month.

Fred C. Brosius, formerly horticultural commissioner of Sacramento County, has been appointed superintendent of nursery service, bureau of pest control of the state department of agriculture at Sacramento. He is succeeded by A. E. Morrison, deputy inspector of Sacramento County for four years.

Central California

Snow is six feet deep on the level in General Grant Park.

The Grange at Aromas, Monterey County, is building a new community hall.

Surveys are being made for the highway from Inyokern to Mojave and Los Angeles.

A new independent grape packing house is to be built at Orange Cove, Fresno County.

Storm waters flooded the state highway near Merced a foot deep during rains early in the week.

County Horticultural Commissioner Dixon of Inyo County has moved his offices from Big Pine to Independence.

Reedley cannery company's plant has been bought by the Anderson Barngrover Company of San Jose for \$125,000.

San Joaquin Valley choral association will hold its spring festival prior to Raisin Day, which will be observed on April 29.

Wm. T. Kirkman has purchased 400 acres of the Mordecia ranch southwest of Madera and will plant the entire holding to peaches.

Newly elected officers of the Atwater, Merced County, Fruit Exchange are: President, Chester Hull; vice president, R. C. Treanor; secretary, W. K. Worthen.

Daily airplane service is proposed between Bakersfield and Los Angeles. The distance is 108 miles by air, requires an hour and 20 minutes going, two hours returning.

The Kern County high school boys' agricultural club has shipped 20,000 Thompson Seedless grape rootings to farm bureau members of Casa Grande farm center, Arizona.

Bond election will be called within a few weeks for funds to purchase holdings of the Consolidated Canal Company at \$775,000 and sufficient more "to put canals in first class condition."

Permanent organization of the Raisin Day Festival association was effected at a luncheon at the Hotel Fresno, February 23, when representatives from organizations all over the valley met to discuss plans.

The Stanislaus County farm bureau cow testing association will discontinue taking of samples by members. At a recent meeting a new plan was adopted providing for taking of all test samples by Test Supervisor M. L. Gorow.

L. J. Weishaar, supervising inspector of the state department of agriculture, is at Delano attending a meeting of the lettuce and cantaloupe growers in that vicinity in order that these vegetables may be packed and inspected according to the grades which have been established.

Chester H. Rowell, for the state railroad commission, is holding hearing at Bakersfield of rate raise asked by the San Joaquin Light & Power Corporation. It was brought out during this hearing that the commission has no means of testing meters and current but relies on the company's tests.

A meeting of the attorneys representing the irrigation districts and land owners in the Pine Flat project, was held at San Francisco recently to prepare amendments to the water storage district laws. These amendments will provide for the irrigation district, as a unit, handling assessments levied against lands in the district.

Southern California

Ventura county fair will be held October 1-8.

The level of Lake Elsinore has been raised 12 feet by the rains of the past two months.

W. R. Schoonover of Alhambra has been appointed agriculture extension specialist in citriculture.

The Pasadena Horticultural Society will hold its spring flower show at Hotel Maryland, April 20-22.

Demonstrations of vine planting will be given by Prof. Bioletti at various points in the San Fernando Valley on March 9.

Banning, Riverside County, will be headquarters for a large crew of men who are ready to begin work on the state highway between Whitewater and Edom.

The Riverside farm bureau and the Riverside Business Men's Association are getting together on plans to organize an exchange to grade and market truck crops.

Spraying demonstrations will be held by the agricultural extension service in Los Angeles County at Lankershim and Van Nuys, March 6; Marion and Owensmouth, 7; Downey and Pomona, 9.

G. Harold Powell, for ten years manager of the California Fruit Growers, died suddenly of heart disease February 18, just after his return from the agricultural conference at Washington.

The La Habra Citrus Association has built 60 cottages for the use of orchard workers. A school is maintained for the colony where 100 children are taught in kindergarten and primary grades.

One of the most attractive features of the National Orange Show at San Bernardino is the by-products department, showing candies, vinegars, marmalades, jellies, etc., utilizing every part of the fruit.

More than 100 members of the Southern California Purebred Livestock Association enjoyed the barbecue given by the Oxnard chamber of commerce Saturday, February 11. Later a meeting was held at Berylwood Stock Farm.

In suit recently brought against citrus orchardist by fumigator to collect for work done, a Riverside judge found for plaintiff, setting aside claim of defendant that two rows of his trees had been seriously damaged by the fumigator.

Net returns from citrus fruit shipped out in ten months ending October 31, 1921, by the Orange County Fruit Exchange were \$6,056,892. This exchange ships fruit from the Santa Ana, Orange, El Modena, Olive, Tustin and Garden Grove districts.

The California Honey Producers Exchange is planning a reorganization which will eliminate many local associations and stabilize honey prices. Meetings are being held among bee-men in Orange, San Diego, Imperial and Riverside Counties.

In the contention between the state department of agriculture and some of the citrus growers of San Bernardino County, District Attorney Duckworth has announced as the policy of his office that it is not "advisable to issue a criminal complaint when evidence of frost injury in fruit has to depend on opinion of what condition the fruit might be in when it reached the market."

The Coast and General

Two wild bird sanctuaries have just been established on the lower Gulf coast of Texas.

American flour is said to be selling in Berlin at 1,250 to 1,300 marks per barrel while German flour of same quality sells for 1,400.

The Oregon State Beekeepers' Association at its meeting in Pendleton voted to affiliate with the American Honey Producers' League.

A new cannery equipped to pack clams, salmon and other sea foods and also berries will be opened March 1 in East Aberdeen, Washington.

Representative King of Illinois has introduced a bill in the house providing for the establishment of a bureau of farm insurance in the treasury department.

Mills to handle wool and mohair will be built by the Sheep and Goat Raisers' Association of Texas. Geo. M. Thurmond of Del Rio is secretary of the association.

Farmers of Douglas County, Washington, are planning to ship in 300 head of high grade Milking Shorthorns. This is part of a campaign to increase livestock in wheat lands.

The railroads have filed with the interstate commerce commission a plan for pooling the 2,500,000 freight cars of the country for the "joint use" by the railroads through one central agency.

The cooperative marketing bill has passed both houses of congress and is ready for the president's signature. This exempts farmers cooperative marketing organizations from provisions of anti-trust laws.

Development of great banana plantations in the Hawaiians is being taken up by Honolulu and Los Angeles capitalists. The opening of the new direct line to Los Angeles Harbor is said to have stimulated this project.

An advance of \$1 per hundred over the market price is being received by seven Multnomah County, Oregon, potato growers whose product passed final inspection for certification. The "lucky" seven were sifted from a list of six times that number who entered for certification.

The managing director of the Overseas Agricultural Development Company of Tokio, recently in San Francisco, declares that Brazil has given his company a 250,000 acre concession. Already 2,500 Japanese families have been located on these lands and intermarriage of Japanese and Brazilians is being countenanced by the government.

As a result of a conference at Eugene between representatives of the state board of horticulture, the forest service and Lane County officials to discuss the infestation of strawberry plants by nematodes in the coast counties, a complete survey of western Oregon was decided upon looking toward the eradication of the pest. The survey will be made under direction of the board of horticulture and Oregon agricultural college.

Dr. George F. Warren of Cornell University and William F. Candler of the bureau of markets and crop estimates have been selected by the secretary of agriculture to visit various countries of Europe immediately to develop methods and sources for securing crop and market information and to arrange for sending it more promptly to the United States, that farmers may use it in planning their seeding and in selling crops.



COOPERATION between the cattlemen, the railroads, the packers and the retailers constitutes the only possible constructive future policy for the cattle industry. This fact is firmly imbedded in the minds of the men whose accomplishments are most vital to the success of the livestock industry.

Success in selling is even more necessary than the development of volume in production, for volume in production is useless to the cattleman without some assurance of just profits, and this success in selling can come only through a proper development of cooperation all the way from the producer to the retailer.

Compiled statistics show what has been done; they show estimated supply and demand; the relationship between production and consumption as between countries; exchange values, and, in fact, all details concerning our industry. These statistics are necessary and essential, but they are without value unless we use them to develop cooperative action based upon definite and constructive lines.

Must Have a Hand

To form those plans upon a broad basis it is necessary that a definite and representative agency be established, and, when established, trusted. Whether or not the individual cattleman agrees with the policy of the representatives of the industry, or has joined forces with them, his success or failure will have its lasting influence upon the results obtained by those representatives, and, in turn, their success or failure will affect his own profit and loss account. For this reason, the cattleman must see to it that he is represented at the round table where the vital questions of the industry are at issue.

The American National Livestock Association is to be the representative body of the industry, with Fred H. Bixby the newly elected president. Bixby is not afraid of responsibility, but he cannot work without support. It is up to the cattleman to make known his wants—the wants of the entire industry—this in order that the president may do his part in procuring results comparable with those obtained in other cooperative industries. And in accomplishing these results it must be remembered that the American National Livestock Association is not a political organization. It is an organization to be used by the entire industry, and not for any individual or group. It is cooperative in the fullest sense of the word; its secretary and attorney are the only officers receiving compensation for their efforts.

Nevertheless, the association plays a vital part in the success of every man engaged in the industry. It is with the association that the packers, the railroads, the commission men, officials of the forest reserve, the reservation agencies, the retailers and the government take up the various phases in which they are separately interested. Each phase is presented to the association by the best talent obtainable in the various lines. These agencies will confer only with the chief representative of the association, and it is impracticable to ask them to do otherwise. For that reason, the chief executive of the association must have power to act. He must have the support of the industry all down the line.

Get Right, Then Stay Right

It is therefore absolutely necessary for every cow man to back his local organization; for every local organization to send its ablest representative to the county meetings; for each county to send its president to the state association, and for each state to confer freely with the national association. Then only will the cattleman get full results for his efforts.

Given a strong organization built up in this fashion, the industry will no longer have to limp along. It can stand on its own feet, and take care of its own problems.

In the long run, seeking financial aid from the government is not good business. It tends towards socialism, which never was, and never will be, a success.

At the present time, however, the War Finance Corporation is temporarily functioning to the benefit of the cattlemen in an endeavor to tide over the period of disruption follow-

ing the war. Under the stress of war, the government possibly was obliged to promote policies that have resulted in hardships to the stockman, and, in some cases, in disaster. Be that as it may, the government is now doing a wonderful work. It is loaning money for a period of one year, with privilege of renewal to all who are worthy, and the association is already seeking an extension of two additional years. At the same time, association representatives are even now in Washington endeavoring to procure equal financial rights with exporters and others who are seeking government advancement.

In time, however, the work of the War Finance Corporation will cease, and in the meantime machinery should be installed by the cattlemen themselves to carry on the work of this organization. But to install such machinery and to finance ourselves, the industry must be truly systematized. Cooperation must be efficient to be of value. And the creation of this cooperation is up to the individual members of the association. Once cooperation is efficient, the men who will represent the association, with the aid of bankers and local companies, will devise efficient means to finance the industry, and at that time the cattlemen should be able to stand as an organization able to finance its worthy members and secure just results from those handling and manufacturing the finished products.

Any one who buys on a low market and sells on a high market can work alone, but that is only a lucky point in the operation of business life and does not tend towards the stabilization of the industry. We must be able, through cooperation, to aid in the carrying of our own load just as the Raisin Growers and the Citrus Growers of California have turned their past failures into present success.

What Is the Real Situation?

Banks and loan companies have done their share in carrying heavy loads. True, it is that many have been increasing both their own burden and that of the cattleman in endeavoring to bring both ashore through rough water.

Banking laws regulate bank operation. When banks cannot fulfil obligations they are forced to close their doors. They are the pulse of the financial system. They handle the paper of loan companies. When they cease to do so, loan companies cease to operate. Most banks have had sad experience with cattle paper. It is up to all of us to rectify this feeling against our industry.

Admitted the producer is the man all the world is dependent upon, yet others also must have equal place in the progress of civilization.

Bankers are trustees of communities' funds. They are diagnosticians. They and their organizations are versed in business problems. They are prosperous when the public is prosperous. They are anxious for public welfare and individual success.

Experience has taught that great power in the hands of a few, when not properly exercised, often works disaster to those who have placed faith in the wrong man. Therefore, I sincerely believe that bankers must absolutely be a part of some suitable machinery set up to finance our industry. The commercial banks handle liquid transactions. This continual turnover enables them to assist all worthy producers in all walks of industry.

No Danger

Bankers must not apportion too great a part of the public credit to any given industry. Many borrowers of large amounts carry a commercial account of important size or leave on deposit with the bank from 10 to 20 per cent of the amount borrowed. If large concerns issue notes and sell them, they are sold through brokers, and these brokers charge a commission for the transaction—this explanation to prove that other producers pay in proportion to the cow man for their borrowed money.

The cow man is a producer. His business is never ending. He is married to it, no matter how future prospects develop; he can never slacken his efforts. Therefore, it is most essential that he be assured of a just return. As a rule, we in the livestock industry are poor detail business men. Our business is done a great deal on verbal agreement, and a vest pocket notebook is our usual set of books. If we are extended a loan, we take it all. For doing this we are required justly to pay more than 6 per cent, which in the aggregate equals what others are paying. We have been giving chattel mortgages on stock cattle—six months' paper—with the verbal promise of renewal.

Cattle Paper

Stock cattle paper is not commercial paper, because when drawn we know it will not be liquidated within the six months. If financial panics arise, the verbal promises of renewal are impossible. Cattle are unlike such commodities as grain, raisins or cotton. Absolutely different systems of disposing of same obtain in most sections. We have no uniform method of operating. Many of us cannot show our security. We do not keep accurate records of our business. Rumor may state that we are overstocked, and we cannot disprove this except during the best feed season of the year. With all of these handicaps, we must interview the banker. We want assistance, and we must have it to continue.

We should and must be the men to set up the proper machinery of financing. If it takes one year to get a steer and three years is his average life, and it takes a year in advance to prepare for efficient operation, it will take at least four or five years to operate successfully. With this length of time, our cow judgment could be used without the ever present thought of liquidation at the end of six months.

Operation of the Open Range

The man who must feed his cattle through the severe months of winter must keep a close check on his herd.

The open range man of the southern states checks his cattle by calf brandings, yearling steer sales, and records of death loss. Being optimistic, he is inclined to exaggerate the ability of a cow and the carrying capacity of his range. This honest exaggeration is spelling ruin. The cattleman's final answer is always derived from his calves; not from what he thinks he branded, but from the number turned into money. His inventory of cattle is increased by the corresponding number of heifers left on the range. He must be sure that this heifer increase is not overstocking his range capacity. The average man, under fence, does not exceed 75 per cent calf crop, more often 60 per cent.

The best records and information show 50 per cent calf crop on open range to be exceptionally good. During the years of increasing yearling values up to 1920, the calf crops had been decreasing, and I doubt if the net revenues of 1920 were greater than those of 1916.

Remember that the \$40 average yearling never made money for the man who finished with him. Meanwhile, the cattleman's overhead had been increased from 150 to 200 per cent. At the present time this overhead is steadily decreasing. I personally had the opportunity of checking a few open range operations, and the calves sold are invariably short of 50 per cent of the breeding cows. The two year old steers representing last year's yearlings never materialize to equal the 50 per cent. To insure success, calves must be produced.

Shortage of calves comes either from lack of bulls or lack of feed to keep the cows in calf producing condition.

Breed Up

Just a word about bulls. The production in the average herd of pure breds brings about 10 per cent super animals, 50 per cent of No. 1 specimens and 40 per cent which should be used for beef purposes. Therefore, in purchasing bulls the producer must be sure of the breed-

ing, then pick his individuals to build up that quality which his herd lacks. He must bear in mind that standard range cattle of today were built up by the reproduction of individuals of the best type. Figure the cattle business on a percentage basis. If borrowed money is costing 8 per cent, taxes 2 per cent, operating expense 3 per cent, the cattleman will have to make 13 per cent before he breaks even. If he is getting only 35 per cent calf crop figuring over a period of years, how can he achieve success?

The Market Outlook

Since the operation of the War Finance Corporation, courage has returned to the livestock producer. He is not now being forced to liquidate. Cows are not easily purchased. It is safe to say that range cows have increased in value from \$5 to \$10 per head in the past 30 days.

The western states are short of cattle. Information states that the Denver market will be about 40 per cent short this spring. Because Denver is a great cow market, and there is a shortage of cows, the market on range breeding cows will be further stimulated. The Ogden market is for the present cleaned up, with very few cattle in that territory on feed. Nevada has not over 50,000 cattle on feed, with buyers very active. The supply is away below normal. All markets on the Pacific Coast are active and showing increased values. These facts are all encouraging, because they show us that we can count on the markets acting in their normal way.

The supply for the big eastern markets in the so-called "corn belt" is reported normal. The supply for the past season was about 16 per cent short, while the feeders being prepared for beef purposes are only 14 per cent below normal. The demand for beef is below normal. Therefore, the supply will be adequate to the demand, and we cannot expect any extraordinary prices for fat steers. Without doubt the eastern markets will show a steady increase until they reach their high point in June. When these normal conditions arrive, high freight rates and heavy shrinkage will prohibit eastern cattle flooding our western markets.

Wait a Long Time—Meantime Starve!

We cannot look for accelerated war prices. Remember that the producer was the first to sell at pre-war prices and that other commodities and operating expenses must now seek their normal level. Not until they do will the producer enjoy a fair return for his efforts. South America has more supply than can be handled at present. Canada is reported well provided with beef cattle. If the steer market rises to anything like prohibitory prices, foreign supplies will automatically have their effect in the old economic law of supply and demand, regardless of import duties.

Cattle of milk producing strain comprise 50 per cent of the total cattle of the United States and are a big contender in the supply of feed and veal. They find their way through the smaller slaughter house and country butcher, where health inspection certificates are not standardized to federal inspection.

This meat is in competition with beef from animals bred, raised and fattened for strictly food purposes, where the betterment of the food values is advanced just as the milk-producing quality is sought in the milk animal. Is the distribution of this meat to the uneducated public a good advertisement?

John Clay, president of one of the largest livestock business firms in the world, has been a student of our industry for more than 40 years. He now admits that he has a great deal to learn. That applies to all of us.

Look back over your experience. Increased values in stock farms and ranches have made riches. Some speculators have been successful, but how many do you know who have become independent through the actual raising and finishing of beef cattle?

I believe it is low tide; that all should build machinery at home which will have its place in the set-up of financing, distribution, advancement and cooperation; when the tide rises it will be in the form "Success." It is up to you to cooperate.

Think it over.

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and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901,
Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Branton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard D. F. Reichard
J. W. Mills J. B. Neff
Fred M. Reed Louis B. Stanton
G. E. Gordon M. E. Bemis
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Saturday, March 4, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

One reason why the Cultivator has not used more cover illustrations featuring draft horses has been the extreme difficulty in securing creditable pictures due to the lack of interest our ranchers have manifested in the horse business of late. There is no question but that the production of draft horses has been restricted to a point where it is well nigh impossible to go into any community and gather a carload of marketable stock. There is now a very definite trend throughout the farming regions of the United States toward reestablishing the horse breeding industry. Careful investigations are developing the fact that under average conditions both the horse and the tractor have important parts to play and that it is a mistake for farmers to depend upon either source of power to the exclusion of the other. The fact that good sound draft horses of correct stamp have suffered less depreciation than has been registered by other farm products has caused many men to do some serious thinking. Unfortunately, this revival of interest will not be noticed for at least five or six years and in the meantime the scarcity of suitable types will become more acute.

Irrigators, more especially irrigation equipment people, are to hold an

important meeting at Fresno next Saturday, March 11. The equipment people consider their problems important enough to justify the organization of the Western Irrigation Equipment Association. One of the members writes us: "Since the formation of our association there has been a tendency, with definite plans to that end, to supply the farmer with irrigation equipment that is particularly fitted to his needs. In fact the principal object of our association is to study the needs and then equip to meet those needs. We are already accomplishing things along that line."

DAVIS' REPORT SIGNED

Secretary of the Interior Fall has signed and transmitted to congress the report of Arthur P. Davis on the Colorado River. This report is the result of extensive surveys begun by the reclamation service months ago. This report has been in hand for some months but owing to the vastness of the enterprise with which it deals has taken a long time to get entirely ready for congress. Information as to the signing and transmission comes to California through telegraphic advice sent Imperial Valley irrigators in session last Tuesday.

REAL COOPERATION NEEDED

This issue of the California Cultivator runs rather largely to livestock matters. Still more, it runs largely to cooperation in livestock marketing. The article on the fifth page (229) "The Cattle Situation" is written by William E. Hough of the First National Bank of Los Angeles. Another article written by one who has observed recent cattle marketing conditions at a somewhat different angle writes "Wanted—An Agrarian Moses." This writer is Mr. Spellmeyer who has furnished several articles in recent Cultivators. We hope this article will be read by both livestock men and fruit growers. We believe many cattlemen and producers generally will join Mr. Hough in his statement in the first paragraph,

"Cooperation constitutes the only possible constructive future policy for the cattle industry." The cattlemen also believe that the cooperation should not be one sided but participated in by railroads, packers, retailers, consumers and bankers. The cattlemen feel that with the past two years as an example the "cooperation" has been exclusively on the part of the producer. It may be that he is embittered by the fact that he has been financially ruined while many large interests which have dealt in his product have succeeded and greatly increased wealth. In other words the farmer has borne the brunt of reconstruction.

The farmer is not carrying the idea that the railroads or larger interests are being borne on flowery beds of ease while the farmer only is suffering. But the farmer does not believe, as does Mr. Hough, that "banks and loan companies have done their share in carrying heavy loads"—not all banks at least—nor do they believe that the railroads have done their share in helping the farmer get to market with products which have cost him in many cases all he had in the world to produce.

Tens of thousands of farmers and stockmen are today financially ruined, "and when letters come to the Cultivator from former well-to-do subscribers, stating that their banks have refused to secure them 7½ per cent money from the war finance corporation, demanding instead 10 or 11 per cent, and that they cannot afford to ship out their feeder cattle nor bring in feedstuffs to condition them—because of transportation rates—they wonder if the only thing they can do is to accept the inevitable and give up. When they give up, just to that extent does every other industry slump. There is no getting away from that fact. It is a trite saying that "agriculture is the basic industry," but it is as true as that the sun is the source of heat. As H. P. Hovland puts it:

"The first layer of industry lies next to the soil, in agriculture, and it is the thickest layer and the layer of

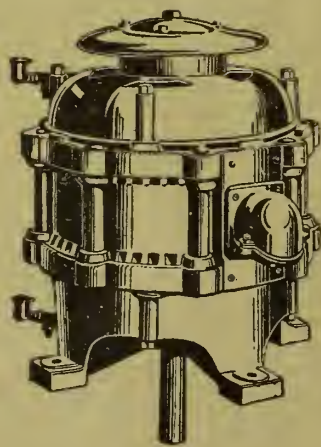
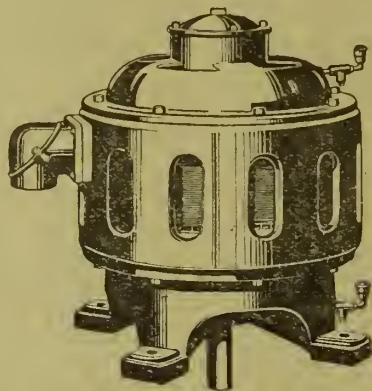
greatest magnitude. Layers of other industry lie over agriculture in successively diminishing magnitude. Agriculture has been, is, and will be, the most important industrial layer in the Southwest, as elsewhere. Thus it is a simple mental process to perceive that agriculture should not be neglected—for if the outcome be satisfactory to agriculture it must of necessity be satisfactory to all other industries inasmuch as all other industries rest on agriculture."

THE QUARANTINE

A Santa Clara Valley fruit grower recently went to the Hawaiian Islands and investigated fruit growing conditions, particularly the effect of the Mediterranean fruit fly on the industry. He was thoroughly frightened and, returning, observed that the force of quarantine inspectors and officials maintained in California ports was not sufficient to assure immunity from the dreaded pest. He appealed at once to Director of Agriculture Hecke to increase the number of men engaged in the inspection service. He said: "The quarantine force here must be augmented immediately. The small force of inspectors at San Francisco, while doing excellent work, is not adequate to cope with this serious pest, and I will recommend that the fruit growers demand more inspectors and the appropriation of a state fund for the thorough enforcement of quarantine regulations. The situation is replete with danger. We have hundreds of millions of dollars at stake and the state must protect this great industry." This gentleman is V. T. McCurdy, chairman of a committee appointed by the Federation of American Farmers to investigate fruit fly conditions in the Hawaiian Islands.

Mr. McCurdy is not condemning methods, nor is he charging inefficiency, but he is appealing for a sufficient force of inspectors to keep closed every avenue of entrance. Quarantine Officer Strong finds the situation complicated by the fact that the ports of the Pacific are not the only ones

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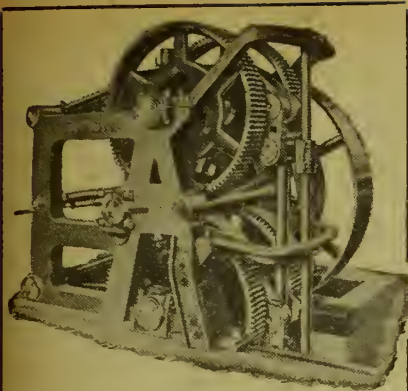
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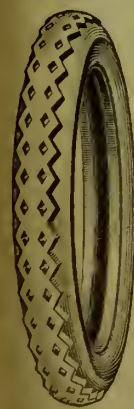
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which need watching, nor is the fruit fly the only pest. There is need of a force even greater than the one now possible watching the roads coming over the tops of the Sierra Nevada and keeping out the alfalfa weevil. So east and west, north and south, insect pests and fungus pests all have to be taken into account in the fight to protect the California fruit growing industry. It is a long time before the legislature will meet and strengthen the hands of the state's guardians by making sufficient appropriation, but some means should be provided in the present emergency.

WATER AND POWER ACT

The State Irrigation Association, an organization for promoting the Marshall plan, seems to have squarely allied itself with the interests. We have a circular letter without date and not addressed to anyone but signed by Barlow, president, in which he says that "Neither Col. Marshall nor the California State Irrigation Association is backing the Kent-Spreckels scheme, Townlyism, as experienced in Dakota, nor Leninism as enjoyed by the people of Russia." It is too bad to have the Colonel so intensely opposed to the best interests of the people. The Colonel dreamed a great dream. It may not have been practical but the Cultivator had hoped something might come entirely worthy of the greatness of this state, but his effort now seems to be to drive away those who might have been supporters of at least the best part of his plan.

WORK HARD

There is a lot of good advice being sent around these days which consists, at least principally, of two words, "work hard." It is a part of the thrift campaign of the treasury department, part of the campaign of many commercial clubs, roll top advisers and others. We would not carry the idea that hard work is not performed by the man in front of the roll top desk; some of the hardest, most grilling, most killing of all work may be performed there. But as much of the advice has been addressed to that hardest working man on earth—the farmer—we feel it but just to say that the farmer who is putting in from 12 to 16 hours a day and taking chances with the weather, the markets, transportation and a few other hard problems is entitled to a fighting chance to get by with rather better compensation than is possible with today's condition. The farmer has taken the brunt of the reconstruction costs, and the worst of it is there is a general inclination to allow him to continue to shoulder the load. A little more of a chance to get the produce to the market so as to leave a living wage would be a godsend at this particular moment. Unfortunately the railway companies do not seem to think it advisable, and the railway and commerce commissions do not appreciate the necessity of protecting the farmer's capital as they do the necessity of protecting capital invested in railroads.

As stated by the Monitor of Boston: "While the representatives of many important producing industries have been inclined to content themselves with the precarious profits of a season of unavoidable depression, the insistent demand of railroad managers and the representatives of investors in railroad securities has been for the fullest possible return upon their service and investments. There has been expressed the unavoidable conviction that the railroads have not done their part in bringing about industrial readjustment. They have demanded the right to exact higher freight rates while insisting upon a lower standard of wages for their employees. Stubborn resistance has been made to a general demand for lower traffic rates, producers, especially in the agricultural districts, complaining that the cost of transportation in many instances made the marketing of their crops prohibitive. It has been pointed out that the railroads might lend a helping hand in the present emergency by making appreciable reductions in commodity freight rates. But it may reasonably be insisted that the railroads, if only as an evidence of good faith, should show their willingness to cooperate whenever and wherever possible."

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We have been growing orchards for others in conjunction with our nursery business for several years. ALL of these have been profitable to our customers. We are now in a position to serve those interested in high class income properties to the best advantage. Lands already secured for this purpose are situated at strategic locations on or very near paved highways and the very best of soils that can be secured regardless of cost. We now have growing or in the course of improvement a total of sixteen hundred acres, including considerable plantings of Thompson Seedless, Malaga, Emperor and Muscat Vines, also canning and drying peaches, apricots, plums, prunes and figs, including one of the finest young Kadota orchards in the state. These plantings are in Kern, Tulare, Madera, Contra Costa and Merced Counties, adjacent to thriving towns, modern schools, etc. We are willing to put our money in with our customers and safeguard him against any possibility of a loss. Our part of the investment and our profit comes out of the crops of the properties. Details and location of properties on application.

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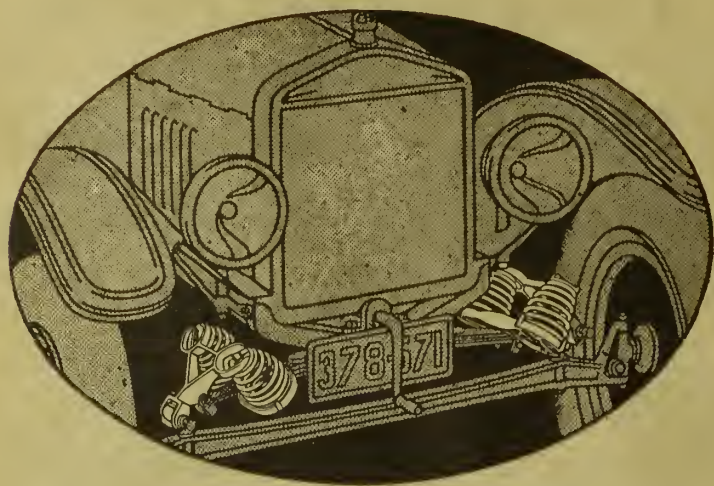
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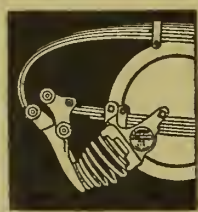
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Awake to the Menace Confronting American Agriculture

DURING the early part of June plat quarantine, pest control and standardization matters capital importance to California and the entire West will be discussed in Sacramento by county, state and federal officials from all western states and from Washington, D. C. There will also be represented officials from Hawaii, British Columbia, and the Northern District of Lower California.

G. H. Hecke, director of agriculture, has called a meeting of the executive heads of all western departments of agriculture and commissions of horticulture to form an organization for the protection and development of agriculture in the West and to support the federal government in its efforts to do those things for agriculture in general which should of necessity be done. The county horticultural commissioners will also be called together at this time in their annual spring convention. The western plant quarantine board, an organization composed of the plant quarantine officers of the eleven western states, Hawaii, British Columbia, and the northern district of Lower California, will meet at this time in its Fourth Annual Conference. This organization is formed for the purpose of protecting the West against insect pests and plant diseases which are not yet established west of the Rocky Mountains and to work toward uniform enforcement of plant quarantine regulations. The federal horticultural board, the national quarantine enforcement body, will meet with the western plant quarantine board and the western departments of agriculture.

There are many important problems to come before the meetings. The alfalfa weevil has become established in Washoe County, Nevada, and to prevent its further spread in Nevada and to guard against its introduction into California calls for extreme effort. All freight shipments and all automobile traffic out of or through the infested area must be closely watched. It is hoped to secure federal aid in this work. The Mediterranean fruit fly and the melon fly established in Hawaii, and the Mexican fruit fly established in Mexico and Central America constantly menace the fruit industry of the entire West. The federal horticultural board during attendance at the meetings in Sacramento will hold a public hearing on these questions. Members of the Federation of American Farmers will be present at the meetings to urge more stringent quarantine measures against

the fruit flies. The committee representing the federation and several fruit growing associations have recently returned from Hawaii where an investigation of the Mediterranean fruit fly and melon fly was made. The chairman of the committee, V. T. McCurdy of Santa Clara, states, "The quarantine regulations here must be augmented immediately. The small force of inspectors at San Francisco, while doing excellent work, is not adequate to cope with the serious pest, and I will recommend that the fruit growers demand more inspectors and the appropriation of a large state fund for the enforcement of quarantine regulations. The situation is replete with danger. We have hundreds of millions of dollars at stake, and the state must protect this great industry."

The farmers and fruit growers of the West will be invited to attend the Sacramento meetings and to bring before the quarantine officials and the heads of the departments of agriculture such problems as they may think necessary.

White pine blister rust will also be given consideration. This disease was introduced into the eastern states from Europe and was first found at Geneva, New York, in 1906, on currants. The source of the disease was found near by on white pines. Later other sections of infection were discovered. The disease affects all five-leaf pines and finally kills the attacked trees or parts of trees by girdling the stem or branches or twigs infected. If the trees are attacked while relatively young, it is extremely likely that the entire tree will be killed. In older trees the branches and commonly the top center shoot may be attacked and killed. In this way the disease may kill the largest tree. White pine blister rust has recently been discovered in British Columbia and in the northwestern part of the State of Washington. A bill has been introduced in congress appropriating \$150,000 for white pine blister rust control in the Northwest. At a conference held in Portland, Oregon, in December, 1921, an executive committee was appointed to outline and to put into effect measures for the eradication and control of this disease in the Northwest. This executive committee will be present at the meetings in Sacramento in June.

It is sincerely hoped that all interested farmers and fruit growers will be in Sacramento to attend the public hearing on quarantine matters to be called by the federal horticultural board. The definite date of the meetings will be announced.

The Present Fertilizer Situation

By C. S. Milliken

IN 1912 the experiment station at Riverside called the attention of citrus fruit growers to the importance of supplying their orchards with humus making materials. That the industry as a whole was impressed with the soundness of their advice was demonstrated by the increased demand for barnyard manures and by the increased planting of cover crops.

The importance of supplying humus to the soil is probably greater today than it was in 1912. With the increase in citrus acreage during the last ten years and a steady decrease of local manure supply, coupled with the fact that many of the outlying accumulations on which we formerly drew are now exhausted, the industry will be forced onto a daily production basis even by a much smaller demand than we have had in past years. An increased demand will mean an inadequate supply and increasing prices, with growers bidding against one another as in the past.

Anyone making a study of the fertilizer conditions of the country at this time cannot help but be impressed by the fact that radical changes are now taking place, both as regards the production of fertilizer materials and their distribution. Many materials which in the past have been used al-

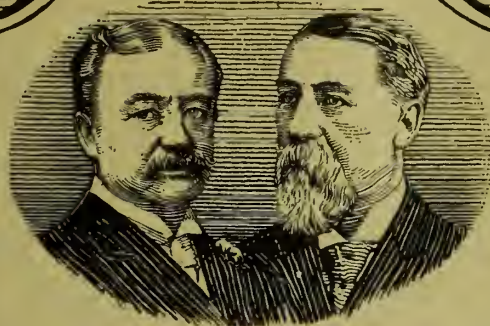
most exclusively for fertilizer purposes are now being diverted into other channels and consumed in other uses.

In a very few years high grade organic fertilizers such as blood, tankage, cottonseed meal, etc., may be practically unobtainable for fertilizer purposes. This may happen at any time. The only thing that prevented its happening this year was the supply obtained from South America, which supply will undoubtedly flow back into its old channels of consumption on the eastern seaboard, to Cuba and to England.

High grade tankage today is practically off the market in Chicago. Several of the large meat packers are reported as buyers instead of sellers. These materials are now being consumed in increasing quantities in the manufacture of stock foods. Their use for that purpose is far saner than their direct use for fertilizers.

The nitrogenous fertilizers of the future, and it may be a very near future, except for the barnyard manures and cover crops, will be those containing high percentages of nitrogen, such as ammonium sulphate, sodium nitrate, ammonium nitrate, and products from the air nitrogen plants, of which calcium nitrate is one. The high percentage of nitrogen which these substances contain will allow them to be

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started business under the name of: "Montgomery Ward & Co." in 1872. Mr. Ward had been a clerk in a small town store, with farmers as his customers, farmers as his friends. And so he conceived the idea of helping save the farmer from paying three or four profits by selling him goods direct by mail at one small profit. With a capital of less than \$2,000 they issued their first little one-page leaflets, and so began this vast business of Montgomery Ward & Co.



In 1874 the first catalogue of Montgomery Ward & Co. was issued. It contained eight pages, about three by five inches in size. Today this 50th Anniversary Catalogue, this 1922 Price Guide, shows about everything for the Home, Farm, and Family—new, fresh merchandise of standard quality always, with every price based upon today's low costs of production.

If you have a copy of this book, buy from it regularly. It always brings you a saving. And lend this book to your neighbors. Let your neighbor take advantage of the cash saving it always offers.

The Oldest Mail Order House is Today the Most Progressive

FOR FIFTY YEARS the American Farmer and Montgomery Ward & Co. have been helping each other.

For Fifty Years we have worked conscientiously always to offer you a saving. And you, by your appreciation, by your patronage, have built this business, until today we have five million customers.

And there is the proof of the saving and the service Montgomery Ward & Co. have rendered to the public. No business that is not sound can weather the storms of fifty years. No business that does not render a genuine service can win the patronage of five million people.

Our big 50th Anniversary Catalogue, pictured below, adds greatly to the sum of all our past achievement in making low prices. This book is today a Price Guide, sets the low price standard for America, and tells you the right price, the price you should pay for almost everything you buy.

This book shows the new-old spirit of Ward's—progressive, alert, working to give lower prices, to give you bigger and bigger values, and better and still better service—and always under the Banner of the Golden Rule.

TO THE AMERICAN FARMER:

Let Us All Pull Together

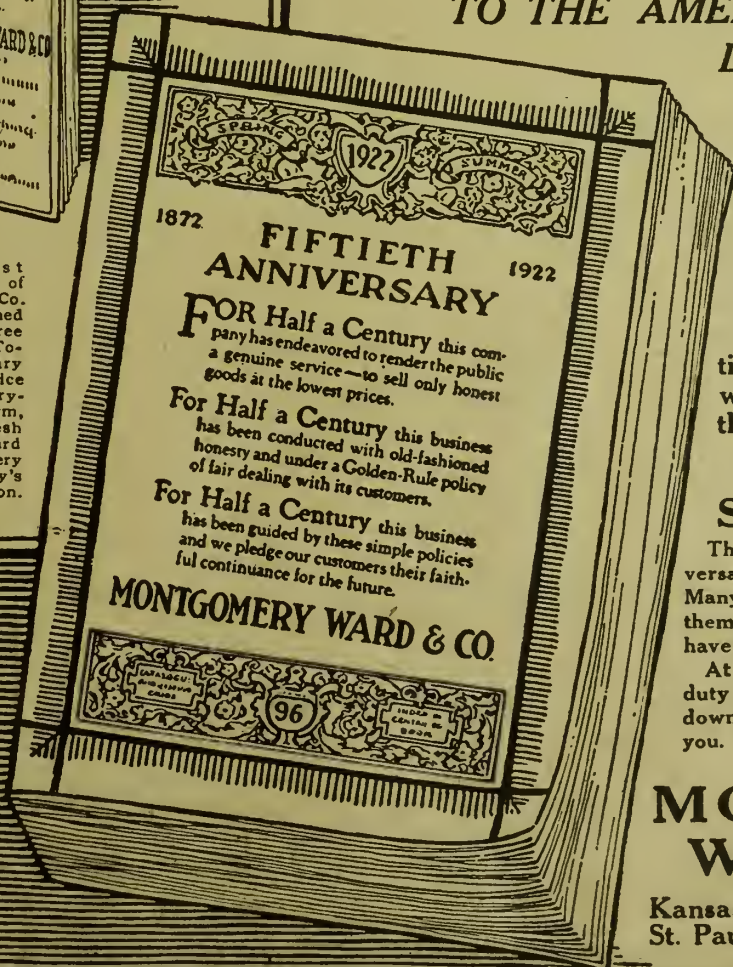
We know business conditions on the Farms of America, as well as in the towns and cities. We have customers everywhere. We believe the worst is behind us and we are hopeful and encouraged. But we are all in the same boat. We must all pull together. We are going to do our part with you. This season you will need some new tillage tools to replace those that are worn out. We are going to furnish them without one cent of profit to us.

Our Tillage Tools Sold Without Profit

The prices on Tillage Tools in our 50th Anniversary Catalogue are absolutely no-profit-prices. Many items are priced at less than we can replace them for today. And the prices all through this book have been made to meet present-day conditions. At Montgomery Ward & Co. we feel we owe a duty to our customers—to help make prices come down. We are in the same business boat with all of you. Let us all pull together. We are doing our part.

MONTGOMERY WARD & CO.

Kansas City Chicago Fort Worth
St. Paul Portland, Ore.



shipped long distances without making the cost per unit of nitrogen prohibitive.

When this condition comes about the use of manures and of cover crops will assume a far greater importance than has ever existed in the past.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Dwarf Apple Trees

Please let me know through your paper what kind of stock is used to produce dwarf apple trees. Can it be procured here? I anticipate planting some at Trapat, Mexico, elevation 5,000 feet. We have plenty of water for irrigation and the rainfall is 25 inches. The rain comes in summer and the winter and spring are dry.—H. F. A., Oakland.

We believe that the citrus fruit growers should consider this matter seriously and, if in a position to secure from any source of supply a good quality of manure at satisfactory prices, should arrange for liberal applications during the coming year.

We would advise consulting your nearest large tree nursery for supply of Paradise stock. The question submitted to the largest propagator of dwarf apple trees in the South brings the following: "We have used what is known as 'Paradise root' from France. The great difficulty in propagating trees on this root is that they invariably have root knot and hairy root, which makes it almost impossible to ship the trees in California where we have a rigid inspection system. Hence we have discontinued propagating such stock although we have a few trees this year, but cannot attempt to send them out. We

would think that trees propagated on ordinary apple stock would be best for the situation you mention."

Killing Bermuda

Is there anything I can apply to Bermuda grass patches to kill it or does it have to be done by cultivation? The patches are not large, but it continues to spread.—Subscriber, Biggs.

Practically the only way of killing Bermuda grass is thorough cultivation. There are chemicals, such as arsenic, even kerosene, bichloride of mercury and others which work fairly satisfactorily if economy is not a consideration, but for effective eradication of Bermuda grass the hoe, spade or cultivator are best.

Loss of Organic Nitrogen

What effect would the rain and other weather conditions have on a commercial fertilizer containing 5 per cent organic nitrogen, spread broadcast around the trees in a citrus grove and left on top of the ground because the rain made the soil too wet to plow or

disk? Would some of the nitrogen, derived from blood, bone and tankage, be lost if the fertilizer were left uncovered for two weeks? What would be the best method of applying commercial fertilizer, 25 pounds per tree, in a citrus grove?—Subscriber, Woodlake.

We think there would be no loss of nitrogen from fertilizer spread as suggested, though there would be if left in piles and allowed to become moist and heat. If inorganic or one of the nitrates had been used then the rain would have leached and seriously lowered fertility. We take it that if thinly spread over the soil later cultivation would simply put it under and make it available.

Planting Orchard

I have a piece of good sandy loam soil with a medium stand of alfalfa on it. Having had no experience with alfalfa, am asking if I can get it in shape to plant a family orchard this spring? If so, how should I proceed? What distance apart should trees of a mixed variety be planted and how late can I plant for results?—Subscriber, Lomita.

The first step in planting the family orchard on this plot would be deep plowing followed by such leveling as may be necessary to permit of irrigation. Smoothing or harrowing should be followed by laying out and setting a stake where each tree is to come. This is usually done by stretching strong cords or wires on which are tied or soldered tags every 20 feet, or the distance preferred. In the family orchard it is not possible to name uniform distance for all trees, while pomegranates, quinces or similar dwarfs might be set 10 feet apart, walnuts should be set 60 feet apart. But, as a fair average, presumably 20 feet would meet requirements. The holes should be dug and all deciduous trees planted at once. Trees are already sending out little rootlets for the new season's growth and every day's delay makes for less certain results. Planting of citrus trees or other subtropicals may be delayed until as late as June if desired.

Locating Ex-Service Men

I have a young friend who went into the army during the war and am anxious to learn where he may be. Is there a department of the government which will help me locate him?—Subscriber, Bakersfield.

Write Department of War, Washington, D. C., giving name, regiment and all particulars possible and it is probable you may get in touch with him through some branch of the department.

Root Knot or Crown Gall

I am enclosing for your examination a specimen of a formation that was taken from the roots of a persimmon tree that I had occasion to move recently. I would be pleased to have your opinion as to the cause of this condition and whether or not it would be detrimental to the tree.—Subscriber, Arcadia.

This is a plain case of root knot or practically the same trouble as the crown gall which causes the death of vast numbers of persimmon and other trees. Nursery trees which are affected are always rejected, for there is practically no help for the tree seriously infected with this pest. Spores of this trouble are present in many of the soils of California and roots injured by cultivator may become inoculated, the bearing capacity of the tree affected and the tree eventually killed.

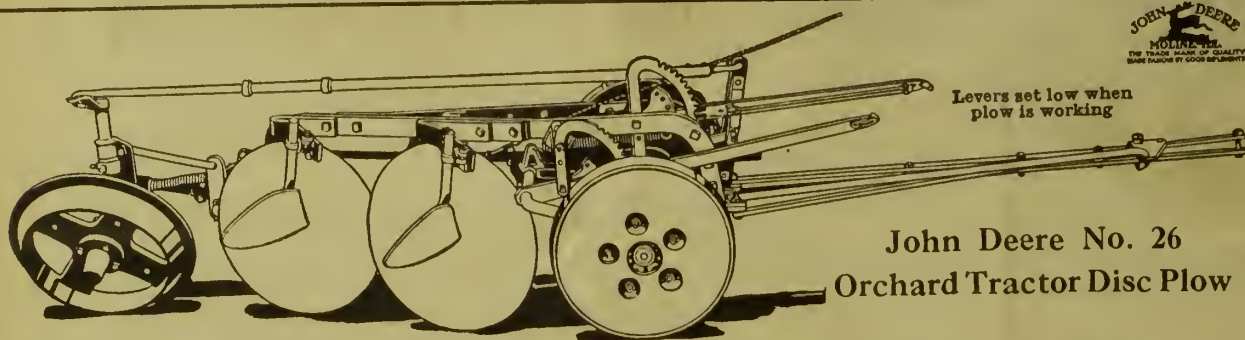
Silo for Ten Cows

Kindly let me know how big a silo should be for a little dairy farm of ten cows.—Subscriber, Alta Loma.

Ten feet in diameter by, say, 30 feet high. The silo should be of a size which permits feeding down about two inches daily which will keep the entire surface from spoiling. The daily allowance commonly fed ranges from 20 to 40 pounds per thousand pounds of live weight of the animals fed.

Mineral Matter for Cow

Will you please advise me through your columns as to feeding mineral matter to dairy cattle, what to feed, in what quantities, and where the mate-



John Deere No. 26 Orchard Tractor Disc Plow

Three-Purpose Plow

For Plowing, Subsoiling, Irrigating in Orchards

YOUR equipment investment is greatly reduced—you plow, you subsoil, and you ridge for irrigation, all with one implement and all with the power of a small tractor—when you use the

John Deere No. 26

The 3-in-1 Plow

Unusually low and narrow. It is only twenty-six inches high when plowing six inches deep, and only thirty-seven inches wide—gets under low limbs and up close to row.

Stiff, adjustable hitch—a great disc-plow improvement—permits offsetting plow to right or left of tractor for work close to row, and, being stiff, it tends to hold the plow in the furrow, when offset.

Floating rear end—loosening the set-screw collar on the rear axle permits rear of plow to rise over roots without carrying weight of rear wheel—a great aid in preventing damage to large roots.

Compound power lift raises discs unusually high. Frame built

over discs, providing unusual clearance. Discs and disc bearings same as on large John Deere disc plows.

If you own a small tractor or plan to buy one, you can save money on your equipment investment and make the extra profits that come from better orchard cultivation by doing your plowing, your subsoiling and your ridging for irrigation, all with this John Deere three-in-one implement.

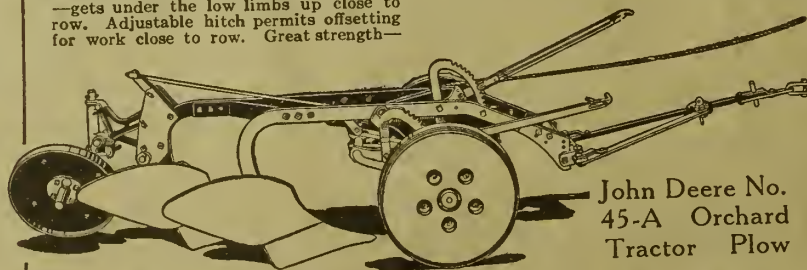
Ask your John Deere dealer to show you this plow. Write to us for a free folder describing it. Drop us a post card today.

John Deere Plow Co.
San Francisco, Cal.

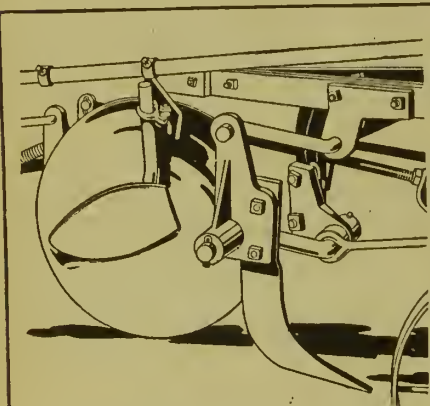
John Deere No. 45-A

The No. 45-A is an unusually light-draft, two-bottom moldboard plow built for orchard plowing with small tractors. Low and narrow like the No. 26—only twenty-six inches high when plowing six inches deep—only thirty-seven inches wide—levers set low when plowing—gets under the low limbs up close to row. Adjustable hitch permits offsetting for work close to row. Great strength—

beams guaranteed not to bend or break. Compound power lift raises bottoms unusually high. Great clearance to prevent clogging in cover crops. See it at your John Deere dealer's. Drop us a post card today, asking for free booklet describing it fully.



John Deere No. 45-A Orchard Tractor Plow



Showing subsoiler equipment. Replaces one disc. Controlled by power lift. Breaks up plow pan and forms deep bed of aerated mulch, thus saving much irrigating water and greatly increasing crop yield. Permits plowing and subsoiling in one operation with small tractor. Be sure to get acquainted with this thoroughworking, inexpensive equipment.



Showing No. 26 preparing soil for proper irrigation with ridging equipment. Makes buying extra machine unnecessary. Power lift and guiding advantages are retained when the plow is used for ridging. This equipment is a real money-maker, and it costs but little.

JOHN DEERE

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

rials are to be obtained, also the literature of the subject, and what the experiment stations have reported or are working on along these lines?—Subscriber, Raisin.

No animal can live without "mineral matter." Perhaps the best information along this line is to be had in Woll's "Productive Feeding of Farm Animals" published by Lippincott, Philadelphia, and Henry's "Feeds and Feeding" published by Henry & Morrison, Madison, Wisconsin. Henry's "Feeds and Feeding" says: "It is probable that, by reason of its perfection, the animal organism is able to use many of the mineral substances over

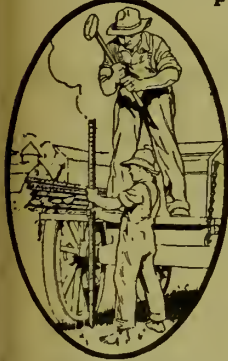
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FOR new fences or replacing old ones you can't beat the old reliable RED TOP. In economy of building and maintaining the fence, in strength and in long life, RED TOP leads them all.

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Prevents wire worms, eel-worms or nematodes, smutty grain, ants, and potato scab.

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For dry dusting, use "ANCHOR" Brand Velvet Flowers of Sulphur.

For Lime Sulphur Solution, use DIAMOND "S" Brand Refined Fleur Sulphur. Sold by leading dealers.

Write for circulars Nos. 6 and 8, price list and samples. State for what purpose sulphur is to be used.

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and over for the same functions, taking them back into the circulation again after they have once been used. In spite of this frugal economy, however, losses of mineral matter from the body constantly occur, even during starvation. Ordinarily the rations of farm animals contain all the necessary mineral matters, at least in small quantities, and since the body retains them with great tenacity when the supply is meager, these small amounts usually suffice, especially for mature animals. Common salt, calcium (lime) and phosphorus are often needed in such large amounts that they may fall short in certain rations, and hence must be added, if normal results are to be obtained. Young growing animals require larger supplies of mineral matter than those which are full grown; hence more care should be taken to provide a liberal allowance, especially of lime and phosphorus." As may be seen from the quotation from Prof. Henry the ordinary feed in the well balanced ration contains sufficient mineral matter. However, a supply of salt available to the animals at all times is desirable and some feeders go so far as to have finely powdered bone meal before the animals. Hogs, however, usually demand more minerals and hog feeders as a rule keep before the animals mineral mixtures, formulas for which have been given in recent Cultivators.

Nematodes

I am sending some diseased roots from Australian spinach. The disease seems to dwarf the plant. It has affected all the vegetables in my garden and seems to be in the soil.—Subscriber, Escondido.

These roots were so dry that it was impossible to determine their exact condition other than that they were badly infested with nematodes. This pest is probably responsible for the failure of the plant. How to eradicate it and make infested grounds productive is one of the big problems before scientists and practical agriculturists. It is said that the application of 300 or 400 pounds of nitrate of soda per acre is beneficial.

Pure Food and Feeds

Kindly let us know if there is any place to have feed tested. We are paying the highest price for good feed and find pine sticks, bark, brown paper, etc., ground up with it. We refer to coconut meal and dairy feed.—Subscriber, Hynes.

Write Pure Food and Drug Laboratory, Attention Mr. Lee, University Campus, Berkeley, and it is probable you can secure information as to the real value of your feeds. In any case there is a state law the intent of which is to prevent adulteration and the maintaining of a standard in foods and feeds.

THE RUSSIAN FAMINE

In the fall of 1920 the farmers of the Volga Valley planted their wheat and rye as usual. Then the drouth commenced. No rain fell until the end of July, and no harvests were gathered. The result was widespread suffering and starvation among 30,000,000 people. Today they are dying by the hundreds of thousands; 15,000,000 are absolutely dependent on outside aid.

Congress has voted \$20,000,000 to help save these desperate people who see death at every hand overwhelming them. At \$1 per person per month this congressional appropriation will save 3,000,000 of the starving. Who will help save the other 12,000,000?

There are only two American relief agencies working in the Russian famine area today—the American Relief Administration, Herbert Hoover, chairman, and American Friends Service Committee (Quakers). In spite of all that can be humanly done 5,000,000 of these peasants will die before summer. The problem before the American people is the saving of 5,000,000 others who have not yet been provided for but who can be saved by a prompt and generous response. The American Friends Service Committee will accept contributions for these famine victims and guarantees that every cent given for food or medicine will be spent without any deduction. All overhead is paid out of a separate fund raised by Friends.—Write the American Friends Service Committee, 20 South Twelfth St., Philadelphia, Pennsylvania.

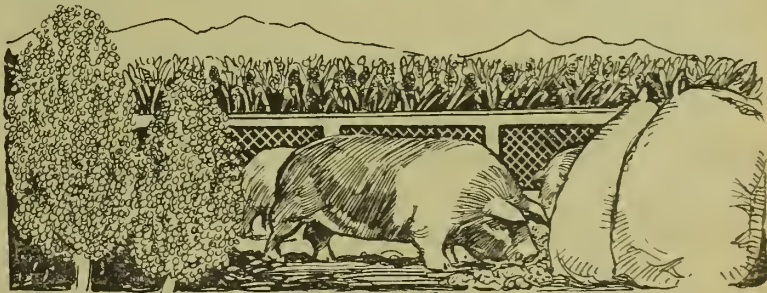


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A & M Selected Dwarf Milo Maize

Positively superior to all sorghums for grain and forage. You'll find it better than the tall milo maize. It produces larger heads on the stools, has more foliage, and your cows will give more and richer milk from this feed. Chickens thrive and lay better on this grain.

Bigger Yield From Less Seed

A. & M. Dwarf Milo Maize is the result of carefully selecting superior heads in the field for four years, and developing this strain of wonderful seed. Requires less seed to the acre in planting and produces 40 per cent more grain on its short stalks.

Tell your dealer only A & M Selected Dwarf Milo Maize will do.

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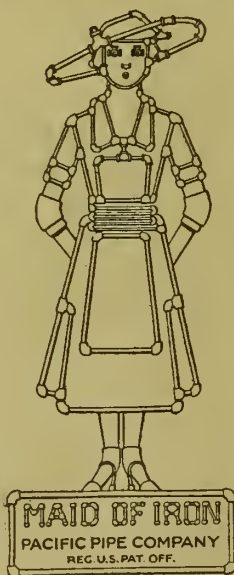
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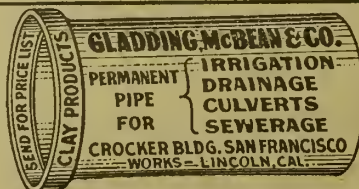
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BEANS FOR KIDDIES

To meet the emergency call for beans to replace those taken from the orphanage stores in Constantinople warehouses and shipped to the famine regions of Trans-Caucasia, contributions of beans are solicited by Near East Relief for shipment from the Pacific Coast early this spring.

Gifts of beans to date include 120 sacks from Limoneira Ranch, Santa Paula, and 100 sacks from G. M. Hartsough, Owensmouth.

Beans are acceptable whether first-grade, splits, under-sized or off-grade. Persons having beans to give are requested to deliver them to Near East Relief warehouse, 5930 South Moneta Avenue, Los Angeles.

Contributions of a wide variety of foodstuffs, clothing, farm tools, seeds, etc., to swell this emergency shipment are urged in the following appeal by E. Guy Talbott, Pacific Coast Regional Director of Near East Relief:

"More than 100,000 children are starving in the famine area of Trans-Caucasia, which is served exclusively by Near East Relief. If we are to save any considerable number of these children we must send immediately the largest possible relief cargo. The commodities most needed are staple foods, such as beans, rice, flour, dried fruits and canned goods; also clothing, shoes and blankets, seed grains and simple farm tools."

Hints to Beginners

By Henry Perkins

IHAVE before me a letter from a correspondent who wants advice as to the best way to break into the bee business. He has had no practical experience, but has seen and heard just enough about bees and beekeeping to have discovered that it has a great fascination for him. There are thousands more just like him so I am going to make my reply to his letter serve a general purpose by giving it to Cultivator readers here.

The first piece of advice I always hand out to amateur or would-be amateur beekeepers is make sure that you really want to be a beekeeper. It often happens that the fascination turns out to be transitory or perhaps entirely incompatible with realization.

A good way to settle this point is to buy a few colonies of bees, a bee smoker, veil, gloves, etc., and try your luck on a small scale. A standard book on bee culture should by all means be part of the initial equipment. Send to the nearest bee supply house for a catalogue. It will aid you in becoming familiar with beekeeping equipment, cost, etc. If there is a beekeepers club or association near you, join it. Subscribe for a bee journal. Write to Bureau of Apiculture, Washington, D. C., for bulletins on bee culture. Make the acquaintance of one or more beekeepers if possible and visit their yards from time to time just to see how they do things.

Three colonies of bees makes a nice little start. Early spring is the best time to buy them. Make sure they are free from disease. You have a right to require a certificate of health signed by the county bee inspector if your county has one.

Do not be disappointed if you fail to make a crop of honey the first season. If you fail in this respect be satisfied if you learn just why you failed. Bees will not make good honey in all locations. In some locations they will not make any, perhaps not enough to live on. All depends upon the quantity and kind of flowers available. Eucalyptus, pepper, tarweed, etc., produce honey too strong to be eatable. Orange, sage, bean, mesquite and clover honeys are among the best in the world. Alfalfa and wild buckwheat are fair examples of light amber honeys which take second place on the market. It is well to inquire into these points, beforehand. There is scarcely a neighborhood in California where beekeeping has not been tried at some time or other.

The above suggestions may be taken to apply especially to the home study method of learning beekeeping, but this is not the only way to go about it. If one is foot loose and free to devote an entire season to the study then the best way is to serve a season's apprenticeship with a practical

beekeeper. Many bee men are glad to get hold of just that kind of a helper. The want advertisement columns of a bee journal offer a good medium by which to get in touch. Bee supply houses usually know who is who in the bee world. The University of California gives short term courses in practical beekeeping which are very good. Whatever you do, do not take a plunge and rely on luck to get you by. You will almost surely lose unless you are carefully coached and advised by some one who is qualified and reliable.

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NATURE
TO GROW
HER FINEST

There is no market for knotty fruit and wormy apples. You will find just the spraying appliance you need in our famous line of

OSPRAYMO

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The result of 40 years of sprayer making. An Ospraymo Sprayer assures you of high power, and high power makes your spraying job effective.



Above is a popular style of power sprayer for citrus fruits and general orchard spraying. We make mounted traction Bed Jacket and Yellow Jacket Sprayers for beans, potatoes and vegetables. Barrel, Bucket, Knapsack and Hand Sprayers. Send today for our latest catalog. Don't buy any sprayer until it comes. We have local dealers at many points but write direct for catalog to either address below.

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WE Solicit Your Order For Nursery Stock Because

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Permit us to send you our new descriptive catalogue of Fruit Tree or Ornamental Nursery Stock.

Leonard Coates
Nursery Company
Box 136, Morganhill, Cal.

PREPARING SEED POTATOES

A little work in getting seed potatoes ready now will insure a bigger crop this year, as well as a better grade of potatoes and a higher price per bushel, suggests Dr. E. J. Petry at State College, South Dakota. Dr. Petry was chief inspector of certified potato seed for South Dakota during the 1921 season.

The following plan is a good one to follow if the seed potatoes have been stored in a cool, dry place and if no sprouts have developed:

Select good pure, disease free seed; i. e., throw out improperly shaped and colored tubers and those which are badly diseased.

Throw out scurfy ones with little black soil-like patches which won't wash off, but which may be scraped off with the finger nails. Scurf bigger than a pinhead cannot be killed by seed treatment.

Treat seed about two hours in a solution of corrosive sublimate (deadly poison to all animals), made by putting 4 ounces in 30 gallons of water. Don't pile tubers more than one foot high after this.

After a week or so begin to cut the tubers by cutting off the stem end to see if there is any dry rot or black leg disease inside the potato which the corrosive sublimate cannot reach. If the ring of veins near the outside is stained brown or black, cut off another slice or so until they are clear or colorless. The last cut should be made by another knife which has been standing in a bottle of the corrosive sublimate solution. Then finish cutting the potato into pieces having at least two eyes each. Potatoes from three to six ounces in weight are best for seed. Machine cutting spreads disease and is not favorable for the seed.

NEW SORGHUM HYBRIDS VALUABLE

Crosses between kafir and feterita give a promising field for the improvement of cultivated varieties of sorghum. Selected strains of this hybrid have been quite uniform in their habit of growth from the third generation to the seventh.

The most extensive series of hybridization experiments yet carried out with sorghum have been in progress for the last six years at the field stations of the United States department of agriculture in northern Texas. These experiments are being conducted by the office of forage crop investigations in cooperation with the Texas experiment station, and are being directed primarily toward the development of improved varieties of grain and forage sorghums, and, in addition, the investigation of genetic problems. Over 50 separate crosses were made between different varieties of cultivated sorghum. Many of these hybrids seem to be of no practical value, but the kafir-feterita hybrids, however, are very promising, and several selections from this group have been pronounced valuable by sorghum experts.

CORRECT LUBRICATION IMPORTANT

Correct lubrication is an insurance against rapid depreciation, repairs and loss, according to F. W. Fenn, a national lubrication authority. Incorrect lubrication may be due to the use of oils of poor quality or of wrong body. Lack of lubrication is just as undesirable as incorrect lubrication. Insufficient lubrication may be brought about by faulty design as well as inefficient lubricants. If you are in doubt as to the proper lubricant to use, a specialist should be consulted.

POTATO FIELDS PASS INSPECTION

W. V. Shear, potato specialist, California department of agriculture, reports that the following were successful in having their potato fields pass inspection for certified seed stock: W. A. Beer, W. E. Bragga, B. E. Burger, A. T. Hooven, Geo. Klussman, E. D. McSweeney, Carl Nielsen, Cleve Robinson, Geo. Van Vleck.

"A century ago it took four farming families to support one family in town. Now one farming family supports four in town in the United States. Harnessing of power with consequent increase of output per farmer is the explanation."

PETROLEUM SUPPLY FROM OIL SHALE

Extraction of petroleum from shale deposits will meet the transportation and engineering needs of the country, according to Dr. Ralph McKee, professor of chemical engineering at Columbia University. Dr. McKee says:

"It is not commonly appreciated how large these shale deposits are. If

we consider only those oil shales which will furnish a barrel or 42 gallons or better, of petroleum per ton of shale, we have in the Green River section of Colorado, Utah and Wyoming alone, sufficient to furnish 64,000,000,000 barrels of petroleum, eight times as much as the total of the well petroleum this country has produced since Col. Drake drilled the first oil well in 1859 at

Titusville, Pennsylvania, and more than five times the total production of the world since well petroleum became commercial 60 years ago.

"There also are large deposits in Nevada, California, Kentucky, Indiana, Ohio, New Brunswick and Nova Scotia and smaller deposits, though large enough for commercial exploitation, in many other portions of this continent. There are similar deposits in other parts of the world."

Exide

BATTERIES



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THE LONG-LIFE BATTERY FOR YOUR CAR

March in the Vegetable Garden

Southern California

By D. F. Reichard

WE can safely venture that very few of our readers will have an early garden this year. The cold weather and the continuing rains have greatly delayed garden operations. From now on, however, planting may go on expeditiously.

The first thing is to see that your ground is in shape for the reception of the seeds and plants that are to be put in it. Work it up to a depth of ten to 12 inches and thoroughly pulverize the ground so that there will

not be large clods with big air holes around them to dry it out. With the soil thoroughly prepared and properly enriched the success of the garden is almost assured. No matter how good the seeds, if the soil is improperly prepared the garden will be handicapped and may be a total failure. The soil is the source of nourishment for the plants, therefore it must be put in condition so that the plants can get their food. Plant food is absorbed by the plant in the form of a weak solution. An ample food supply is furnished only when the ground is worked up well before seeding, so that air is given a chance to get into it. After seeding do not disturb the ground until the young plants are up so that the rows may be easily seen,

then cultivation should begin for keeping the surface pulverized and preventing growth of weeds. If the garden is already started it is well that the surface be kept stirred up so as to keep it from packing with these rains. Thin out everything so that the remaining plants may make their proper growth, for we will soon be having good warm growing weather.

During March almost everything can be planted, the more hardy things like beets, carrots, turnips, radishes, parsnips, lettuce, onions, salsify, spinach, peas and potatoes; later in the month the more tender summer growing stuff like beans, sweet corn, muskmelons, cucumbers, summer squash and roselle. Set out pepper, tomato, eggplant and sweet potato plants.

Watch out for aphids; with the first warm days they begin making their appearance. Spray with black leaf 40 or dust with a powder containing nicotine.

Northern California

By A. R. Gould



THE wonderful rainfall to date has encouraged all gardeners and the prospects for a profitable season are bright. Everyone should get busy now and prepare for the planting season, which will soon be well advanced. Digging and manuring will be the chief items in preparation. The manure must be trenched well under so that all the deep rooting crops will have their supply of food close at hand, and while it is not advisable to be too liberal with manure, apply enough to cover the surface and then trench it in. On heavy soils apply a light covering of lime and rake it in. Do not trench this under as you would manure.

It will not be too early to prepare all the plots for corn, dwarf beans, cucumbers, melons, tomatoes and squash. The wise grower usually starts early in the year with a plan and on this the positions of the various crops are marked, then the date of sowing, the quantity, source of purchase, seedsman, observations on germination and yield of crop, with date of harvesting. This data in a record book is invaluable and is essential to all who would practice the rotational system and be able to balance their garden accounts. Where turnips occupied the plot last year plant peas and after peas plant beets or carrots or some such root crop. Peas leave the soil in good condition as they bring a quantity of nitrogen into the soil so that a gross feeding crop such as beets or carrots would benefit. Another reason in favor of the rotational system is that certain insect and fungous pests attack a particular crop and if these crops are changed over the pests starve.

Potatoes

See that the soil is well manured. A fairly sandy loam is ideal. It should be deeply plowed and only clean tubers planted. The tubers should be dipped in a solution of formaldehyde. Plant in rows four to six inches deep and 12 inches apart, rows 20 inches apart. The best method is to start the tubers in shallow boxes near a window, and in two or three weeks they will be ready to plant out. The large tubers can be cut up into two or three sections, but always leave at least two or three eyes to a section. Early varieties to plant now are Early Rose Improved or Red Prizetaker and British Queen, and the main crop varieties to plant later on are White Burbank, White Rose and American Wonder. Five to six sacks of tubers will be required to plant an acre.

Peas

All the early varieties should now be coming into flower and must be cultivated between the lines. Sowings of Little Marvel, Alderman, Abundance and Yorkshire Hero may be made this month for succession. They should be sown very thinly in rows three feet apart.

Turnips

Sow White Egg and Early Snowball very thinly in rows 20 inches apart. Purple Top Flat Dutch is also a very good variety for table. Those sown last month will need thinning out.

Beets

If the varieties were sown as advised last month and are an inch above the ground they should be thinned to at least four inches apart.

Carrots

In well prepared rich soil sow the French Forcing Long Orange and Oxheart. The last named is very desirable for heavy soils. Sow the seed in drills very thinly, half an inch deep and 18 inches apart.

Onions

It is important to thin out this crop now to a distance in the rows of four inches, and many of the young seedlings may be transplanted to other plots. Keep the cultivator busy between the rows.

Lettuce

Sowings of Los Angeles variety and May King may be made this month, and those early sown should be thinned to six inches apart. It delights in a fairly rich soil.



Usefulness

Is lack of power preventing you from farming more land?

Are your crop yields limited by shallow plowing, or by seed beds prepared improperly or too late?

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One of these sizes will meet the power requirements of your farm. The 10-18 will plow from 6 to 9 acres a day and perform other work at a corresponding rate. The 15-27 will perform the same operations about fifty per cent faster. If your field or belt work demand greater power, the 22-40 will best meet your requirements.

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Case heavy duty kerosene engines are noted for their power, flexibility and economy. Case Tractors have demonstrated remarkable economy and efficiency by winning the majority of all important tests in which they have been entered.

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it is possible to get maximum results from the various implements used. A well designed drawbar of proper height and with a wide range of adjustment makes the correct hitching of plows and other tools easy.

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Tomatoes

Hot beds should now be prepared to sow seeds of the early varieties, Early Jewel and Bonny Best. If only a few plants are required sow in a box and place in a window and prepare this plot for planting up later on.

Artichokes

Still time to plant these; strong plants should be secured and planted in well manured soil at once.

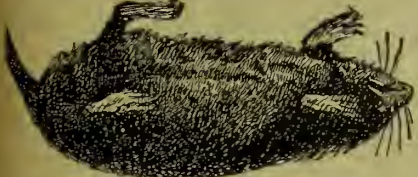
Raspberries

Those who planted last month should cultivate this plot to keep the weeds down. The work on the old plots will consist of cutting back the canes to within three feet of the ground. Large roots may be still divided and the subdivisions used for replanting. It is very essential that this work be completed this month.

WIPE OUT EVERY RAT AND GOPHER

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Rats, Mice, Gophers—in fact all Rodents can now be wiped out easily and quickly. Imperial Virus will do it. This new discovery, is a fluid, true Virus. Entirely harmless to humans, poultry, stock, pets, etc.



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Strawberries

Planting of these should also be completed this month and strong well rooted plants put out in rows 12 inches apart and the rows two feet apart, as this will give room for using the small wheel cultivator, which is a very useful implement to use on the strawberry plot. Secure such varieties as Banner, Brandywine, Ever-bearing and Gold Dollar.

Loganberries

This is really a very profitable crop as the berries are in great demand, and on a fairly rich soil, not too heavy, will thrive. They may be planted in much the same manner as blackberries and trained on a fence, or if you have a wall in the fruit garden you need to cover you may run the loganberries on wire on the wall. Plant only well rooted tip plants one year old if you want the best results.

A DEPARTURE IN LAND SELLING PLANS

A radical departure in established methods of "securing a home in California" is announced by the Kirkman Nurseries of Fresno. The lands may be contracted for to be planted to first class trees and vines and cared for until the trees are of bearing age and the place has become profitable. Thus far there is no "departure," for this has been a favorite plan with many promoters. But here is where the departure comes: "We will furnish the land and bring it into bearing under the guarantee that it will be profitable or all money invested will be returned with interest. Payment made by customers constitutes a first lien. If property becomes highly profitable customers will take deed. If only fairly remunerative the customer has not taken a greater hazard than to make a safe real estate loan." Another feature wherein this proposition is somewhat different from former propositions is that the Kirkman people are lifelong Californians and are thoroughly known by their dealings of many years.

PLANT QUARANTINE HEARING

The conference on plant quarantine called to meet in Washington March 15 has been postponed until April 19. The first date, it was found, conflicted with important national and international flower shows scheduled for the latter part of March, thus preventing many florists and horticulturists from attending.

The conference will meet at the offices of the board, April 19, for the purpose of considering the advisability of any modifications—additions to or deductions from—of the classes of plants permitted entry under permit for immediate sale under Regulation 3 of Quarantine 37.

CALIFORNIA'S FIRE BILL

A million dollar loss to timber range and grain was California's tribute to the fire demon during the past season, according to the annual fire report issued by the United States forest service and the California state board of forestry.

The report states that 2,245 fires were handled by the federal government and state. Information secured by these bureaus shows that in addition 293 grain fires burned within the state. The alarming and disconcerting fact that 90 per cent of these fires result through carelessness and negligence of man, the officials of these bureaus state, deserves the serious attention of all Californians, particularly when the statistics indicate that 745 of these fires are directly chargeable to campers and smokers. As travel along the highways and in our mountains increases the public must exercise greater care with fire if our resources are not to suffer irreparable loss.

The report shows that the losses were made up of the following: Timber \$67,851, range \$367,243, improvements \$189,738, and hay and grain \$370,506. The fire bill is further augmented by an item of \$175,000 spent for fighting these fires. Six hundred state and federal officers are engaged in the difficult task of controlling the fires in California's forests and on the watersheds.

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The 4 VITAL FACTORS of Cheapest Tractor Power

4

REASONABLE PRICE

2

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1

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A Baffling Problem Solved in the OilPull

For many years engineers have known the Four Vital Factors necessary in a tractor to make cheap power. These are (1) Lowest Fuel Cost. (2) Lowest Upkeep Cost. (3) Longest Life. (4) Reasonable Purchase Price. (See diagram above.) The problem has been to combine these four vital factors in one tractor. The Rumely OilPull produces *cheapest farm power* because it *combines all four*.

Triple Heat Control

There are several unusual features in OilPull design and manufacture. Chief among them is *Triple Heat Control*...the perfected, scientific, oil-burning system which solves the problem of getting the power out of cheap kerosene. Due to *Triple Heat Control*, the OilPull is sold with a bona fide, written guarantee to burn kerosene successfully under all conditions and at all loads up to its full rated brake horse power.

Write for Free Booklet

The local Advance-Rumely Dealer will gladly demonstrate all the features of the OilPull. In the meantime, write for a copy of our catalog and the new Triple Heat Control booklet.

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There are many special Knapp features of construction which with the 1921 improvements make it the unchallenged leader in Orchard and Vineyard as well as field work. It is built low, has narrow frame, light draught, and has no levers of any kind to injure low hanging branches of trees.

The Knapp frame permits plowing close to trees either to or away, and is adjustable to hard or soft soil. It is particularly adaptable for plowing under high cover crops.

The KNAPP HITCH, which enables the operator to plow to or from the trees by making but one adjustment, is a revelation in tractor hitch construction. The Hitch has an automatic wheel lock which permits backing the plow.

The KNAPP POWER LIFT is gearless and has less working parts than any other power lift made—only one part is in continuous motion and this part is dust proof.

KNAPP PLOWS come in two, three and four disc sizes. They are built of finest grade materials obtainable. Thus the purchaser of a KNAPP ORCHARD DISC PLOW is insured perfect plow satisfaction.

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By any form of care,
The only verses we enjoyed
Were those that spoke despair.
We loved the way that Mr. Gray
Expressed his brooding gloom,
And all that Hamlet had to say
About impending doom.
On Burton's works we sadly mused,
And heavily we fell
For every phrase that Byron used
To bid his "Janes" farewell.

But when distresses of our own
In later years we had,
We liked a literary tone
Less lachrymose and sad.
A bit of joy in life we took
And every little while
We really liked to read a book
Designed to make us smile.
No longer did we shrink from fun,
No harm in mirth we saw,
We fed our souls on Chesterton,
And sat up nights with Shaw.

And now, when Fate has handed us
A few good smashing soaks,
We find we do not care a cuss
For anything but jokes.
A bit of nonsense now and then,
To heal life's blows and belts,
Is relished by the best of men
But we like nothing else.
And even this is going to cloy:
We know, a few years hence,
The only things that we'll enjoy
Are comic supplements.—James J.
Montague.

STARLIGHT

By Marion Hamilton Carter in
Youth's Companion



TARLIGHT is a sleek, red, part Jersey calf with a white irregular spot on her forehead. That accounts for the "star" in her name; the "light" was Polly's poetic addition. When Starlight arrived at the ranch she was only two days old, very fuzzy, very wobbly and very, very hungry. She was a present to Polly from a neighboring rancher; and Polly, whose heart is tender toward everything that is young and hungry, threw her arms round her neck and kissed her smack on her cold, wet nose. She saw no impropriety in kissing a calf on the nose; nor did the calf, for she returned the salutation with a huge lick of her tongue, another, another—

Polly's mother and I were at a little distance, talking to the rancher who had brought us Starlight, and we had not noticed Polly until we heard her scream, "Ma-a—ma-a! She's eating me up!" and our horrified eyes beheld Polly flat on her back and Starlight, straddling above her, apparently chewing the child's head off.

All three of us plunged for the calf at once. My sister rescued Polly; the ranchman lifted the calf bodily in his arms; and I said, "Shoo!" in a fierce tone and flapped my arms. Starlight hung over the ranchman's shoulder, licked her lips and gazed round in an astonished, regretful way. The minute he set her down she threw up her tail and frisked in a bee line for Polly.

There was nothing bloodthirsty in Starlight's intentions; she was merely showing her affection in an untamed manner; and when my sister slapped her soundly and ordered her to get away Starlight straddled out on her newborn legs and said, "Moo-oh-moo-oh-moo!" in so mournful a voice that Polly was ready to offer her cheek again.

"I believe," she said bravely, though she still trembled in her mother's arms, "the calf didn't really go to eat me; she was only trying to kiss me back and didn't know how."

Starlight moored.
"See!" she understood and said yes," cried Polly. "It wasn't an eat, it was a kiss she did me."

"Well, I'll teach her not to do it to you again," my sister said sternly. "Kissing calves aren't allowed on this ranch."

Starlight moored.
"O mamma! She understood what you said!" Polly exclaimed. Then, holding out her little hand,—the other clung to her mother's neck,—she said,

"Starlight, I love you, and I'll love you always."

Starlight swayed on her wobbly legs and looked from Polly to my sister. You could see that her poor little two-day-old intellect was torn with conflicting ideas. Should she run to Polly and be hers forever, or should she run away from Polly's mamma? Our ranchman settled the question for her by leading her up to the corrals.

Unlike most of Polly's pets, Starlight was a creature of intrinsic worth; she was stock, and stock means money. So the entire family, including Jim, the hired man, had a personal interest in rearing her properly.

Now, my sister had accepted Starlight, believing that one of our cows would adopt her. A cow will often adopt a calf, especially if her own calf has been taken away. But when Starlight arrived our cows were out at pasture, and we were obliged to feed her by hand. It seemed easy; we merely filled a lamb's nursing bottle and gave it to her. But Starlight was unfamiliar with the method; she swallowed the milk, bottle and all!

We rescued the calf from death by strangulation; I held up her head while my sister retrieved the bottle.

Polly, with an eye solely to her pet's gratification, hung over the gate and piped at us, "Why don't you let her swallow the bottle if she wants to? I can find her dozens more."

To the tune of that advice we saved Starlight's life six times. Then we poured the milk into a wooden tub. But the calf had never seen milk by the quart, and she regarded it indifferently and moored. There was anguish in her tone.

"Poor Starlight!" Polly said miserably from her throne on the gate. "Poor, dear, hungry, starving little baby cow!" There was anguish in Polly's tone also.

I held the tub, and my sister pushed Starlight's nose into the milk. She gave a snort, and milk rained on my shirt waist and soaked me to the skin. Starlight licked her nose with relish and bewilderment. Where had that milk come from? And where, oh, where had it gone? She moored mournfully.

"Say," shrieked Polly, "fill the bottle and pour it down her throat."

Not knowing how else to get the calf to eat, we did as she bade us. My sister held up Starlight's head and pulled her jaws open. I poured. The milk appeared to be going down the right way, for Starlight said, "Gop-pity-woppity," which I took for "All right, go ahead," and I delivered two quarts.

Starlight caught her breath and coughed. Milk rained; it poured; it seemed to me there was a cloudburst of it right in my face.

"Moo-oh-moo—oh—moo-o-o-o!" lamented Starlight.

"Poor, dear Starlight; poor, hungry, little Starlight!" lamented Polly in sympathy.

"How about your poor dear aunt?" I snapped, mopping my face with a handkerchief. My sister was trying to smother her mirth on Starlight's neck. "I'd like to borrow your handkerchief," I remarked coldly, wringing my own out for the third time.

My sister looked up and laughed. "Forgive me, dear," she said. "But if you could only see how funny you look—" and she burst out laughing again.

Starlight gazed at me reproachfully and moored. "Poor Starlight, dear Starlight!" cooed Polly. She saw nothing funny either.

"Now," said my sister, "you'd better hold her jaws open and let me pour. I think I see the way to do it."

So I took Starlight's head under my arm and pried her jaws open.

"You ought to have started like this," observed my sister, "farther out on her tongue, so that her tongue would guide the flow," and she delivered two quarts.

Starlight said, "Gop, gop, gop, gop-pity-woppity," just as she had done before, caught her breath and coughed. A flood of milk was hurled into my sister's face.

While she was mopping herself with her apron, Polly called, "It's my turn



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materials than tile can be used
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Give Him Raisin Pie

Make your rare pie crust and fill with luscious *raisins*! There is *flavor* for him! The juice forms a luscious sauce.

Bread Pudding

Bread pudding made with raisins is not only delicious but is economical, since it solves the problem of left-over bread.

Raisin Pie

2 cups Sun-Maid Raisins, 1½ cups boiling water, ½ cup sugar, 2 tablespoonfuls cornstarch, 2 tablespoonfuls lemon juice, 1 tablespoonful grated lemon rind, juice of 1 orange, 1 tablespoonful grated orange rind, 1 cup chopped walnuts.

Cook raisins in boiling water for 5 minutes, pour into it sugar and cornstarch which have been mixed. Cook until thick, remove from fire and add other ingredients. Bake between two crusts. Walnuts may be omitted if desired.

All measurements for this recipe are level.



Blue Package (seeded) best for pie and bread.

But there, too, is wonderful nutrition to rebuild his energy and maintain his vim.

Raisins furnish 1560 calories (a unit of food-value measurement) of energizing nutriment per pound. Eggs, milk, potatoes and most meats fall short of raisins in this energizing value.

The energy comes from the pure fruit-sugar of the raisin, which is in practically predigested form. Thus raisin pie revives men after a hard day's work almost immediately.

There is food-iron also in the raisin—good for the blood.

This pie, therefore, is both so good and good for men that you should make it for them frequently.

SUN-MAID RAISINS

Be sure to get the Sun-Maid brand of raisins produced from California table grapes—the finest grown. Tender, meaty, juicy, rich in sugar. All stores sell them. Get a package now.

Raisins are 30 per cent cheaper than formerly—see that you get plenty in your foods.

Seeded, blue package (seeds removed), best for pie and bread; Seedless, red package (grown without seeds), best for stewing; Clusters (on the stem). A delicious quick dessert.

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Mail coupon for free book of more than 100 tested recipes for delicious raisin foods.

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now. I'll show you how to get Starlight outside her dinner." And she slid over the gate and joined us.

"You didn't go at it right," she said. "You can't pull her outside her dinner; she's got to suck herself outside it, and you've got to give her something she can suck."

Polly dipped her fingers into the milk and held them out. Starlight sucked. Then Polly sank her fingers below the milk in the wooden tub. Starlight kept on sucking Polly's fingers, and the milk began to disappear. I noticed that Polly's lips were tight, and that she did not triumph over us as might have been expected.

"Doesn't it hurt?" I asked.

"N-no," she replied bravely, but winking hard. "That is, it doesn't hurt more than I can stand for Starlight's sake."

(To be continued next week)

HOUSEHOLD QUERIES

Italian Salami

(This recipe, we are sure, is the one desired by our Lompoc subscriber. Trust our Cultivator housewives to furnish anything that's wanted! We appreciate most heartily the kindness of our readers who have searched their recipe books and inquired among friends to find this and other recipes requested. All, by the way, are worthy of filing in a "Cultivator Cook Book.")

To 100 pounds beef and pork (we use more beef than pork) take 2 pounds salt, ½ pound black pepper, ½ pound cinnamon, 4 cloves garlic or garlic to suit, 2 tablespoons allspice, 2 tablespoons cloves, 2 tablespoons nutmeg, 1 ounce red pepper, 1 ounce saltpeter, ½ gallon each claret wine and broth. One may use either claret wine or the broth from the bones of the meat simmered until it will thicken after the bones are removed from it and it is left to cool. If both are put in use ½ gallon each. If the broth is used alone take 1 gallon of it. This is fine.—Mrs. W. H. Hackett, Ferndale.

Salami Hints

In making the sausages the coarsely chopped meat is first minced with sugar, salt and a little saltpeter and allowed to cure for a few days. Then comes a second finer mincing, next the addition of spices or herbs or both, and finally filling into casings and smoking. The seasoning is a matter of taste.

Salami (Italian)—Equal parts finely minced lean beef, lean pork and fat pork, moistened with red wine, flavored with garlic, shallots, cloves, cinnamon, etc.; stuffed into beef casings previously soaked in vinegar and made into a chain of small, nearly round sausages. The sausages are later put in brine for several hours, then hung for about two weeks and finally washed and dipped in lukewarm mutton tallow, the last named process to prevent drying out. Hung in proper temperature they will keep for years.

Salami de Verona is similar to above but generally contains a larger proportion of beef, and brandy is used instead of wine.

Salami Hungarian—Four-fifths moderately lean pork and one-fifth fat bacon coarsely chopped, flavored with paprika, etc.; stuffed into narrow beef casings, steeped in brine ten days to two weeks, dried and smoked.

Am sending the above not for a year's subscription, but hoping the Lompoc subscriber will find some help from them, and in return, I am asking her for a few names for trails among "The Redwoods" in the mountains.—Mrs. A. Stainton, San Francisco.

("Names for trails among the Redwoods" sounds interesting, "intrigues our fancy," in fact, we are plain curious. Won't Mrs. Stainton tell us something about why and where and what for? There are several of us who would like to help name Redwood trails).

The Real Thing From Italian Chef

Am sending a salami recipe which was given me by a chef who at the time cooked at the Flor de Italia in San Francisco. Hope that it will be what Lompoc subscriber desires:

25 pounds lean pork, 10 pounds lean beef, 1 tablespoon each cinnamon, cloves, allspice and nutmeg, 1 teaspoon mace, 1 pound garlic well crushed, and 1 pound salt. Chop meat

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well and rub spices and salt well into meat; add garlic and put in a pan. Cover with equal amount water and claret wine. Let stand three days, then drain out liquor well and stuff. Let stand one day to dry and then finish drying with a very light smoke.—Mrs. F. Ribeine, Arcata.

That Wanted Salami Recipe

20 pounds choice lean beef, 50 pounds choice lean pork meat, 30 pounds hog fat (back preferred), 2½ pounds salt, 4 to 6 ounces alspice, 6 to 8 ounces ground white pepper, 4 ounces whole black pepper, 3 ounces saltpeter, 2 ounces garlic, mashed very fine, about half quart white or red wine.

Grind beef, then grind again with pork meat and hog fat. Add all ingredients and mix well or until it sticks together. If not worked well it is liable to spoil.

(Important: After meat is cut and ready for grinding put in sack and hang up for about 12 hours to drain free of blood—not the fat.)—V. C. Capagno, Patterson.

THE NEW THINGS IN CLOTHES

Clothes are more than ever fascinating this spring, both as to materials and styles. The good old standby materials, the serges, tricotines and crepes; the good old standby styles, the chemise dress and the Russian blouse, are very much to the fore.

Skirts are longer—in spots. Eight inches from the ground is the present accepted length, with side panels, draperies or sashes falling almost to the ankle on one side, on both sides or, as we said above, in spots, as suits the wearer's fancy—may her guardian angel see to it that her fancy is guided by an artistic eye!

Splashy bands of embroidery, splashy spots of embroidery, or splashy embroidery solidly covering an entire blouse—skirt perfectly plain—or gown severely plain with solidly embroidered sleeves joined to a drop shoulder. These are some of the interesting fea-

tures of the new clothes. Brocaded materials, Paisley figured silks, are used in the same way as the embroideries—a bit of rich contrasty color giving character and individuality to a foundation gown of simple lines.

Bouffant skirts, even hoops and ruffles, appear for those who wear them well. But these, generally, are confined to the fluffy evening things. The waists remain long—to the hips and rather more snugly fitting, some almost like the old fashioned basques.

The shoulder to shoulder neck line, back and front, prevails, varied by high, straight collars of embroidery on some of the Russian blouse effects and the ever becoming middy neck on many of the sports and street dresses.

Exquisite loose, spongy weaves are shown for sports things. These are in cotton, in wool and in silk. Blouses and skirts, dresses and capes, jumpers and coats make stunning costumes when developed in the same material; but as often as not they are of contrasting color and material.

The cape has been steadily growing in popularity. A three-quarter tailored cape with jumper dress to match, edges bound with military braid, makes a serviceable and exceedingly up-to-date combination. Shorter capes with sport skirts, longer ones with dressy gowns are seen everywhere.

An interesting feature is the use of squares or oblongs of material, joined with sloping shoulder, made into blouse, cape or coat.

AUSTRALIA TO REGULATE PICTURES

New South Wales is preparing regulation of picture shows, that is, attendance by children. Examination of 14 Melbourne schools showed that 45 per cent of the children attended film exhibitions more than once a week, 11 per cent attended twice a week and the remainder went once or oftener a week. The committee expressed the opinion that no child under 15 years of age should be allowed to attend after 6:30 p. m. on any school day.



JELL-O for children! Children know what pleases them and they enjoy pretty desserts that taste good just as much as the grown-ups do.

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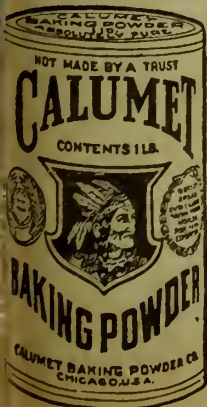
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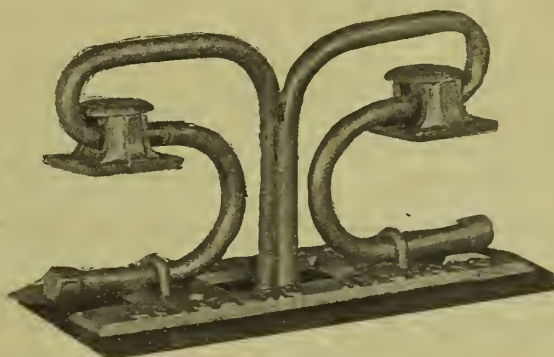
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Double Burner as shown complete with tank and all fittings.....(\$18 for cook stoves)
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you RETAIN 90 per cent of the heat in the stove instead of LOSING half of the heat up the chimney as with coal or wood. KEROSENE IS THE CHEAPEST AND CLEANEST FUEL KNOWN when made into a pure hydro-carbon gas with The New Superior Oil Burner. The Superior generates its own gas from common kerosene, burns with an intensely hot, clean flame, is smokeless, roarless and so constructed that women can easily operate it. Heat can be concentrated in any part of the stove desired by means of our patented divertible flame spreader.

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Actual tests in hundreds of dairies prove that Kow-Kare can be used as a preventive and production aid with wonderful results, at a cost of only about a cent a day per cow. Easy to prove it for yourself; select a poor milker and use Kow-Kare according to directions for a short period. By improving the assimilation and digestion, you will note a decided gain in milk yield.

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Dairies that use Kow-Kare as "health insurance" are the profit makers. Our free book, "The Home Cow Doctor," has many valuable hints for cow owners, besides definite information on how to treat cow diseases. Send for your copy today.

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The Name "Cutter's"
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Berkeley, (U.S. License) California

Wanted---An Agrarian Moses

By A. L. Spellmeyer



WHEN the world was young the time arrived when human destiny demanded the service of a prophet and law giver, a man inspired, by name Mr. Moses, who gave to a chosen people the laws of social and commercial life and led them to a Promised Land distant from the worship of Baal, the golden calf.

Now that the world is old, conditions of life and procedure have evolved a complicated system governing the life and habits of man, that have brought about the control of food and its price to the producer by middle marketers.

Completely efficient, in the most robust and civilized of nations, our own country, this middle marketing system has become arbitrary in the profit it demands and equally unwilling to permit to agricultural effort a fair price.

An agrarian Moses is the present need of agriculture, a super-man who will group the producers to a common banner, and with wisdom and constraint persuade a cooperative strength that will force into effect forgotten ideals of fair dealing and economic justice. Who that man will be we do not know. There are many sporadic leaders of the agriculture host, but they lead divisions and do not command the army.

Christian nations have made laws and followed usage to some extent to insure peace and plenty, and Christian theology distinctly defines legitimate profits and fair dealing as honesty, and profits based upon the power to demand as dishonesty and theft.

Though 30 per cent of the nation's people are engaged in agriculture they are at present in a purgatory of less than cost operation, while contributing heavily to a national, state and city spree of taxation and extravagance.

Commerce riding in the vehicle that production hauls, notes the steed is lame and thin and is worried by the slow progress, but neither stops to feed the hay of cost of production nor the oats of just profit, and will not walk awhile to lighten the load.

Commercial honesty is today a rare quality. Adulteration is frankly general, shorting a custom in either quality or quantity, and it may apply to a butcher with his thumb on the scale, a commission killer who trims the carcass, a packer who buys under the market on livestock or fruit, a feeder who short weights a guaranteed ration, a clothier selling shoddy for wool, a shoe merchant selling paper for leather, or a broker selling you fake oil stock. Business is based upon the power to deflate in purchasing and inflate in selling, upon creating new demands and appetites, and is not concerned with lowering the handling expense of staples nor bettering quality. In many commodities the profit margin and middle marketing cost exceed the price paid the first producer of that commodity. The effort is not to lower the commodity cost to the consumer but to keep that profit at its maximum possible to obtain and compete for volume.

If all this did not hit at the main dependence of the nation, its agricultural and livestock industry, and if it did not indirectly affect generally prosperity and good times, the condition would not be alarming, but the loss of the farmer, and his lack of buying power have slowed up the wheels of all industry.

The farmer can well agree with Hamlet, of Bill Shakespeare era, "The times are out of joint." A similar phrase was found carved in symbols upon an ancient Egyptian tomb. The country has been "going to perdition" a long time but it has not yet reached that destination. We need a Moses, as we need a new set of commercial usage and laws arranged to the modern need. We don't all need to work at manual tasks of farming, manufacturing or retailing, as only savage nations work in the entirety of population, and the more advanced and prosperous a country the greater its

production becomes with less people employed. Our ill, the very ill that menace our agricultural health today, are ill that have come to us from progress with modern methods of production. The Moses that must lead the agrarians must enforce justice for the 30 per cent but not enslave the 70 per cent in other pursuits.

Today the farmer is apathetic. He is with many worries not always amiable, with years of experience he is conservative and slow to adopt new methods, but with hardship and loss he is glutton, though in many instances helpless through debt and responsibility. Job had no more troubles than the farmer of today.

Our agrarian Moses may be Wallace, the secretary of agriculture, who is building up the farm bureau and cooperative farmer associations. He will not be Kenyon, who retires to the bench, but it may be Hoover or Capper or Kendall. Harding himself shows signs of a canny economic wisdom that seems to soften disputes, that might qualify him as time goes on to formulate a better economic distribution of what the consumer pays out. Barret, the farm leader, seems too self centered, and Henry Ford too scattered. The Sir Galahad of the cowman, our local production, Fred Bixby, just chosen by the National Livestock Association as a leader, has a chance to qualify. One thing is certain, the agrarian Moses has a task to harmonize ten million farmers.



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Diagram of a cow showing the location of the uterus and ovaries.

ANOTHER WORLD RECORD FOR CALIFORNIA

The remarkable records established the past few months by daughters of King Segis Alcartra Prilly in the Bridgford Holstein herd at Patterson have been the sensations of the year. But a short time ago we recorded the fact that Bessie Veeman Alcartra Prilly had established a new senior two year old record of 1062 pounds of butter from 27,255 pounds of milk. Now comes her half sister, Louise Alcartra Prilly, with a new junior three year old seven day record of 40.19 pounds of butter from 590 pounds of milk—the first 40 pound record to be registered in that class. The new champion, as a two year old, had a seven day record of 23.86 pounds of butter from 546.7 pounds of milk and a 365 day production of 865 pounds of butter from 23,250 pounds of milk.

Louise Alcartra Prilly, as noted, was sired by King Segis Alcartra Prilly and her dam was Louise of Riverside. After giving full credit to her sire, that by his show ring record and the splendid records of his daughters must be rated as one of the great bulls of the breed, it is interesting to note that through her dam she reaches bloodlines that have played important parts in the development of the breed in this state. Louise of Riverside, with a 365 day production of 814.22 pounds of butter from 18,362.3 pounds of milk, is a daughter of the great old cow Minnewawa Louise, with seven tested daughters, and through her sire, Beryl Wayne Korndyke of Riverside, is a half sister to the 1003 pound Pet Salambo of Riverside. The grand dam of the new champion, Minnewawa Louise, is likewise a half sister to the celebrated foundation cow Aralia, dam of Aralia De Kol and the ancestress of some of the most famous producers in the Morris herd.

WHY QUARANTINES ARE ESTABLISHED

Quarantine regulations should not be resented by livestock owners. There is no disgrace connected with having an infectious disease attack the livestock, however unfortunate it may be, and quarantine is adopted only when essential to the control or prevention of the spread of such an infection. These regulations are never adopted unless necessity requires it, for there is usually associated with it some unavoidable inconvenience, and it is the general policy of the department of agriculture to work no hardships upon any of the interests under its supervision beyond that which the circumstances demand. In case a quarantine is necessary the convenience and interests of the stockmen are always considered before the provisions of the quarantine are established, and in every case such provisions are reasonable and just as lenient as is compatible with successful disease control work.

MILKING MACHINES IMPROVE QUALITY OF MILK

Certified milk is being produced with milking machines, and also market milk of a good grade, under ordinary farm conditions. There is no short cut, however, to cleanliness, and neglected machines will not draw clean milk. To attain this objective machines must be thoroughly washed and sterilized. The milking machine is sure to play a larger and larger part in the economics of dairying. For this reason it is important that care be taken in sanitation, so that nothing will impede its development.

HOW MUCH TO FEED THE COW

Under most circumstances the cow should be fed all the roughage that she will eat up clean, adjusting the grain ration to the milk production. Only when the cow tends to become overfat should the quantity of roughage be restricted.

A grain mixture should be fed in the proportion of 1 pound to each 3 pints or pounds of milk produced daily by the cow, except in the case of a cow producing a flow of 40 pounds or more, when the ration can be 1 pound to each 3½ or 4 pounds of milk. An even better rule is 1 pound of grain each day for every pound of butter fat produced during the week by the cow.

Feed all the cow will respond to in milk production. When she begins to put on flesh cut down the grain."



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FROM New York to California, dairymen who use Empire Milking Machines are making records for milk with low bacteria count.

The letter shown above is just sample evidence of how the Empire Milking Machine is helping dairymen to produce certified and grade A milk with a great reduction in labor costs.

Arden Farms Dairy Co., Arden, New York, reports 5225 bacteria per cubic centimeter—4775 better than the requirement for certified milk. Elliott Brant Rancho, Los Angeles, Cal., reports 1300 per c. c. R. L. Kirby & Son, Dallas, Texas, reports 9000. (The city standard of Dallas is 50,000 per c. c.)

The Empire Milking Machine of 1922 with its pulsator guaranteed even against wear for four years service is an investment which pays for itself long before the guarantee is up. The Empire is now selling at the lowest price since it was invented.

Go to your dealer and see this machine or invite him to call upon you. Have him show you how the Empire will enable you to produce better milk and more milk at lower cost. Write today for complete facts and the evidence that Empire users have to offer. Ask for catalog 52-M

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You can tell the genuine by the world trade-mark

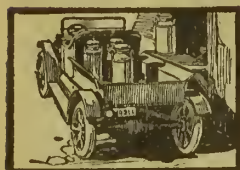
Steel to steel bearings—Arrow Tip Beam—Large Platform—Wide Wheels

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Your local dealer has both sizes in stock.

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Cash Income every day



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Sold on such easy terms that it will pay for itself while you are using it. See your De Laval agent now or write us about getting a new one.

No matter what your system of farming may be or where you live, you need a De Laval Separator and some cows.

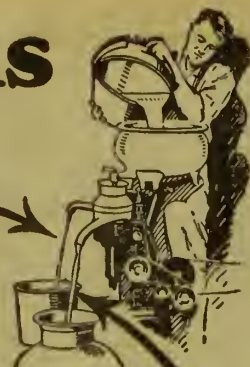
Cows furnish the best market for your feeds, and they keep the fertility of the soil on your farm.

Then the De Laval separates the cream, which brings you in a steady cash income, and leaves the skim-milk in the best condition for feeding calves, pigs and chickens.

This is the surest, safest and most profitable system of farming—and the De Laval Separator has made it possible. It is the original separator, skims cleaner, lasts longer, turns easier than any other. There are over 2,500,000 De Laval Separators in use the world over—about as many as all the rest put together. The De Laval has always led in every important separator improvement and is recognized everywhere as the world's standard.

You may be wasting enough cream to pay for a De Laval by using a worn-out separator or by hand skimming.

De Laval Pacific Company
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SKIM MILK TO GROW ANOTHER CROP



Calves



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Sooner or later you will use a
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Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

DISPERSAL SALE

37 REGISTERED HOLSTEINS

L. W. Bardsley Herd
Tulare, Calif.

Tuesday, March 14, 1922

Owing to the pressure of other interests, Mr. L. W. Bardsley, Tulare, has decided to make a complete dispersal of his herd of registered Holsteins. Most of the cattle in this herd are young, of good type, and representing most desirable blood lines.

The herd sire, PRINCE RIVERSIDE MEAD, is in the sale. He is a son of the famous King Mead of Riverside, out of a 26 lb. daughter of the century sire, Changeling Butter Boy, next dam a 30 lb. daughter of the century sire, Tidy Abbecker Prince.

THERE ARE 15 DAUGHTERS of Prince Riverside Mead in the sale, and remember that they are granddaughters of King Mead of Riverside.

GUARANTEED BREEDERS NO TUBERCULIN TEST CERTIFICATES

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Animal Industry Department

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(Continued from page 227.)

STOCKMEN'S WEEK

and declared that the results could be duplicated in any other dairy community in California through proper cooperation. Rahl said that the established practices of efficient dairy management were well enough understood but only needed to be applied to the industry and because the industry is essentially a community industry it follows that the adoption of better methods is a community problem.

Mr. Greene states that the dairy industry of this state, which is second in importance, is really only about 20 years old and largely because of the rapid progress made the industry has not yet been developed to efficiency. The big problem, according to Greene is that of economical production and improved quality of product. He urged better sires and the development of cow testing associations pointing out that the dairy business was not different from manufacturing and was governed by the same laws of business.

The dairy program on Friday included talks by the various winners in the dairy cow competition. Noel Negley who has just taken up his work as dairy specialist in the university extension service discussed the practical ways to get results from cow testing associations. J. W. Copini, one of the most successful dairymen of Humboldt County, told of the vital importance of the use of better sires at the head of dairy herds. Copini knew his subject and had the facts to prove his argument. He stated that at the beginning of the pure bred sire campaign in his county a survey was made which disclosed the fact that 28,000 cows were supplying the creameries and condensaries of that county. It was found that the best 14,000 cows had a yearly average production of 339 pounds of butter fat as compared to an average production of 263 pounds by the poorer half. In round numbers this difference had a cash value of \$700,000—most of which could be directly credited to the use of well bred bulls in the leading herds. He expressed amazement that any man could doubt the value of a good sire when it was possible to find on every hand examples as striking as the case just mentioned. He told of 22 herds, headed by pure bred bulls, containing 584 cows, that produced \$157,890 worth of butter fat and 22 herds containing the same number of cows, but headed by scrub bulls, that produced but \$97,815—a difference of \$60,075. Three thousand dollar loss per herd!

Professor F. W. Woll explained the operations of the register of production for grade herds that has been recently established by the university. Dr. G. H. Hart of the veterinary division gave a highly informative talk on contagious abortion.

The week's activities closed with a sale of selected dairy bulls of the four leading breeds. The bulls were from dams with a minimum production of 400 pounds of fat.

Throughout the week an endurance contest for riding horses was carried on. Six horses were entered in the event and were required to carry 200 pounds and travel 40 miles each day. At the close of the contest they were scored on condition, conformation and performance. The winner was a mount owned by Col. A. N. McClure of the army remount service. A list of the winners will appear later.

In reviewing the accomplishments of this week of livestock activities it is probable that the most useful function of the week, so far as the welfare of the industry is concerned, lies in the distribution of a valuable lot of breeding material to go out into service. Another important accomplishment was the launching of the Federated Association of Livestock Breeders, an organization embracing practically every phase of the industry and having for its purpose the furtherance of all propositions calculated to stabilize and improve the industry. The organization will attempt to coordinate all interests and represent the united efforts of livestock men in all matters affecting their interests, whether legislative or otherwise. One of the first actions taken was the adoption of a resolution calling on the board of regents of the university to

increase the efficiency and personnel of the extension division.

It is worth while noting that there was general comment on the improved atmosphere about the institution. Many improvements have been made since last year and an extensive building program is getting under way. The institution is "sprucing up" and there is a very noticeable change in the attitude of the student

THE 1922 GUARANTY SALE

"The Pacific Coast Holstein Classic"

60 SELECT FEMALES and BULLS

This is the fifth Guaranty Sale to be held in California, and the four previous sales have fully measured up to the idea behind their creation—to give buyers an opportunity to select some of the best Holsteins in the west from an offering that has been carefully picked from leading herds.

There will be a wonderful collection of young females in this year's offering, ranging from open heifers up to four year olds, and a few mature cows of excellent breeding and type. The sale will be held on

Wednesday, April 5, 1922

at

Rhoades & Rhoades
Sale Pavilion
Hynes, Calif.

This is the opportune time to buy foundation breeding Holsteins, when the future of the business was never brighter, and the cattle in this offering are essentially foundation material of wonderful quality.

Cattle for this sale were selected by R. A. Condee, Chino; Kenneth W. Abbott, Los Angeles; W. J. Higdon, Tulare; J. M. Campbell, Escalon; F. L. Morris, Woodland; and C. L. Hughes, Sacramento, acting as a Committee for California Holstein-Friesian Association.

WRITE FOR CATALOG NOW
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California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager,
Sacramento, Cal.

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20 Registered Holsteins

Owned by

John S. Brame, El Monte, Cal.

Selling at

RHOADES & RHOADES

SALE PAVILION

HYNES, CALIF.

Thursday, March 16, 1922

Practically the entire offering is made up of young cows and heifers of substantial breeding, mostly descendants of the former world's record cow, Aralia De Kol, who heads one of the few three generations of 1,000 pound cows.

TUBERCULIN TESTED GUARANTEED BREEDERS

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Management

CALIFORNIA BREEDERS SALES AND PEDIGREE CO.

C. L. Hughes, Sales Manager,
Sacramento, Calif.

body and a more confident and hopeful feeling on the part of the faculty. The new spirit on the part of the students is especially fine. Indeed the boys made the week possible for without their help—and they were everywhere at the right time—the meetings and sales could not have been conducted in such orderly fashion.

The week developed the fact that lack of accommodations for housing the guests and a suitable place to hold meetings and sales is of pressing importance and will continue to limit the development of this annual event. Most of the guests were not backward in declaring that the time has come when the university farm should be equipped with a large sale and show pavilion in which the sales could be conducted and large meetings housed. The business interests of Davis need to bestir themselves in making arrangements for housing visitors. Without a good hotel the growth of the university farm, their principal asset, will be retarded. There is little question but that the housing situation has kept many visitors away. Probably a solution to the problem can be effected by arranging for the Southern Pacific to run one or more special trains between Sacramento and Davis. The distance is only 12 or 13 miles.

Another factor in considering the future of this event is the need of closer cooperation between the various organizations and the university. So far the university has carried the load. The institution can only provide the equipment and the program; the different organizations must furnish the attendance.

Stockmen's week is a distinct credit to the many members of the college staff and that their work is appreciated was evidenced by the stirring tribute paid Professor Gordon H. True at the close of the annual dinner when the crowd stood and gave him three big cheers and a tiger.

GREAT BERKSHIRE EVENT

BERKSHIRE men of the coast were guests at Riverside during the early part of this week. It was the first American Berkshire Congress sale held in California and likewise one genuine display of blue ribbon stock. We are unable to give full particulars of the event but a wire comes from Geo. A. Stingle just as we go to press in which he says:

"In the first American Berkshire Congress sale held in California, Grape Wild Rose Sixth, a California bred sow sold for four hundred and seventy-five dollars; twenty-one head sell for average of one hundred sixteen dollars ninety cents, highest average for pure bred hogs in the west for the year. Seventy-five high school students compete this morning in a Berkshire judging contest for Southwestern Berkshire Congress silver loving cup. Chas. M. Talmadge, nationally known Berkshire breeder and judge will place the awards this afternoon at the second largest Berkshire show ever held in the west. One hundred fifty-seven head on exhibition. Hogs from Iowa, Washington, Indiana, Oregon and California competing. Buyers in sale paid premiums for animals expected to win in today's show. In addition to seven silver trophies donated by progressive Southern California business firms, six hundred and fifty dollars premiums in Tuesday's show will be paid in gold. Two hundred Berkshire boosters took the hills in high Tuesday night at a roast Berkshire pig banquet at Glenwood Mission Inn."

FARM BUREAU HOG AUCTIONS

The California Farm Bureau Marketing Association announces fat hog auction sale dates during March: Wednesday, 1, Modesto; 2, Chowchilla; 3, Fresno; 4, Wasco; 7, Tulare; 8, Visalia; 9, Hanford; 10, Corcoran; 14, Merced; 15, Turlock; 16, Madera; 17, Fresno; 18, Bakersfield; 21, Tulare; 22, Visalia; 23, Hanford; 24, McFarland.

Guy H. Miller of Modesto reports the shipment of a carload of registered Jersey bulls from Modesto to Humboldt County. These bulls were for the Humboldt County pure bred sire campaign and were selected for the dairymen of that county by Prof.

V. C. Bryant of the state agricultural college and John W. Coppini, well known dairyman and Jersey breeder of Ferndale. The Jersey breeders of San Joaquin Valley take considerable credit to themselves for having furnished 24 young serviceable bulls of excellent type and breeding to meet the requirements of the selection committee. The bulls were picked from the herds of J. E. Thorp of Lockeford, N. H. Locke Company of Lockeford, G. A. Moore of Ripon, D. T. Wieland of Valley Home, C. D. Hayworth of Modesto, D. F. Conant of Modesto, C. L. Jarrett of Modesto, H. McComas of Modesto, R. E. Gilman of Modesto, W. J. Hackett of Ceres, E. E. Greenough of Merced, A. A. Jenkins of Tulare and Guy H. Miller, Modesto. They represent the best of California breeding. They should prove a valuable addition to the dairy cattle interests of Humboldt, a county already noted for its herds of high producing Jerseys.

The Western Irrigation Equipment Association will hold a meeting at Fresno, March 11, with banquet in the evening.

1922 PULLETS

Specializing in White Leghorns of the best heavy laying breeds for commercial egg production of proven ability.

Breeding, incubating, brooding and developing of birds by the most efficient methods known.

No other farm in the Southwest offering you entire capacity of pullets raised with equipment approved by U. S. Experimental Farms as best by test.

Pullets ready for delivery soon as weaned from heat, hardened and free from coccidiosis.

We start you right in the Poultry Business, either big or small. You save time, money and worry by our method. Visitors welcome. We advise you to place your order early.

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Phone 78-J-4

East San Gabriel, Cal.

Grade Holsteins

On March 9th at 10 a. m., we will sell at Rhoades and Rhoades' sales yards at Hynes, 30 head of heavy producing fresh cows, tuberculin tested and guaranteed. Plan to attend this sale.

BURR FARM

26th and Downey Road, RFD 2, Box 120
Los Angeles



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The Lichtenberger-Ferguson factory is equipped with the most complete devices for the economical production of quality products. Unsurpassed workmanship, advanced designing and the use of special-tanned oak leather permits the making of worthy harness.

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THIRTY years prior to this Company's incorporation in 1900, the reputation of Superior Brand Harness was founded. Back in 1870 Louis Lichtenberger, Sr., established the first buggy and harness shop in Los Angeles. From that modest beginning has developed a great manufacturing organization devoted to the production of what we firmly believe is the finest quality harness and saddlery to be obtained anywhere. Today more horses in California are wearing Superior Harness than any other type—a significant tribute to the quality, merit and enduring characteristics of this Brand.



Copy of our new Booklet entitled "Horse Profits" upon request

This booklet gives amazing facts about the economy of horses and describes several of the most popular sets of Superior Harness. Copies free.



One of the first photographs ever taken in Los Angeles—1870

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Wonderful new carburetor. Guaranteed to reduce gasoline bills from one-half to one-third and increase power of motors from 30 to 50%. Start easy in coldest weather.

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Fits any car. Attach yourself. Fords make as high as 34 miles to gallon. Other cars show proportionate saving. Send make of car and take advantage of our special 30-day trial offer. Agents Wanted.

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Legal Queries

Louis B. Stanton, attorney, 343 Wilcox building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Cows Not as Warranted

I bought two cows at a public sale, the catalog of which stated that all animals would be sold as sound in every way. Two months after the sale the animals reacted to tuberculin test. I gave my note for a part of the purchase price and have tried to induce the vendor to take the cows back but he refuses and intends to sue for payment. What can be done?—Subscriber, Strathmore.

It would appear from the facts stated that there was a clear warranty that the cows were healthy. The fact that they reacted to the test would seem to indicate that this warranty has been broken. You can undoubtedly counterclaim in any act upon the note the difference between the value of the cows as they are, infected with tuberculosis and that which they would have had if they had actually been sound.

Mother Can Make Will

Prior to my father's death he deeded all property to my mother. Was this lawful? Do not the children have any rights? My mother remarried and invested money in a grove in which my stepfather put in one-third. The deed is in my mother's name. In case of her death how would my stepfather be

able to claim his share? Can my mother will all of her property to other relations and cut off the children?—Subscriber.

If the deed was properly delivered prior to death it would probably be valid although sometimes upon close investigation it has been found that the transaction could be overturned. In case of the mother's death it would doubtless be very difficult for the stepfather to secure share of the property as the presumption would doubtless arise that he made a gift of his one-third interest, since the property stands in the wife's name. It would be a matter which would have to be determined upon all the evidence by the court. If your mother decides to convey her property as she states and is in her right mind she can doubtless do as she sees fit by will.

Liability of Cooperating Members

In cooperative organizations incorporated in California are all members equally liable for the indebtedness incurred during the organization or is each member liable according to his interest at its termination?—Subscriber, Hemet.

There are several provisions concerning the organization of these associations, provisions varying to some certain extent. In at least two the law provides that the articles of incorporation may set forth by general rule that the property rights and interests of each member shall be equal or unequal and if unequal the property rights and interests may be by this

general rule fixed and determined. On the other hand under the general rule of liabilities of stockholders or members it is provided that in a corporation having no capital stock each member is individually and personally liable for an equal share of its debts and liabilities. It would seem that it is possible that these two sections of the law conflict to a certain extent and the writer cannot authoritatively state which would prevail. It is however the opinion that members would be liable in proportion to the interest which they hold. This liability undoubtedly is for only that proportion of the debts and liabilities which he contracted or incurred during the time the party is a member. Thus a member who purchases the interest of a prior member would not be liable for debts contracted prior to that time, except, of course, insofar as the assets of the corporation are liable. His interest on the windup of the corporation will be taken to pay the debts, but he would not be personally liable.

Homesteading

How can we homestead our land? What is the benefit and is it an expensive proceeding?—Subscriber, Bakersfield.

In order to select a homestead the husband or other head of the family or in case the husband has not made such selection, the wife, must execute and acknowledge in the same manner as a grant of real property a declaration of homestead and file the same in the office of the county recorder of the county within which the land is located. The declaration must contain a statement showing that the person making it is the head of the family and if claimant is married, the name of the spouse, or, when the declaration is made by the wife, showing that her husband has not made such declaration and that she makes the declaration for their joint benefit; a statement that the person making it is residing on the premises and claims them as a homestead; a description of the premises and an estimate of the actual cash value. The total expense including the costs of having an attorney draw up the declaration and recorder's fees should not exceed \$10. The homestead after recording is exempt from execution or forced sale up to the amount of \$5,000. In case the selector is the head of a family, upon the death of either husband or wife, if the property constituting the homestead was community property, the land so selected vests in the survivor, or if the property was separate property of the spouse making or joining in the homestead, the land likewise vests in the survivor, without the necessity of probate proceedings.

Rented Horse Stolen

Some time since I rented a team of horses and wagon for a year. The party who hired the horses claimed that one was stolen. In any event it was never found. He told me that he would pay for her but has never done so. Can I maintain action to collect value of the stolen horse and in what county would it be necessary to bring it?—Subscriber, Kern.

The hirer must use ordinary care for preserving property. If he has so used such care as a person would use of his own property and nevertheless one of the horses was stolen, he would not be liable for the value of such horse, although if he promises to pay for such value it might be that action could be maintained upon the promise. Such action would have to be taken in the county wherein the hirer lives. But it is rather doubtful in this case

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LEAK-PROOF—an exclusive two-piece design, preventing loss of gas and compression. Gives equal pressure at all points on cylinder walls. For all piston grooves except top, which should have Superoyl, each ring packed in a parchment container—

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And Snap Rings of the highest grade



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after the delay that action could be successfully maintained unless delay is adequately explained.

Securing Road

One party desires to have a county road laid adjacent to his property. Can he force neighbors to sell a right of way, and if so can the owner of the land set his own price for the right of way, or how is it managed?—Subscriber, El Monte.

The supervisors have general supervision over all oads within the county and may cause such roads to be lald out as are necessary for the public convenience. They are also authorized to acquire a right of way by condemnation proceedings. If you object to the development of this road it would be well for you to first contest the matter before the supervisors, and if you keep a vigilant eye upon the board you may avoid the bill being put through. In the event the board does decide to put the road through there are several means whereby the value of the land is ascertained. Parties wishing to have the road may donate the land or they may set a price agreeable to the county, or if this cannot be done, then the county must bring a suit in condemnation in the superior court and in such action the value of the land may be ascertained in two ways. First, by three referees to be appointed by the court, or, if that is not satisfactory to the land owner, then the evidence as to the value of the land is produced before a jury and the jury awards amount of compensation which must be paid by the county.

Rights of Undivided Interest

There are two owners of an undivided interest in a farm. Can one without the knowledge or consent of the other place improvements thereon and the other be forced to pay his share of the expense of the improvements? Could either dispose of or sell the property without the consent of the other?—Subscriber, Owenmouth.

If the expenditures are absolutely necessary for the benefit or preservation of the common property it is probable that the co-owner making them could recover from the other, but generally a co-tenant is not responsible for the cost of improvements or repairs upon the common property unless he agreed to their making or ratified the act of making them. Where the expenditures do not inure to the common benefit of the common estate there is no right of contribution. One co-tenant of course has no right to incumber or dispose of the common property without the consent of the other. In fact, if the common estate appeared on the title any conveyance which one might make could affect only his undivided one-half interest.

GATHERING PINE SEED

By R. R. McLean

That there is some well defined program mapped out for the reforestation of denuded portions of Los Angeles County watersheds appears to be evident from the quantity of pine seeds that are being planted there. On a recent trip to Jullan, San Diego County, the writer saw a bin containing 6,000 cones of the Blg Cone or Coulter's pine (Pinus Coulteri), that had been gathered for shipment to Los Angeles. These cones are cut from the trees in the fall before the scales open and are stacked or piled under cover. On warm days they are spread on a canvas in the sun and as the scales open the curiously winged seeds drop out. It was estimated by M. J. Jacobs of Julian, whose two boys have the contract with Los Angeles County for supplying the cones, that from 10 to 12 cones are required to furnish a

pound of seed. Figuring on this basis, from 500 to 600 pounds of seed were contained in the 6,000 cones. It is estimated by the writer after weighing and counting a quantity of seed that each cone contains from 125 to 175 seeds weighing about an ounce and a half. Carrying this estimate out further it means that not far from 750,000 seeds will be available for planting out of the 6,000 cones. Many of the seeds, however, are destroyed by the larvae of some undetermined insect, so that the number of sound seeds will be considerably less. The Big Cone pine is said to bear the heaviest of all the fruits of the pine, weighing up to five or eight pounds. The seeds are rich in sugar and oil and are occasionally used as food by the Indians. The wood is not of high quality but is of rapid growth.

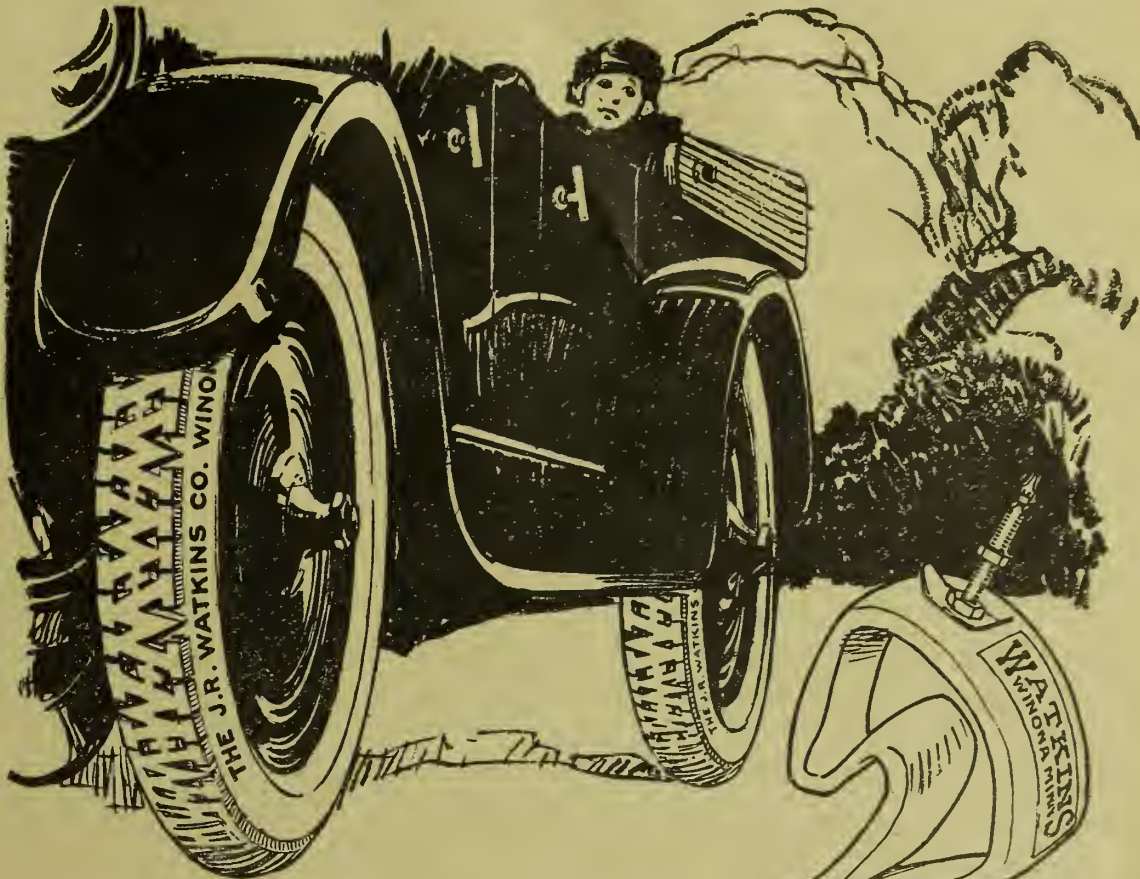
The Chuckawalla route from Mecca to Blythe rather than the Butterfield trail is favored by the Riverside County highway committee.

ARIZONA'S CROPS IN 1921

Revised estimates of the acreage, production and farm value of Arizona crops in 1921, as reported by the Arizona cooperative crop reporting service, are as follows:

Crop	Acres	Total Production	Value Unit	Total Value
Apples	.....	47,000 bu.	2.50	\$ 117,500
Apples (commercial)	.....	18,000 bxs.	2.50	45,000
Barley	29,000	928,000 bu.	.80	742,400
Beans	8,000	68,000 bu.	3.50	238,000
Corn	31,000	1,015,000 bu.	1.00	1,015,000
*Cotton (short staple)	14,000	7,000 bales	.18	700,000
*Cotton (Pima)	71,000	32,000 bales	.30	5,168,000
Grain sorghums	40,000	1,200,000 bu.	.60	720,000
Hay, tame	150,000	450,000 tons	13.00	5,850,000
Hay, wild	15,000	15,000 tons	11.00	165,000
Oats	18,000	630,000 bu.	.65	409,500
Peaches	.....	54,000 bu.	3.00	162,000
Pears	.....	16,000 bu.	3.00	48,000
Potatoes	4,000	460,000 bu.	1.40	644,000
Sweet potatoes	1,000	125,000 bu.	1.82	227,500
Wheat	40,000	840,000 bu.	1.25	1,050,000
Other crops				3,500,000
Total.....				\$20,801,900

*Including value of seed.



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POULTRY

Profitable Poultry News—Capacity 200,000 Chicks—hence prices surprisingly low for quality. One recent order of a Farm Advisor's was 5000 White Leghorn, 2500 Brown Leghorn, 850 Red Chicks. Farm Advisors are leading Agricultural College graduates and practical experts employed jointly by National, State, County governments. His orders are coming after two years' extensive trial of our chicks throughout his county. These strains 180-290 egg Leghorns, Rocks, Reds, Anconas, Wyandottes, Minorcas, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys, yearly lead many egg-laying contests, supply foundation stock, fill repeat orders for hundreds. Why? Electric hatched, vigor, growth, winter-laying, profit, guarantee. Booking for immediate, future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

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Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. **Albert Sly, 1642 C. Middleton Place, Los Angeles.**

We Are Now Booking Orders for S. C. White Leghorn Baby Chicks, from strong, healthy, vigorous stock. Bred especially for heavy egg production, from two hundred to two hundred and eighty egg strain. If you want strong, healthy baby chicks, place your orders with the Vineburg Hatchery. All baby chicks guaranteed safe delivery. **Vineburg Hatchery, Vineburg, California.**

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Soquel, Santa Cruz County, California.**

White Leghorns: Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." **Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.**

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each. **Bronze Turkey** eggs 50 cents, and **Pekin Duck** eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address **Braemar Ranch, Santa Barbara, California.**

Baby Chicks from the best 200 egg strain of White Leghorns in the valley. Please book your order early if you want chicks on a certain date. Established 10 years. Send for price list. Visitors welcome. **The White Leghorn Hatchery, Pomona, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. **Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.**

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. **J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.**

White Leghorn Baby Chicks from heaviest laying stock. Booking orders now for spring 1922 delivery. Safe arrival live, vigorous chicks guaranteed. Prices on request. Reliable since 1898. **MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, **W. C. Smith, Prop., Corning, California.**

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Barred Plymouth Rocks, "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voden, Los Gatos, California.**

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

POULTRY

Our Prices Are Right For SPRING BABY CHICKS

And you cannot beat our stock anywhere in the state. Why not write? **White Leghorns Only—the laying strain.**

Custom Hatch—2c per egg

We have the capacity for you.

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. 1, San Diego, California.**

Baby Chicks from Petaluma Electric Incubator have "Pep" that surprises customers. Electricity is life. Modern poultrymen are rapidly adopting our system with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself or get chicks from hatcheries using Petaluma Incubators. Write for our free catalog. **Petaluma Electric Incubator Co., Petaluma, California.**

White Leghorns, 287 egg strain, vigorous Hoganized two and three year old hens on green range insure strong chicks. Full count live chicks \$15 per hundred. Hatch each Monday. **Mrs. Robert Goddard, Los Gatos, California, Route A, Box 122.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. Flesher Poultry Ranch, Rte. 2, Compton, Cal.**

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. **Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Penn's Quality Barred Ply. Rocks and **Ferris heavy-egg-type White Leghorns.** Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM, Porterville, California.**

Baby Chicks: From carefully selected two year old hens. **Hogan Strain White Leghorns** \$14.00 per hundred; **R. I. Reds, Larm Strain** \$18.00 per hundred. 25% with order, balance C.O.D. Also hatching eggs from above stock. **Oroville Hatchery, Oroville, California.**

THE MISSION HATCHERY Time to plan for Spring Chicks. Ours will please you in Quality and Price. **Black Minorcas, Brown Leghorns, R. I. Reds, Barred and White Rocks.** Also hatching eggs. Reasonable—any quantity. **Mission Hatchery, Box 27, Campbell.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. **Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas.** Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Baby Chicks—Barred Rocks, R. I. Reds, Anconas, and White Leghorns. All chicks from carefully selected stock. You want the best, we have it. Write for circular. **Hargett & Son, Route 2, Box C, Compton, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. **Richard Mitchell, 420 Grismes Ave., RR 2, Box 130, Burbank, Calif.**

Baby Chicks, Barred Rocks, R. I. Reds, White Rocks, Leghorns, Purebred heavy laying strains. Delivered free by parcel post. **J. V. Tracy, RD 1, Glen Lily Ranch, Santa Barbara.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville Sonoma County California**

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 148A, Sunnyvale, California**

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. **Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings.** **Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)**

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from Winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. **Lyon Hatchery, Gardena, California.**

BABY CHIX LAYERS ARE PAYERS

Ours pay. Chix and hatching eggs from hens tested and mated for egg production. **R. I. Reds, Barred Rocks, Black Minorcas** \$16.00 per 100. **White Leghorns** \$14.00. Special price on large lots. **Denton Poultry Yards, Campbell, California.**

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. **Baby chicks, \$20 per 100.** **J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.**

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. **Bonnie Brae Farm, Burbank, California.**

Parks P. R. Pedigreed Cockerels and eggs for hatching; 230 egg strain, breeding pen direct from Parks, Altuna, Pennsylvania. Cockerels \$5.00. Eggs \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. **San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.**

Beautiful R. I. Red and Brown Leghorn prize stock. Eggs, per setting, \$2.00 to \$5.00 per 15. Fertility guaranteed. **Persian Kittens** from prize stock. **Mrs. Eva V. Conklin, 1445 Portola Avenue, Los Angeles, California. Phone Garvanza 3034.**

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. **S. H. Evans, Chowchilla, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

Ancona Hatching Eggs—Select laying stock. Mated for heavy egg production. Settings or hundreds. Write for mating list. **R. Baugh, 3534 Allendale Ave., Oakland, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Baby Chicks—White Leghorns from our own stock, well selected and Hoganized. We are taking orders now for spring delivery. **Garcia & Sarich, R. F. D., Box 346, Sonoma, California.**

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

Light Brahmas—A few young cocks. Setting eggs, \$5.00 per 15. **Keys Ranch, El Monte.**

Light Brahma Eggs for hatching, \$2.50 per 15 large stock. **J. M. Sigler, Puente.**

WANTED

Wanted—Established California concern wants men with rigs preferred, to represent it. Good pay. Can use local agents working during spare time also. Address **J. H. Yetter, 317 Central Ave., Los Angeles.**

Wanted—Woman or girl for three months to help with housework, two adults, two children. **L. Carman, 2007 Milan Avenue, South Pasadena. Los Angeles Phone 351565.**

Wanted—To contract for the purchase of five to possibly ten thousand seedless grape fruit nursery trees for delivery Spring of 1923. Address **G. A. Lathrop, Imperial, California.**

We Want a Few Thousand first class navels one and two year old trees not damaged by frost. **Southwest Nurseries, Head Office, Harlingen, Texas.**

I Want Farms for cash buyers. Will deal with owners only. **R. A. McNow, 370 Wilkinson Blvd, Omaha Neb.**

SEEDS AND PLANTS

Thompson Seedless—A few thousand strictly first class rooted vines for sale at thirty two dollars per thousand. **J. Murray, RFD 1, Box 14, Van Nuys, Calif.**

Hubbard Squash Seed \$1.00 per pound. **Klondike Watermelon Seed, \$2.00.** **Charles Flagg, El Monte, California.**

SEEDS AND PLANTS

For Sale—Genuine Certified Halry Peruvian Alfalfa Seed. Duty certified as coming from inspected fields. Each lot numbered and identified with field on which grown. If your dealer does not handle my seed, write or wire to me for prices, samples and statistics. **E. F. SANGUINETTI, Established 38 years YUMA, ARIZONA**

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

For Sale—500 pounds Klondike Watermelon seed, best brown varieties at \$2.00 per lb. 100 pounds black seed Chilians \$1.00 per lb. All seed guaranteed to grow if planted at proper time. **Sam Oskey, 2005 Audrey Street, Los Angeles, California.**

Sweet Clover Seed For Sale—Buy direct from the producer and save money. Small quantity of highest grade seed yet for sale by the largest producer of the State. Quality and variety guaranteed. Write for sample and price. Address **George Forest, Standish, California.**

Cory Thornless Blackberry, Large vigorous well rooted plants, True to Name. St. Regis red everbearing and Columbia Black Cap Raspberries, Loganberries, Winter Rhubarb, Rooted Grape Vines. Phone 692, **Los Nietos Valley Nursery, Downey, California.**

Strawberries—21,600 boxes per acre, from July to November 1921, from Hewitt's Improved Mountain Grown Everbearers. Profits sooner and greater than any other crop. Descriptive folder. **Carl N. Hewitt, Summit, California.**

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. **B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.**

100,000 Grape Rooting. Phylloxera free. Thompson, Muscat, Malaga, Emperor, Zinfandel, Zante Currant, Red Malaga, 10 kinds of cutting. Fruit trees, farm garden seeds and plants. Write for circulars. **Box 501, Fowler, California.**

Berry Plants, Grapevines, Rhubarb, Roses, Annual and Perennial Flowering Plants. Sent postpaid. Special price list. **Hopkins Nursery, 153 So. Hartwick Ave., Eagle Rock, California.**

Cory's Thornless Blackberry Plants, extra fancy, 15c each, or rates by the thousand. Corner Inglewood Ave. and Arborvitae, Inglewood, California. **C. C. Bryson.**

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write **Chas E. Mortensen, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower **Wm. Mortenson, Route 1, Lodi, California.**

San Fernando Mission Grape Cuttings—\$10.00 per thousand at my ranch about ½ mile Southeast Old Mission. **P. F. Carton, Box 237, San Fernando, California.**

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.**

For Sale: Strawberry plants, Klondike, Brandywine, Gibson and Senator Dunlap, \$5 for 1,000. **Cumberland Black raspberries, \$3.50 per 100, \$35 per 1,000.** **S. R. Moore, R. F. D. 3, Box 19, Inglewood, Cal.**

Blackberry Plants: Cory and Burbank thornless varieties. Order now, 10c each. **Miller Ranch, 1 mile west of Mt. Vernon on W. Highland Ave., San Bernardino. Phone 7304.**

Cory's Thornless Blackberry—Well-rooted plants, \$1.50 per dozen. **Loganberry, \$1.25 per dozen.** **C. E. Jenkins, 127 Luther, Riverside, California.**

For Sale—Rooted Grape Vines, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address **Box 936, R. 2, San Gabriel.**

For Sale—Government tested alfalfa seed, dry land Chilean variety. Prices and samples on request. **O. L. Divens, Doe Palos, California.**

Save Work—Plant Iris and Perennials; a \$2.50 collection will make a beautiful garden. **Mrs. A. L. Hurt, San Bernardino.**

Alfalfa Seed—Certified Halry Peruvian. Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. **J. L. Lawson, San Jose.**

Mason's Everbearing Strawberry Plants, New Variety. Hundred \$1.50. **Klondike** \$5 thousand. Postpaid. **L. Specht, Galt, California.**

Strawberry Plants—"Caroline" Extra choice. Bears first year. \$3.00 per thousand. **S. T. Stuver, El Cajon, California.**

For Sale—Carolina strawberry plants, \$10.00 per thousand. Write for quantity price. **Louis White, RR 2, San Gabriel.**

Florida Sour Orange Seed and California Sweet Seedling orange seed for sale. **Milo Hunt, Whittier. Phone 250.**

\$1.00 Will Deliver You 6 Assorted small roses, or 3 large ones, or six berry vines, or one pomegranate and one seedless fig. **Bishops Nursery, Highland, California.**

TREES

Notice to Planters—Having checked our orders we offer 3000 Tuscan Cling and Royal Apricot—4 to 6 feet—\$350.00 per thousand. 1000 Satsuma plum, 35c up. 2000 Placencia and Eureka Walnuts, 60c up according to height. All home grown. Himalaya Blackberry, \$5.00 per hundred. Commercial orchard trees—home garden and citrus trees, grapes, palms, evergreens, etc., reasonable. Snyder Nurseries, opposite the High School, Burbank. Telephone 122-J.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Hachiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Avocado Seedlings in individual paper pots (two by eight) ready to line out in nursery rows or plant where they are to grow. Plants are from one to ten inches high. Not touched by the late frost. Price and further particulars on application to Wm. Chappelow, route 1, box 488 Monrovia, California. All are from hardy (Mexican type) seeds.

Persimmons—I am taking orders for 1922 deliveries of Japanese Persimmons; Hachiya, Tanenashi, Hyakume, Tamopan at prices that will surprise you. Many leading Los Angeles houses are my customers. **SPECIAL ATTENTION TO THE TRADE.** It will pay you to order now. Fred W. Kelsey, 2 miles West, El Monte, California. Phone Alhambra 919-J-3.

Avocado Trees—I have 300 field grown, thoroughly hardened Fuertes, one and one-half and two years from bud. Large balls of dirt. No better stock to be seen anywhere. \$4 each in quantities, \$5 each for single tree. \$1 extra per tree for crating and shipping. W. A. Spinks, Duarte, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVELE, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Nursery Stock at bargain prices. Prune, 12c each; grafted walnuts, \$1.00 each; pears, 20c each; Blackcaps, \$20.00 per 1,000; other stock at bargain prices. Submit your want list and send for planters' list. 31 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 53, Chico, Cal.

For Sale: Valencia Late, Washington Navele, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Atheol or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees. fine stock. J. W. Irwin, Lindsay, California.

Nursery Stock: Valencia orange trees, 1 year old. H. Meier. Phone 256-W Orange. East Chapman Ave.

For the Cheapest and Best nursery stock call or write the Home Nursery, Los Angeles, Box 1335, Maywood.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Trees—Free Mammoth Bartlett-tack up signs. Zinfandel grapes \$30 thousand, \$5 hundred. Cash Nursery, Sebastopol.

Black Mission and San Pedro Fig Trees. 7000 Malaga grape vines. L. A. Tuttle Nurseries, R. No. 1, Pasadena.

DUCKS

Mammoth White Pekin duck eggs for hatching, \$1 per dozen. A. Surtman, Petaluma, Cal.

MACHINERY

For Sale: Fine Deep Well PUMPING PLANT, 15 h. p. Western engine, just reboared. Famous double acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well; for cash or trade for late model Dodge auto. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale—12-20 Yuba Tractor. Good running condition. Must move quickly. Sacrifice. Gilbert Keys, 94 Canon Avenue, Sierra Madre, California. Phone Red 39.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

MISCELLANEOUS

A Good 80 bbl. per day capacity flouring mill with all up to date machinery, run either by steam or electric motor, to sell for less than the machinery would cost. 1500 ton warehouse in connection, RR siding on one side, State Highway on other side, in good town and a good wheat producing country. A country store, a money maker if you can stand to be away from the movies and bright lights. Also a country hotel and soft drink joint. Also a good sheep ranch. Will surprise you on the price of any of the above. C. P. Gould, 1032 Junipero Ave., Long Beach, California.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon saves palms. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Attention Property Owners—Don't guess at it. Have your Septic Tanks built by an expert. Satisfaction guaranteed. Write for price to August Nelson, 215 East Main Street, Santa Maria, California.

Hemstitching and Plotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco, smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Posts—Lumber Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

Collie—Shepherd Puppies, Beauties. Woodruff, 535 Mary Street, Bell, California.

TURKEYS

TURKEYS—Purebred Giant Bronze. Four famous Madison Square Garden winners heading this season's flocks:

GOLDBANK VIII, grand champion 40 lb. yearling cock 1921;

GOLDBANK BOY (his son) first prize cockerel 1921;

GOLDBANK KING, first prize cockerel 1922 (grandson GOLDBANK VIII and son of GOLDBANK IX, this year's champion first prize yearling);

COPPER KING'S BOY, third prize cockerel 1922; and

COPPER KING JR., being grandson and son respectively of famous COPPER KING V, grand champion of 1919, that weighed 38 lbs. as a yearling. All mated to choice 20 lb. hens. Eggs in season; prices reasonable. Bronze King Farm, Route 2, Box 88A, Merced, California.

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Points on Successful Turkey Raising contains the Stafford Feeding chart and complete plans for making the Stafford Turkey Hatcher, besides our methods of treating diseases and general care of turkeys. We rarely lose a poult. By using our methods you should have equal success. Seven large pages and chart. Price 50c. Satisfaction guaranteed. Stafford Farm, Route 2, Bakersfield.

Turkeys—Mammoth Bronze—About 30 young hens, nicely bred, \$7.00 up. A few good young toms, \$15.00 up. Eggs, 35c, 50c and \$1.00 each. Keys Ranch, El Monte.

Bourbon Red Turkeys, Red Jacket strain. Egg orders booked now. Young stock reasonable. E. C. Laux, Hemet, Calif.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. **Lead and Oil Paint—**\$2.20 a gal. **Roof Paint Special—**35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Bdwav 5401 Los Angeles, Calif

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

FARM LAND FOR SALE

STROUT'S FARMS
NEW CATALOG

Illustrated—filled with government statistics and describing 1200 farm bargains now offered by an organization which in the 21 years of its existence has sold over 30,000 improved farms throughout the 38 States and Canadian provinces where it maintains branches. Farms on easy terms with stock, tools, furniture—ready for the spring's planting, offering pleasant self-supporting homes, steady jobs and bright futures. On page 11 you will read how \$300 gets a 60-acre farm on improved road, with cows, poultry, tools, furniture included—7-room house, barn, all only \$950. See page 107 for the 240-acre farm with 19 cattle, 47 sheep, 50 hogs, poultry, tools, etc.; estimated 150,000 ft. timber, fruit; cottage, 40-cow barn, etc., only \$2900, part cash. Then on page 102, notice the grand 301-acre Missouri farm on improved road; lots fruit, good house, 50-ft. barn, poultry house; 25 cattle, 10 hogs, mules, horse, full implements thrown in, \$7700 for quick sale. Fruit, truck, poultry, grain, cotton, stock, dairy and general farms, orange groves and winter homes to meet your requirements. The largest list ever offered for first payments of \$500 and less. This book has an enormous international circulation and you can't afford to buy without it. Get your free copy today. You can save time and money through our helpful coast-to-coast service. Write today. STROUT FARM AGENCY INC., 831 H K New York Life Bldg., Kansas City, Mo.

For Sale—An up-to-date dairy, fully equipped, with all large cows. Twenty head of first class grades, 4 thoroughbred Holstein cows. Papers furnished; 4 head of thoroughbred Holstein heifers, and also 3 thoroughbred Holstein calves. Papers furnished on all thoroughbred stock. Thoroughbred Holstein bull seventeen months old and a winner; papers furnished. All milk sold to retail route. 130 hens and furniture can also be bought with the place if desired. Good three room house, one well 107 feet deep; six inch casing; windmill and tank; fine water and plenty of it. One Ford truck, 1921. Everything goes. Place all fenced first class. Consists of one and quarter acres. Cows can be bought separate if desired, or entire place, either way. Will consider part trade around Bishop, California. G. W. Garner, take notice. My price is absolutely right for quick sale. Address owner, H. Half, 8801 Alameda St., Los Angeles, Calif.

For Sale or Will Trade for small ranch in California my equity of \$15,000 in an 80 acre ranch 5 miles north of Tucson, Arizona, on paved highway. One of the show places of the country. Best of improved land with individual irrigation plant. Full 4 horse farm equipment. 30 head fine milk cows with milking machine. Some heifers and several Duroc hogs. Contract for sale of all milk, about 140 gallons at 50 cents per gallon. Can all be produced on ranch. Orchard producing \$400 to \$800 per year at the ranch. Total price \$35,000. Reason for selling—ill health. Address W. O. Hodgson, Kenmar Farm, Oracle Blvd., Tucson, Arizona.

120 Acres Farming and Grazing Land, fenced and cross-fenced, 6 room house, barn and out houses, good well, ideal chicken ranch, 3/4 mile from town. Free mail every day, school bus runs by door, 60 acres plowed ready to put in. Price \$40 per acre, easy payments. This place in Cholame Valley near Parkfield, Monterey County. C. P. GOULD, 1032 Junipero Ave., Long Beach.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

IRRIGATED FRUIT LAND

Fruit makes California the "Safe Farming" state. Irrigation makes fruit farming safe. We offer irrigated bottom land, best for big yields of fruit, at liberal terms. We have a real opportunity for you.

SUTTER BASIN COMPANY

304 California Fruit Bldg.

Sacramento, Cal.

For Rent or Sale—Good farm near Woodville, Tulare County. 8 acres 5 year old Thompsons pruned; 14 acres of alfalfa; 10 acres of 1 year Thompsons; 8 acres of raw land. Ranch is on Tulare-Porterville highway. Electric pump and pipe line. Sale price \$18,000. Address Box 366, care E. E. F., Willows, California.

For Sale—\$2,000 cash, fine little chicken ranch, half acre all under irrigation; 130 hens, house 20x18, half block from P. E. station, Modjeska, on Santa Ana line. Fine double corner. This is absolutely a sacrifice for quick sale. Address M. O'Brien, RD 1, Compton, California.

For Sale: Ten acres, mile of Arcadia, Cal. Good improvements, income from walnuts, potatoes, alfalfa, poultry, last year \$3,000. \$16,000. terms. See owner on ranch. Jesse A. Moran, Arcadia, Cal. Route 1, Box 47, South 6th St.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. F. M. Dyke, Real Estate.

Merced: Yosemite's Gateway, offers best values in irrigated fruit and alfalfa lands. Free information; reference to reliable dealers. Insist your title be certified. Merced Title Guaranty Co., Merced.

3 Acres—8 blocks from heart of El Centro for sale or exchange. Box 101, Ramona, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

FARM LANDS FOR SALE

Level Unplanted Lands with Water, suitable for grape culture, \$300.00 an acre, 30 per cent cash, 10 per cent end of first year, 15 per cent end second year, 15 per cent end of third year, 15 per cent end fourth year, 15 per cent end fifth year. Fontana Farms Company, 406 Pacific Finance Building, Los Angeles.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Innisfall Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Lessees, Davis, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs—Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Boyana Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

Duroc Boars—Service age. Sired by Grand Champion Royal I Am. Brown Bulb Ranch, Capitola, California.

Big Type Durocs—Better Durocs at right prices. Harvey M. Berglund, Dixon, California.

BERKSHIRES

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

HAMPSHIRE

Hampshire Swine—always top the market. We have for sale, purebred Hampshire Hogs of all ages. Write us what you want. Address Braemar Ranch, Santa Barbara, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

HORSES

For Sale—Good young work horses, 1,400, 1,600 lbs. R. F. D. No. 1, Box 133, Tracy, California.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatsery El Monte, California.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

CONCRETE "LUMBER"

Concrete "lumber" is now being manufactured for all building purposes in "boards" one to 8 1/2 feet long, from 6 to 24 inches wide.

PROMPT PAYMENT!

The senate has just passed a bill to reimburse the city of Baltimore with \$173,000 expended in works of defense during the Civil War.

DR. HESS Instant Louse Killer Kills Lice on Poultry and Stock

Use it on your lousy hens and chicks—your lousy colts, horses and cattle. You'll get better chicks—bigger, better fowls—more eggs—better contented stock.

Chicks are apt to be lousy now. Give them a chance. Sprinkle Louse Killer into the feathers, about the coops, on roosts, in nests of laying and setting hens. Always keep Louse Killer in the dust bath. For lousy horses and cattle, colts and calves, stroke the hair the wrong way and sift in Louse Killer.

We authorize dealers to return your money if it does not do as claimed.

1 lb. 30c, 2½ lbs. 60c (except in Canada)

DR. HESS & CLARK
Ashland, Ohio



Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 20, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one sock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, anything like it anywhere. Perfect ventilation. We are exclusive hatchers for spring of 1922, for F. R. Richardson, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

Agent for "Fridge of Petaluma" Brooder Stores. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

B. R. HOLLOWAY
Box K. Van Nuys, Calif.

"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination. Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

PIONEER HATCHERY
320 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"

"PIONEER" Valveless Blue Flame Brooder

So Good You Can
Write Your Own Guarantee
54-Inch Size Only \$25.00



Send today for circular. If interested in incubators ask for 48-page Pioneer Incubator Catalog.

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444 N. Andrews, Los Angeles, Cal.



Try the Coulson
System of Feeding
Our free book "Chickens from Shell to Market" gives full particulars.
Coulson Co., Petaluma, Cal.

The Cultivator costs
only one dollar yearly

Cooperation Wins Out

By Jean A. Koethen



COOPERATION" was the slogan of the annual meeting of the Poultry Producers of Southern California, Inc., held recently. Voiced by individual members in their resolutions of appreciation and confidence and in stirring short speeches from the floor by the retiring president, J. M. Davison, in his eloquent and forceful annual report, by Austin O. Martin, representative of the state market director, and by the president of the Poultry Producers of Central California, J. H. Barber, as he described the magical growth of the poultry industry in California in the last three years, it permeated and directed the current of the meeting. Mr. Martin's statement that the Poultry Producers is the most solvent marketing association on the coast today was received with applause. That the past year has been one of unusual difficulty, on account of the general drop in prices,

are forced to compete with each other. A federation of these organizations, with an office in New York, would go far to prevent friction and unnecessary price cutting, and the meeting voted unanimously to support the plan.

South Consumes Most Eggs

According to Manager Stanley, conditions around Los Angeles are unique, in that during a considerable part of the year the city consumes nearly all the eggs it produces. "The surplus this year will all go east," said Mr. Stanley, "except what is eaten here. Increase of population won't eat up the surplus, but increase of consumption on account of lower prices will." In other words, supply and demand are on a sort of perennial teeter board. When eggs are dear the public refuses to eat them, and there is a surplus which must be shipped out. The fact that there is a

POULTRYMAN'S CALENDAR—MARCH, THE BROODING MONTH

In March the world is full of chicks. Some are brooded by hens, and they are lucky. Many, many more are brooded around oil or coal stoves and under electric hovers. In brooding large flocks it is well to remember always that the bigger the flock the more exacting care it requires. Overheating, overfeeding, lack of ventilation, want of cleanliness, want of exercise are all fatal. The first week adequate heat is imperative. Most of the chicks that show symptoms of diarrhoea the first and second weeks have been chilled the first three days. Thermostats are not always reliable. Even the mother hen may fail to keep her babies warm. The only test of their comfort is the behavior of the chicks themselves. If they are peeping, huddling against one another or standing humped up in a corner they are almost certainly not warm enough. If they lie spread out comfortably on the floor they are warm. Chicks that are comfortable look comfortable.

As soon as chicks are past the first four critical days get them into the cooler playroom and then onto the ground. Dampness will not harm them if they have a warm dry place to which to retreat. Indeed, fanciers say chicks do better on damp ground than on dry. The more range your chicks can have and the more green stuff in the shape of growing barley, grass or weeds, the more rapidly will they grow and the more symmetrical will be their development. The chick is not a hothouse plant. It is a live creature, with blood and bones and lungs, and needs contact with Mother Earth and a chance to fill its lungs with oxygen.

Feeding is a simple matter if environment is right. Chick feed, bran, rolled oats, sour milk, after the first week a good growing mash containing bran, corn meal, beef scrap, ground bone, shorts and any other ingredients suitable for chicks will bring them right along if only they have fresh air, exercise, sufficient heat at night, cleanliness and room to grow.

was acknowledged by all, but the willingness of the poultryman to shoulder his own burden and then to help carry that of the other fellow was a large factor in turning threatened defeat into victory.

The story of the violinist who shattered his violin because it gave out one false note was used by President Davison as an illustration of the vital need of harmony in any organization. If the organization is founded on right principles the individual must be willing to sacrifice something of his own wishes and desires for the good of the cause. That the hundred or so association members present were in hearty sympathy with this idea was evidenced by the vote of thanks which was called for by J. J. Forbrich of San Gabriel and enthusiastically accorded.

How Many Eggs Next Year?

During 1921 the association handled 4,703,440 dozen eggs, receiving for them \$1,472,049. What of 1922? According to President Barber of the Petaluma (Central California) organization, last year showed an increase of 25 per cent over the previous year, and 1922 will show a similar increase. In 1921 there were shipped out of California 1,100 carloads of eggs, containing 550,000 cases, and reports from New York show that 900,000 cases of Pacific Coast white eggs were handled in that market. In other words, 12 per cent of all the eggs that went into New York in 1921 came from the Pacific Coast. The coming year there will be more, and the question is, What is to be done with them? For the purpose of answering this question, in part at least, a meeting was held in San Francisco on January 16 to consider the advisability of a more extended federation of producers. There are now five poultry organizations on the coast, at Seattle, Portland, San Francisco, Los Angeles and San Diego. All these organizations ship eggs east, and they frequently

surplus starts prices down, and as soon as the consumer finds eggs are within reach again he begins to eat, thus consuming the surplus and starting prices upward once more.

Consumption as a whole in Los Angeles has actually increased more rapidly than production. This is proved by the fact that last year 110,000 cases of eggs were shipped into the city, which is twice the number imported in 1920.

Improvements

Two improvements which have been made this year deserve special mention. One is the sandblast method of cleaning eggs, which has been worked out by two young engineers, cooperating with the Poultry Producers of Central California, by means of which three or four machines do the work of 75 women. The other is a new method of processing with oil, which has been tried out by the Southern Association and seems to be the best process yet devised for keeping eggs.

Profitable Year

In spite of handicaps the year's profits were so large that one cent per dozen, a total of \$47,000, will be returned to the producers. At the beginning of the year it was believed 2½ cents per dozen would be required for expenses of handling, but this toll was later reduced to two cents, and the return of one cent per dozen reduces it still more. "It must not be forgotten," declared Cornele G. Ross, the incoming president, "that the Poultry Producers of Southern California is ourselves. Any charge made for handling or for cases is returned to the producer if it is not needed. If you think the officers are wasting your money, jack them up once in a while or get a new board of directors. Come into the board meetings and learn how your money is spent. Make suggestions if you can." The average of the Los Angeles mar-

The Cause of White Diarrhea

White Diarrhea is caused by the bacillus Bacterium Pullorum transmitted through the yolk. There is scarcely a hatch without some infected chicks. The germs multiply very rapidly and one infected chick may infect the entire brood. The germs can be killed by the use of preventives. Intestinal Antiseptics to kill the germs should be given as soon as the chicks are out of the shell. It is much easier to prevent than it is to cure.

How to Prevent White Diarrhea

Dear Sir: I see reports of so many losing their little chicks with White Diarrhea, so thought I would tell my experience. I used to lose a great many from this cause, tried many remedies and was about discouraged. As a last resort, I sent to the Walker Remedy Co., Dept. 598, Waterloo, Iowa, for their Walko White Diarrhea Remedy. I used two 50c packages, raised 300 White Wyandottes and never lost or had one sick after giving the medicine and my chickens are larger and healthier than ever before. I have found this company thoroughly reliable and always get the remedy by return mail.—Mrs. C. M. Bradshaw, Beaconsfield, Iowa.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send 50c for box on our guarantee—money back if not satisfied. Walker Remedy Co., Dept. 598, Waterloo, Iowa.



Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

Fancier's Exchange

640 So. Main St., Los Angeles, Cal.

The Redwing Hatchery

Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth, Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY,

2030 E. Florence Ave., Los Angeles, Calif.

Chickens Sick?

Hens Not Laying

There's no excuse for roup, colds, cancer, sore head, chicken pox, skin disorders, cholera, indigestion, bowel trouble and such ailments. GERMONE positively will rid your chickens of disease—and keep them healthy. For over 30 years the dependable remedy and preventive. Get GERMONE and Lee's FIVE BUCKETS, which explain proper feeding and care and how to keep hens laying regularly the year round. At drug or seed stores. If no dealer, order by card. 75c and \$1.50 sizes. Send no money—Postman will collect. No extra charge.

GEORGE H. LEE CO., Dept. F-30 Omaha, Neb.

XXX Creolineum

Unequaled Pruning Compound
A Superior preparation for treating
Citrus Trees affected with
GUMMOSIS, SCALY BARK, Etc.

Creolineum Roof Stains

We also have a full line of Creolineum Roof Stains. Write for sample colors on wood.

Western Wood Preserving Co.
2421 East 25th St. Los Angeles

WRITE QUICK!

Big Special Offer on Kerosene Engines, Power Saws and Drag Log Saws. Direct from Factory. Catalog Free. WITTE ENGINE WORKS
3100 Empire Bldg., Pittsburgh, Pa. 90 Oakland Ave., Kansas City, Mo.

Rid Setting Hens of Lice and Mites

Wonderful New Remedy Banishes Lice and Mites Without Dusting, Spraying or Greasing.

Lice and Mites cause many poor hatches. Setting hens, infested with them, will often leave their nest at the most critical time. Many dusts, sprays and dips are so strong that they often make eggs unhatchable. It is now easy to keep your setting hens, as well as the rest of the flock, absolutely free from all lice pests, and that too, without any trouble of dusting, spraying or greasing. Setting eggs in no way affected.



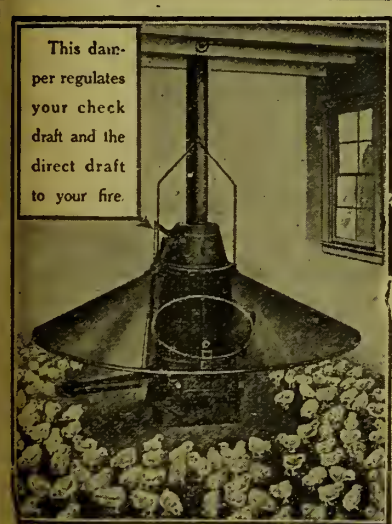
A few drops of this wonderful Imperial Lice and Mite Remedy given occasionally to fowls in their drinking water, keeps them entirely free from all vermin. It is guaranteed not to affect the eggs or flesh. On the other hand, it acts as a splendid spring tonic and blood purifier. Lice, mites, ticks and other vermin positively will not stay on any fowl that takes this remedy.

Fine for Baby Chicks, Too

By all means protect your entire flock, especially setting hens and baby chicks, from the ravages of Lice and Mites by using this wonderful discovery—Imperial Lice and Mite Remedy. You can do so without risking a cent, as it is fully guaranteed.

White Diarrhea Remedy Free

Send only \$1.00 to the Imperial Laboratories, Dept. 529, 2110 Grand Ave., Kansas City, Mo., for a regular full sized, (double strength) \$1.00 bottle, postpaid. And further, as an outright gift to acquaint you with its merits, they will also send you entirely free, a regular \$1.00 package of Imperial White Diarrhea Remedy. If more convenient, you need send no money; you can pay the postman \$1.00 and a few cents postage on delivery of the package containing the two remedies. You need not hesitate to accept this offer, as the return of your money is absolutely guaranteed if you are not entirely satisfied.



This damper regulates your check draft and the direct draft to your fire.

Queen Brooder Stoves

will burn coal, coke, wood, or briquets. The only safe and reliable method of brooding chicks. Queen stove has patent draft that controls heat perfectly. Write for catalogue, also ask for general catalogue of full line poultry supplies.

C. E. HILL CO.

418 11th St. Oakland, Cal.
"Everything for the Poultryman"



CUSHMAN FARM ENGINES

1 to 24 H. P.
High Grade
Lightweight
Guaranteed

Do more kinds of work than any other type.
Have Friction Pulley Drive Sprocket Throttling Governor Schebler Carburetor Circulating Water Pump

Engines for Banders, Potato Diggers, Headers, Sprayers, Shops, Mines, Light Plants, etc.

Write for Catalog

Cushman Motor Works

844 E. Main St. Stockton, Cal.

STAWBERRY PLANTS

That Please the California Fruit Grower. G. J. Streicher, Napa, Cal., writes: Jan. 7-22. Received strawberry plants today to fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.

Our New 1922 Catalogue describing more than 25 varieties and containing other information now ready for your FREE copy quick.

V. R. ALLEN, Seaford, Delaware

ket is two cents above that of any other market on the coast, a condition due mainly to the efficient work of the association.

Directors and Officers

The following directors were elected from the various districts:

Gardena, H. M. Stone; San Bernardino, east, J. O. Snyder; San Bernardino, west, Sarvin M. Kirk; Pomona, Cornele G. Ross; Van Nuys, B. R. Horloway; San Gabriel, R. V. Senior; San Diego, T. M. Hurley; Orange, S. H. Druce; Burbank-Lankershim, Ralph Stockton; Riverside, C. R. Brown; representing state market director, Austin O. Martin.

The retirement of J. M. Davison, who has served as president since the organization of the Poultry Producers, in 1916, is a matter of great regret to all who have worked with him during these five years of struggle and achievement, and his splendid leadership, to which the association owes so much, will be missed. In the incoming president, Cornele G. Ross of Pomona, he has an able successor, a poultryman who has endeared himself to his own community by his integrity and helpfulness, a careful student of poultry husbandry, a man whose sincerity and winning personality command the respect of all.

Poultry Queries

Conducted by Jean A. Koethen

Jersey Black Giants

Will you kindly give me the name of the Riverside man who breeds Jersey Black Giants?—Subscriber, Huntington Beach.

As far as I know, J. F. Backstrand of Riverside is the only man in Southern California who has this breed.

Squabs for Market

Will you kindly give me information as to the raising of pigeons for markets and the cheapest and best way to begin? Is it easy to find a market for squabs and are they profitable?—Subscriber, Petaluma.

I have mailed you a copy of the Cultivator of November 12, 1921, which goes into these matters quite fully. The best way to begin is to buy the pigeons already mated in pairs and guaranteed to produce young. The market, breeders say, is not steady, more because there is not supply enough to fill a steady demand than because squabs are not wanted. Hotels, clubs and restaurants are the chief consumers.

Weak Leg

Our chicks, now two weeks old, have developed leg weakness. When standing they tremble as if they were going to fall, and often do. They walk as if they had hardly any control of their legs. We feed mash and grain mixture according to university recommendation. Chicks have had buttermilk, clean water, air and exercise. The chicks eat to the last breath and die with full crops. We had 1,000 in this hatch—Subscriber, Pomona.

In spite of the very excellent care your chicks have had I can't help thinking they have not had the exercise, and particularly exercise on the ground, which they need. The fact that they eat so well shows that they have no real disease. Get them out onto the ground where they have ample room to run and a chance to peck at green growing things. Add bone meal and rolled breakfast oats to the mash (not more than 5 per cent bone meal, but as much of the rolled oats as your conscience will permit) and feed all the sprouted oats they will eat up in 15 minutes once a day. They are putting on fat more rapidly than their bones and muscles develop, and the oats and bone meal will help to correct this deficiency. It is also a good plan to add 50 per cent plain bran at first to the mash you are using.

Roosting in Trees

I have 30 to 40 hens roosting in trees all winter, and they will not go in. Some poultrymen tell me they will lay as well out as in but will eat more. Others say they will not lay.

(Continued on Page 255)



Motorcycle "Express" to Town

WHEN you've got to get to the railroad station or post office in a hurry—when you want a sack of feed or some groceries from the store—when you have to get to the far end of the farm or to your neighbor's and back before dark—you can't beat a Harley-Davidson.

You can't beat this sturdy motorcycle for economy and all 'round dependability. Rides comfortably—easy to handle—even on roads that would stall an automobile. The roomy side car carries a surprising amount of luggage. Thousands of farmers have their Harley-Davidsons in use almost every day of the year—paying big dividends in time and money saved.

50 miles for a dollar—gas, oil and tires—is the Harley-Davidson's average performance. That's REAL economy. Ask your dealer for FREE demonstration, or write us for illustrated literature. No obligation to you.

Attractive dealer proposition for unassigned territories. Address Desk A-2.

HARLEY-DAVIDSON MOTOR CO.

MILWAUKEE, WISCONSIN

Harley-Davidson
World's Champion Motorcycle

WESTERN CANADA Land of Prosperity



offers to home seekers opportunities that cannot be secured elsewhere. The thousands of farmers from the United States who have accepted Canada's generous offer to settle on FREE homesteads or buy farm land in her provinces have been well repaid by bountiful crops. There is still available on easy terms

Fertile Land at \$15 to \$30 an Acre

—land similar to that which through many years has yielded from 20 to 45 bushels of wheat to the acre—oats, barley and flax also in great abundance, while raising horses, cattle, sheep and hogs is equally profitable. Hundreds of farmers in western Canada have raised crops in a single season worth more than the whole cost of their land. With such success comes prosperity, independence, good homes and all the comforts and conveniences which make life worth living.

Farm Gardens, Poultry, Dairying

are sources of income second only to grain growing and stock raising. Attractive climate, good neighbors, churches, schools, good markets, railroad facilities, rural telephone, etc.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, Alberta and British Columbia, reduced railway rates, etc., write

GILBERT ROCHE
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Authorized Agent, Dept. of Immigration and Colonization, Dominion of Canada

160 ACRE
FARMS IN
WESTERN
CANADA
FREE



Perforated Tree Protectors

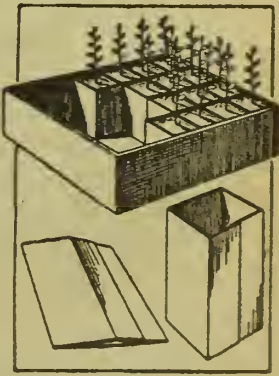
Are you planting GRAPE CUTTINGS this season? We can save every one of them from rabbits, also every fruit tree from pest, hot sun and sand storms. We make a number of kinds. Tell us your pest. We will tell you what to use.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, over disturbing the roots of the plant or stopping its growth a single hour in transplanting. For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cucumbers, Cauliflower, Cantaloupes and Squash, also for Avocado, Carob Tree, Eucalyptus and Olive Cuttings. It's the most practical pot in use today for propagating work of any kind. Write us for samples and prices of both pots and protectors. Tell us which you are interested in.

THE EXPAN COMPANY

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Phone Green 1325



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PROMPT DELIVERY
Write for Catalog
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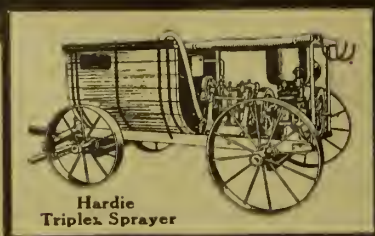


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50,000 orchardists use Hardie Sprayers

50,000 orchardists use Hardie Sprayers. They are men of the widest experience, men who have become sprayer wise. They had the same problems to solve that confront you.

Hardie Sprayers have filled every requirement for them, and will satisfy you. There is no pressure too high for Hardies. They are built for hard, gruel-



Hardie
Triplex Sprayer

ling work of high-pressure spraying, and will do it year in and year out at the lowest possible upkeep cost.

Hardies are built in a variety of styles and sizes, both power and hand, to fit every spraying job

THE HARDIE MANUFACTURING CO.

222-224 No. Los Angeles Street, Los Angeles

Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.



YOU never feel a jounce or bounce

Riding all day on an ordinary tractor seat is a tough job even under the best of conditions. The constant swaying and jarring are torture for the back and bad for the health.

Equip your tractor with a Seibel Air Spring seat and note the marvelous difference. Every kind of land seems soft and smooth, all vibrations, swaying and jarring are gone. Sudden rebound when crossing furrows or ridges is absolutely eliminated. That's why you will feel 100% fresher and better at the end of the day's work.

INEXPENSIVE—put on any tractor in a few minutes. Note the bucket seat with back rest.

MONEY-BACK GUARANTEE—Write to the nearest dealer or to this company direct for further information and our money-back-guarantee offer. Give name and model of tractor.

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SEIBEL AIR SPRING CO.
HUMBOLDT BANK BUILDING, SAN FRANCISCO
1048 SOUTH OLIVE ST., LOS ANGELES
FACTORY: SAN MATEO

Los Angeles Markets

Los Angeles, March 1, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 42 cents.

CHEESE

Brokers' prices:
California firsts, 21@23.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 23; case count, 21; pullets, 19.

POULTRY

Price to producers: Hens, 28; colored, 28; broilers, 40@45; roasters, 38; old roosters, 16; fryers, 45; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, Feb. 28.—Welghed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50. Cattle (on foot, gross weight): Steers, good, 7.50; medium, 7.00; cows, good, 6.50; medium, 6.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 8.50. Sheep: Ewes, 4.00@4.50; lambs, 12.00@13.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 28, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 1.00@1.10. Stocktons: Burbanks, per cwt., best, mostly 2.40@2.60, few best, 2.60@2.75; poorer, 2.00@2.25. Idahos: Russets, best, mostly 2.25@2.50; bakers, 3.00. Sweet Potatoes: Movement

moderate, market weak. Locals, No. 1, best, per lug, 85@90; poorer, 60@75 per lug. Arkansas: Nancy Halls, per bu., 2.25; per lb., 5.

Onions: Demand moderate, market weak. Stocktons: Per cwt., White Globes, best, mostly 8.50@9.00; browns, best, mostly 7.50; lugs, whites, best, 2.75@3.00, browns, 2.50@2.75.

Garlic: 7@9 lb.; poorer, 5@6.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, February 28, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.50@1.60. Brussels sprouts: Mostly 16@18 per lb. Sacked vegetables: Beets, 2.00@2.50; carrots, 2.00@2.50; turnips, mostly 1.00@1.50.

Bunched vegetables: Per doz. bunches: Turnips, 35@40; carrots and beets, 70@75; radishes, 25@30; parsley, 15@20; spinach, 40@45.

Cabbage: Per field crate, 1.50@1.75; best, 2.00.

Cauliflower: Market firm. Per field crate, 1.75@2.00; best, 2.25.

Celery: Market stronger. Locals: Best, 5.00@6.50; poorer, 2.50@4.00.

Cucumbers: Market steady. Hothouse, mostly 1.50@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 75@1.00 crate.

Lettuce: Demand moderate, market steady. Locals, quality poor; field crate 1.50@2.25; few fy. as high as 3.00; Imperial Valley, 3.50@4.00 for packed crate.

Parsnips: 1.00@1.25 crate.

Onions: Green, 15@20 bunch.

Peppers: Mexican chili, mostly 10@12; Bell, mostly 20@25.

Rhubarb: Box, 2.00.

Tomatoes: Market weak. Mcx., lug, repacked, 3.00@3.50; per lb., 8@10.

CITRUS FRUITS

Lemons: Demand and movement moderate. Market firm. Locals: Loose boxes, mostly 2.00@3.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 5.50; few 4.50; market pack, 2.50@75@1.00 per field box.

Tangerines: Demand and movement light, market dull; mostly 5@6; poorer, 3@4.

HAY

Alfalfa Growers of California report: There were 1,240 tons of grain and alfalfa hay received on the Los Angeles tracks the week ending February 25, with 490 tons held over.

Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....22.00@28.00

Barley.....18.00@24.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....20.00@22.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, February 28, 1922.

BUTTER

Extras.....42½

CHEESE

Dairy Exchange quotations:

California Young America, fancy.....25

Oregon Trips.....25

Oregon Young America.....26

EGGS

Dairy Exchange quotations:

Extra.....27½

Extra Pullets.....24

POULTRY

Prices furnished by the state department of agriculture division of markets:

Broilers: 1 to 1¼ lbs., 43@45 per lb.; 1½ to 1¾ lbs., 43@45; 1¾ to 2 lbs., 43@45.

Colored Fryers: 2½ to 3 lbs., 43@45.

Colored Old Roosters: 18@29 lb.

Leghorn Old Roosters: 16@18 per lb.

Leghorn Hens: 2½ to 3 lbs., 25@26 per lb.; 3 lbs. and over, 28@30 per lb.

Large Colored Hens: 28@30 per lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 34@36 per lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@24 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Co. quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7@7½ per lb.; second quality, 6@6½; cows and heifers, No. 1, 5½@6½; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 7@8 per lb.; ewes, 4@5.

Lambs: 11¼@12¼.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 11½ lb.; do, 200 to 250 lbs., 10½ lb.; do, 250 to 300 lbs., 9½ lb.; light sows, 9½ lb.; heavy, 8½ lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Tulare, Feb. 21.

5 120 feeders..... 10.70

117 159 10.25

97 184 10.25

63 228 9.20

8 336 100 7.20

1 pig weighing 40 lbs. 5.00

291 hogs

3 cars, 37 consignors, \$5,216.09.

Visalla, Feb. 22.

100 157 10.65

90 166 19.50

41	153	50	10.35
12	105	feeders.....	10.20
9	211	.....	10.00
90	196	.....	10.00
31	242	.....	9.00
32	284	370	7.35
1 stag	430	.....	3.30
1 boar		.....	10.00
407 hogs			
5 cars, 18 consignors, \$7,141.42.			
Hanford, Feb. 23.			
56	176	.....	10.80
90	155	.....	10.65
101	166	.....	10.30
26	222	.....	9.80
13	82	feeders.....	9.75
3	336	.....	9.30
5	410	40	7.00
2	340	30	5.00
1 stag	300	.....	4.10
297 hogs			
3 cars, 27 consignors, \$5,127.86.			
McFarland, Feb. 24.			
109	161	.....	10.30
102	157	.....	10.30
57	192	.....	10.25
13	105	.....	10.15
48	105	.....	10.00
25	246	.....	9.25
12	240	.....	9.00
8	360	140	7.00
2 stags	560	.....	4.00
376 hogs			
4 cars, 26 consignors, \$6,605.18.			
Total for the week, 1,371 hogs, 15 cars,			
108 consignors, \$24,090.55, total amount.			

VEGETABLES	
Prices furnished by state department of agriculture, division of markets:	
Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.	
Artichokes: 16.00@18.00 per crate.	
Bunched Vegetables: Carrots 50@60 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20; radishes, 30.	
Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.	
Carrots: 1.00@1.25 per sack.	
Cauliflower: 1.25@1.50 per doz.	
Celery: River, fancy, 4.00@5.00 crate; poorer, 2.00@3.00 crate.	
Eggplant: Florida and Mex., 20@30.	
Endive: 45@50 per lb.	
Garlic: 4@6 per lb. for medium grades, poorer quality, less.	
Lettuce: Imperial Valley, 4.00@5.00 crate; poorer, 3.00@3.75.	
Onions: Cold storage, browns, firm, mostly, 6.00@6.50; White Globe, mostly 8.00@9.00; green onions, 2.00@2.50 per bx.	
Peas: Mex., 25@30.	
Peppers: Florida and Mex., 20@21 per lb.; chilis, 15@25.	
Potatoes: Rivers, fancy, 2.15@2.30; Oregon Burbanks, 2.15@2.40 cwt.; Idaho Netteed Gems, 2.50@2.75; Salinas, 3.00@3.75 cwt.	
Pumpkins: Per sack, 75@1.00 per 90 lb. sack.	
Rhubarb: So., 1.55@2.00 per 30 lb. box; Bay, 15@17 per lb.	
Squash: Cream, 1.25 per lug; Hubbard, 1.25@1.50 per 90 lb. sack; So., 3.00@3.50 per cwt.	
Sprouts: 12@13 lb.	
Sweet Potatoes: Per cwt., 3.75@4.00.	
Yams: Arkansas yams, 2.00@2.15 per 40 to 50 lb. basket; New Mexico, 4.25@4.75.	
Tomatoes: Repacked, Mex., 2.50@2.75 per L. A. lug; off grades, 2.25@2.50; 1.75@2.25 per crate.	
Turnips: 1.25@1.50 sack.	
BEANS	
Below California Bean Growers Association shippers' prices choice re-cleaned	
Large Whites 5.45	
Small Whites 5.35	
Pinks 5.60	
Mexican Reds 4.80	
Red Kidney 6.80	
Henderson Bush 7.40	
Cranberries 7.15	
Bayos 5.75	
Blackeyes 5.10	
RICE	
Rice Association prices:	
Bag, 2.40@2.55 f. o. b. points.	
NUTS	
IXL almonds, 25 lb.; soft shell almonds, 16; do, hard, 10; budded walnuts, 32; soft shell walnuts, 30; Manchurian walnuts, 14; Brazil, 17; pecans, extra large, 23; Filberts, 14 lb.	
HAY AND FEED	
A. W. Scott & Co. says:	
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the markets in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added, according to conditions).	
Wheat hay No. 1 17.00@19.00	
Wheat hay, fair grade 14.00@17.00	
Tame oat hay 15.00@18.00	
Wild oat hay 11.00@13.00	
Alfalfa hay 13.00@16.00	
Stock hay 7.00@10.00	
Rolled Barley 29.00@30.00	
Ground Barley 30.00@32.00	
Oats, Rolled Feed 34.00@35.00	
Bran and Millrun 32.00@34.00	
Middlings 43.00@45.00	
Coconut Meal 22.00@25.00	
Alfalfa Meal 22.00@24.00	
Cottonseed Meal 40.00@42.00	
Sugar Beet Pulp 27.00@29.00	
Molasses Tanks 17.00 Barr 25.00	
Milo 40.00@42.00	
Cornmeal and Cracked Corn 35.00@36.00	
Scratch Feed 45.00@47.00	
GRAIN	
Sales on Grain Exchange:	
Barley: Feed, 1.25@1.32½; shipping, 1.35@1.45.	
Wheat: Mill, 2.15@2.25.	
Red Feed Oats: 1.40@1.55; do, seed, 1.75@2.10.	
Corn: California yellow, 2.10@2.20; eastern yellow, No. 2, 1.45@1.47; No. 3, 1.25@1.27; kaffir, in bulk, 1.70@1.72½; white Egyptian, 2.00@2.10; California red	

milo, 1.85@1.92½; do, bulk, 1.75@1.80; eastern red, 1.87½@1.90; No. 2, blk., 1.46@1.49.

Citrus Markets

Shipments
Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 6,289 cars; lemons, 2,127; total, 8,416. To same date last season: Oranges, 8,116; lemons, 1,907; total, 10,023. From Central California to date this season: Oranges, 4,205; lemons, 98; total, 4,303. To same date last season: Oranges, 4,035; lemons, 95; total, 4,130. From Northern California to date this season: Oranges, 369; lemons, 7; total, 376. To same date last season: Oranges, 395; lemons, 4; total, 399.

POULTRY QUERIES

(Continued from page 253)

What is your opinion?—Subscriber, Napa.
So few hens are allowed to roost out of doors nowadays that I have not much data on which to base an opinion. Hens that roost in trees are sure to be hardy, and they will surely eat more than hens confined to a house because they have to maintain the heat of the body under rather adverse

conditions. On the other hand, they will not be subject to roup or colds. If your hens have been out all winter you ought to be able to compare their egg production with that of the average confined flock. Thirty per cent in November and December and 40 in January increasing to 50 by the end of February is a good flock average. Have your hens done as well? If they have not it is safe to conclude that tree roosting has to some extent been detrimental to production.

Turkey Hovers

I wish to ask about the wire brooder boxes used by Mrs. T. T. Middleton for her pullets. Were they made entirely of wire mesh? Would a feather duster answer for a hover instead of the strips of flannel?—Subscriber, Mountain Ranch.
The boxes were entirely of inch mesh wire, if I remember correctly. I have heard of brooding turkeys with a feather duster but never tried it. I think I should prefer a live hen. If you are going to raise a good many turkeys I think you would find a regular brooder house with 100 chick brooders more satisfactory than this

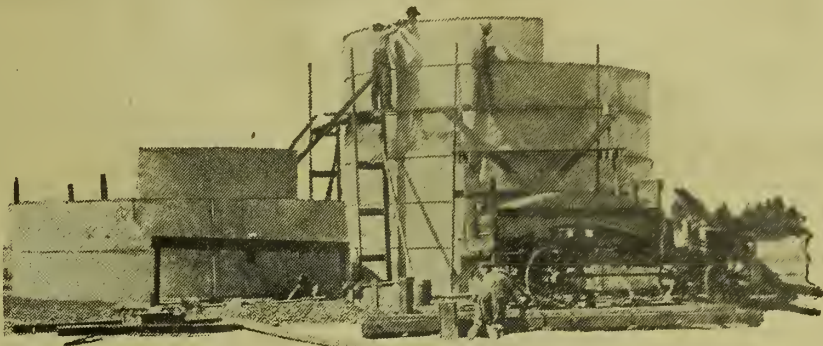
semi-fireless method. Mrs. Middleton was putting in a regular brooder system last fall when I called at her ranch.

Sprinkling Turkey Eggs

Do turkey eggs need dampening every day when they are hatched in an incubator?—Subscriber, Mountain Ranch.
Follow the directions in your incubator book. It is customary to sprinkle turkey eggs with warm water two or three times the last week of incubation when they are under hens. If there are no directions with your machine you can safely do this, moistening well and closing the machine the 26th day.

WEATHER REPORT

San Francisco, Calif., Feb. 25, 1922				
Stations	Rainfall		Temp.	
	Week	Season	Norm.	Max. Min.
Eureka	2.88	23.83	30.82	58 38
Red Bluff	1.66	14.68	17.25	54 38
Sacramento	1.33	11.89	13.69	56 44
San Francisco	1.43	16.15	15.99	60 44
San Jose	.54	11.85	11.42	62 39
Fresno	1.45	8.43	8.33	66 42
San Luis Obispo	3.24	18.58	13.62	66 38
Los Angeles	1.20	17.16	16.68	64 44
San Diego	1.22	16.61	6.93	62 46



Store Grain On Your Ranch

Sell when and where you want to

SOME RANCHERS make more profits than others simply because they market their grain to better advantage. Progressive ranchers are familiar with the greater profits that go with bulk handling. Many, however, have not investigated the further profit possibilities that go with storing their grain in bulk right on the ranches.

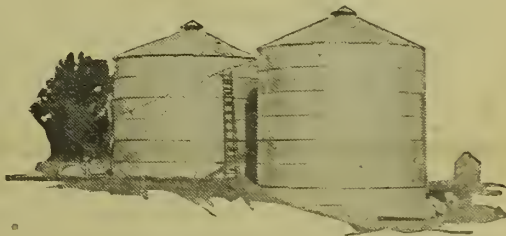
More profits lie in being able to hold your grain and sell it when and where the best price can be obtained.

If you are paying storage bills and insurance premiums, it is hard to wait for a favorable market.

If you have shipped your grain to a northern point to be held in storage, you cannot always afford to sell to a southern buyer and pay freight back over the same line. And vice versa.

So, store your grain on the ranch in fireproof, Calco Metal Grain Bins. Avoid storage costs and double transportation charges. Sell your grain where and when the price is best.

Write for complete information on Calco Metal Grain Bins.



CALIFORNIA CORRUGATED CULVERT COMPANY

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Big Stock Reduction Sale

ORDER AUTO ACCESSORIES BY MAIL

For the first time in our history we are able to offer Stephens tires at these ridiculously low prices. Factory production has been maintained in order to keep up the standard of quality and keep down the price for the benefit of Stephens users—this has resulted in large overstocks in the East. These overstocks had to be moved—so we moved part of them this way to permit our patrons to take advantage of this wonderful offer. Here is the BIG OPPORTUNITY to completely equip your car with high-grade, brand new tires.

MAIL ORDERS will be given prompt attention. Your satisfaction guaranteed or your money back. Nothing could be fairer. Out-of-town customers can benefit greatly at these prices. But send your order in early to Dept. C4.

SPECIAL—Top Recovers for Popular Cars

Stephens Cord
30 x 3½
\$13.75

Guaranteed
10,000 Miles
War Tax Paid



Dodge, Chev-
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Oaklands,
Maxwells,
Overlands,
Reos, Etc.

\$10 95

Well made of
long-grain mat-
terials. Work-
manship and fit
guaranteed.
Bevel glass in
the back cur-
tain. Values up
to \$25.00.

Stephens Special
30 x 3½
\$7.95

Guaranteed
6,000 Miles
War Tax Paid



CALOZON Cord Tires

10,000 Mile Guarantee

This is the tire which is cured under the CALOZON PROCESS—a tougher, better and longer wearing tire. No tire user was ever dissatisfied with a CALOZON CORD.

30x3½	\$13.75	33x4½	\$31.10
32x3½	18.75	34x4½	31.95
32x4	26.10	35x4½	33.30
32x4	26.85	36x4½	33.60
34x4	27.40	33x5	36.85
32x4½	30.40	35x5	37.95
		37x5	39.10

War Tax Paid

Ford Back Curtains



Celluloid Lights\$2.10
Bevel Glass\$3.65
Values Up to \$6.00

Ford Door Pockets

Fits over the door. Simply tacks on. Makes a handy place for tools, etc.



Price, Each 50c
Regular Price, \$1.50

Outside Tire Boots



You need them in an emergency. These are exceptionally fine boots. Values to \$1.50.

Ford Sizes, each 25c
Other Sizes, each 40c

Blow Out Patches, Any Size 25c

OTHER SPECIALS

Fan Belts, Ford sizes, 22c; other sizes.....	28c
Anti-Draft Shields for Ford cars.....	40c
Hand Door Grips.....	15c
Hunt and Cold Pads for Ford cars.....	15c
Sleeve Protectors, per pair.....	25c
Water-Proof Wash Aprons.....	90c
Ford Seat Covers, Trg. \$7.50; Rd.....	\$6.25
Tube Bags.....	35c
Side Curtain, Complete Sets, Trg. \$6.95; Rd.....	\$4.85
Ezy Rest Back Cushion.....	80c

Guaranteed Quality Inner Tubes

Ford Sizes.....	\$1.40
4-Inch Sizes.....	\$1.75
Other Sizes.....	\$1.95

These are guaranteed fresh stock, as good as money can buy. Values up to \$5.00. Every car owner should buy two or three of these bargains.

Stephens Fabric Tires

6,000 Mile Guarantee
Strictly HAND MADE, of high grade 17¼-oz., long staple fabric. Do not confuse this tire with seconds and factory blemished. These are strictly FIRST, high grade tires.

	Ribbed	N.S.		N.S.
30x3	\$ 7.45	\$ 7.75	32x4½	\$17.90
30x3½		8.95	34x4½	18.85
32x3½	10.25	10.70	35x4½	18.90
31x4	11.30	11.75	36x4½	19.10
32x4	12.70	13.40	35x5	21.35
33x4	13.40	14.10	37x5	22.70
34x4	13.60	14.40		
35x4	16.25	16.45		

War Tax Paid

Tire Covers

These covers the real quality. Tailored of fine fabric. Values up to \$3.00.

Ford sizes 90c
Other sizes \$1.25

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Make the orchard pay board

The Planet Jr. No. 41 Orchard and Universal Cultivator makes cultivating the orchard a paying proposition. It does the work of both spring tooth and disc harrows, yet is very light draft for this heavy work. Not only for the orchard, but for working fallow ground, hilling beans and potatoes, running irrigation ditches, it is a valuable, economical implement with a wide variety of uses.

Write for catalog showing complete line of famous Planet Jr. seeders, cultivators, wheel hoes, etc.

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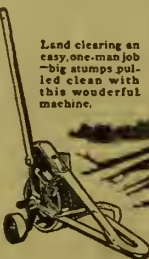
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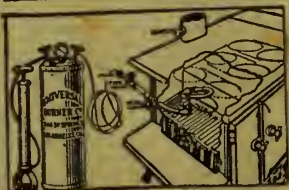
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

March 11, 1922

No. 10

Almond Patriarch in Bidwell Park, Butte County



Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL
A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916

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R. M. Teague, Pres. and Manager
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Branton, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard D. F. Reichard
J. W. Mills J. E. Neff
Fred M. Reed Louis B. Stanton
G. E. Gordon M. E. Bemis
A. R. Gould E. L. Koethen

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Saturday, March 11, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fall to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

A Butte County patriarch graces our cover this week. It is an almond tree 40 years old when the photo was taken and of a height and size we can only approximate by comparison with the figures of the two ladies. Note the one lady standing up in the tree and handing down a spray of the bloom to the lady—we believe it is the late Mrs. Bidwell—who is standing on the ground. This photograph was taken some years ago. The tree still stands in Bidwell Park, Chico, Butte County.

This is positively the last time we will suggest the propriety of making out the income tax return for the year 1921. The return must be in the hands of your tax collector not later than midnight of Wednesday, March 15, though we believe there is a possible exception when in case of death or serious illness a thirty day extension may be secured if arranged in advance. But the best way is to have the entire matter over with and the return in the hands of the collector. Unfortunately with most of us the awful complications of the blank which is given

to us for the making out of these returns give us more real sorrow than the amount of money we have to hand over to Uncle Sam.

As time elapses the damage to subtropical fruits and garden truck because of the January freeze may be more accurately estimated. As a rule the amount of injury does not equal that of 1913. It now appears there will be a vastly greater amount of fruit shipped than there was after the 1913 freeze. However, there are some lemon orchards which are so seriously injured that they may be either replanted or, more likely, will give way to other crops. Commissioner Ryan estimates Los Angeles County's loss as "Not less than 60 per cent of the Navel crop as a result of both wind and frost." The Valencia loss, however, will be lighter, not exceeding 50 per cent.

As a rule orange growers and shippers are insisting on the protection of California's good name for sending only thoroughly good, dependable, standardized products to the market. The moment it was known the recent cold spell would seriously injure some fruit growers and shippers met and agreed that the good name of the state was more important than the immediate profit. Appeal was made to Director Hecke of the state department of agriculture and his deputies were immediately on the job aiding shippers in preventing the sending of injured fruit. There have been but very few wilfully disregarding the best interests of the state.

The Colorado River bill has been favorably reported back to the senate by the irrigation and reclamation committee. It provides for the appropriation of \$360,000,000 and ultimate development of 6,000,000 acres of land and the creation of electric energy sufficient to supply the entire Southwest. This is generally considered as the first real step in this great project which will mean prosperity to the Southwest and great increase of wealth for the nation.

A subscriber who buys advertised goods writes: "I don't like to patronize people who are afraid to tell what they have and their prices in their ads. When an advertiser says in his ad, 'Write for prices,' I suspect there is some reason. And it is certain to me the plan is a poor one, because the purchaser is subjected to losses in time and the expense of extra postage." We are inclined to agree with the subscriber to an extent at least. When we are looking for a certain article it is certainly most satisfying to read the ad which gives full information regarding the article, price, etc. A letter with enclosed check settles the whole business, and a series of questions is unnecessary. However, there are times when an advertising campaign calls for such large expenditure that fullest information is not possible in the small space available.

EX-COMMISSIONER COLLINS

Charles F. Collins, one of California's pioneer county horticultural commissioners, has terminated his work of fighting the pests of Tulare County orchards and of encouraging growers to more perfectly standardize their packs of California fruit and has moved to Oakland. Mr. Collins will be missed from the ranks of the commissioners when they gather in annual convention. He has been one of the state's most efficient workers. We are sorry indeed to see him quit the game.

CHARLES R. ROCKWOOD

The father of Imperial Valley died at his home in Los Angeles last week. He was the first irrigation engineer to look over the Colorado desert with an eye to its wealth producing power if the Colorado River could be made to pour its wealth over the desert land. He devoted himself to the development of the great Imperial Valley irrigation system and his zeal in that work was intense. He talked and preached of the possibilities of those lands and waters until it was asserted that the first two initials of his name stood for Colorado River; in fact, for years he went by the name of Colorado River Rockwood.

CREDIT NECESSARY

The Federal Land Bank has loaned 4,000 California farm owners \$13,394,400 and it reports that 63 per cent of this amount was loaned for the paying off of loans bearing a much higher rate of interest. But with the great advantage which has come to some farmers because of the land bank there is need for more short time money.

Farming like all other business must be largely financed on credit. There is a normal need for agricultural credit for periods ranging from six months to three years which is not adequately served by our present banking machinery.

This situation has been brought sharply to the attention of the nation by the events of the past two years. Crop proceeds in 1920 and 1921 in many cases did not pay costs of production and living expenses and farmers were forced to become heavy borrowers from commercial banks. To be sure there has been material aid through the efforts of the Federal Reserve Bank and, perhaps more, through the war finance corporation, but this is only a temporary measure and the old, old question of rural credit still calls for consideration.

DIVERSIFY

Farmers usually fight shy of crop control through reduction of acreage. In the first place, with high priced land there is unwisdom in permitting them to lie idle. More, the farmer takes pride in 100 per cent efficiency in producing to the limit what the world needs. But there is a difference between crop control and diversification. Now comes the department of agriculture, which is always engaged in an effort to increase efficiency and total production, and suggests that the only safe policy for the farmers of the watermelon districts, mainly the Carolinas, Georgia, Florida, Alabama, and southeastern Missouri, is to plant only such an acreage of watermelons as they can properly care for and market, devoting their energies chiefly to the growing of staple farm crops and the conducting of a safe and sane policy of diversified farm crop and livestock production. A cropping plan suitable for the watermelon sections should include a moderate acreage in watermelons, not greater than last year, and this should be handled in the best possible manner to produce high grade melons.

California farmers and orchardists have long been discussing, and a few practicing, intensive diversification. Let the acreage be greater and we believe that it will be to the advantage of producers if there is less of dependence on a single crop.

DEZELL MANAGER

The board of directors of the California Fruit Growers' Exchange has unanimously elected Earl G. Dezell to succeed the late G. Harold Powell as general manager.

Some of us who have been visitors at the headquarters of the exchange since its founding recall seeing Mr. Dezell as a youngster working as office boy or taking dictation from Manager Naftzger, later Manager Woodford, and still later joining with Manager Powell in shouldering some of the heavier duties in the management of the greatest cooperative fruit marketing organization in the world. Mr. Dezell has been connected with the exchange for 25 years or since the time when the entire organization shipped only about 2,000 carloads of fruit annually. Last year the organization shipped over 40,000 carloads. During this period, covering more than half of a lifetime, Mr. Dezell has worked in every department of the great organization. Speaking of Mr. Dezell's qualifications President Teague says:

"There is represented in Mr. Dezell all of the qualities necessary in the chief executive of the California Fruit Growers' Exchange. He is able to fill any position within the exchange and has a more complete knowledge of the organization than any other man in it at this time. Mr. Dezell has a great power of analysis of figures and a great ability to eliminate all extraneous matter and arrive at right conclusions. It seems to me a very happy solution of a very difficult situation, and I am sure that the action of the directors will receive from our shippers in the country, from our agents in the East and from the trade throughout the country approval as unanimous as was the action of the directorate itself."

REORGANIZING

The California Almond Growers Exchange is quite like other institutions of human creation. That is, it lacks some of the elements of perfection. It has, as it were, growing pains. As usual the first to become aware of those growing pains is the victim, and Manager Tucker and his board have proposed to administer treatment. In other words, the board of directors of the California Almond Growers Exchange has advised 4,000 California almond growers that the exchange, the parent of 24 local almond growers associations in the state, must liquidate or reorganize along lines voted at a meeting of representatives of the local associations. These representatives adopted new articles of incorporation throwing open to growers direct membership in the exchange and bylaws which include the necessity of a five year crop agency contract between the grower and the exchange.

The exchange announces it will not solicit orders for the sale of the 1922 crop nor will it enter into any selling contract. The exchange cannot go ahead contracting with buyers "until a substantial number of growers have signed the new crop contract." The exchange is entirely free from debt but there has been serious weakness in the hand-to-mouth way in which the business has been conducted. In taking the first step in organizing this great institution it was recognized that growers, while strong for cooperation, were lacking in appreciation of the possibilities of complete cooperation. They could see ahead for one year but five years appeared too long a time. The management, however, sees the futility of continuing former methods and it is now asking that the 100,000 acres planted to 7,000,000 almond trees, representing an investment of approximately \$60,000,000, shall come across and say emphatically "We believe in our own organization, which is now 12 years old, and that it has been efficiently operated and is worthy of our trust and confidence." If the new longer time contracts are freely signed, as it is believed they will be, there will be successful marketing of crops and prosperous almond growers.

California Cultivator

Vol. LVIII, No. 10

Los Angeles, March 11, 1922

One Dollar Yearly

The Nation's Almond Bowl

By S. J. Richard, Sacramento

TAKE of the best fruits of the land in your vessels, and carry down the man a present, a little balm and a little honey, spices, myrrh and almonds.—Genesis 43:11." The development of the almond industry reads like a romance. In tracing its history from biblical times we pass every milestone in civilization's march of progress. Before the time of Christ the almond played no small part in replenishing the larder of the family, and its value was such that for a time it was used as a medium of exchange by the early nations. Then the wars and the wanderlust spirit scattered the ancients and their almond trees withered and died. But the value of this favored nut was remembered and later efforts at propagation and planting again put the almond on the ration list as an appetizing and nutritive food. Today annual production is increasing in all almond growing centers and still the demand cannot be satisfied.

In the fertile soil of the Sacramento Valley where every manner of fruit

and tree grown in the North, South, East and West produces abundantly the almond industry is reaching its greatest development. The climate of the Sacramento Valley and the absence of injurious frosts are large factors in the growth of this California industry. The almond orchards are given constant care as to cultivation, irrigation and sprays from blossom time in early April until the crop is ready to harvest in August.

Much transient labor is required during the harvest which provides employment for thousands. The method of harvest is poling from the trees rather than picking. The nuts are then gathered and sacked ready for shipment to the almond plant. Here modern machinery strips off the hulls and the nuts are treated chemically to kill any possible insect life. Then shells are removed and the meats graded and packed for shipment to world markets.

There are about 100,000 acres in California devoted to the production of almonds. With an annual crop of 7,000 tons and better to be disposed of without glutting the market there has been presented a difficult problem, the solution of which has been accomplished by a selling organization, the California Almond Growers' Exchange, organized in 1910. The work of the exchange has virtually stabilized the industry. It has taught the grower the necessity of cooperation to successfully market large crops and has sustained the planting of additional acreage. It has developed old markets and exploited new ones. The quality of the output has been improved and the element of speculation removed. Foreign competition has been largely met by judicious distribution and by broadening the demand.

Very simple is the plan of operation of the exchange. Its main object

is to market almonds of its members at cost and develop a greater demand for the product. Each member markets his crop solely through the organization and pays his pro rata share of marketing costs and warehouse overhead expense. It acts as a periscope for the industry, detecting the harmful and ever watchful for opportunity. Financially solid, the exchange can advance the rancher money when his crop is ready for market and before any cash is realized for the crop from the eastern markets. This provides sufficient money to meet the rancher's needs until the crop is sold, when further cash returns are made. It maintains a salaried representative in Europe, who reports on European production and conditions that affect the industry. It has brokerage connections in every important market in the United States, Canada and England.

In the heart of California, at Sacramento, the exchange has erected an almond plant and warehouses which represents an investment of \$300,000.

Pears and the Association

From Address by President Frank T. Swett
Before the Canners' League

Constructive Criticism

The management of the Pear Association will at all times welcome constructive criticism. We want to be fair, but to be fair we will have to know what constitutes fairness.

Not long ago one of our best friends among the canners made the suggestion that there was danger that the pear growers, through their interest in marketing pears in eastern markets, might be limiting the canning industry. I was glad to have the suggestion, for it gave me the impetus to look up actual figures.

In the four years previous to the pear association 150,000 tons of pears were shipped east, while during four association years 188,000 tons were shipped. This was a gain of 12.3 per cent. In the four years before an association there were canned 86,000 tons, while during the last four years there were 101,000 tons canned, or a gain of 11.7 per cent. We must remember that the past two years have been very light crops, the crop of 1921 being the lightest since 1913.

Our tonnage figures in the association show that in 1918 our members averaged 7.5 tons per acre, in 1919 9.3, in 1920 7.8 and this last year only 2.8. Frost hit the mountain districts and a discriminating wind blew 7,000 tons of pears off the trees along the river where a large portion of the canneries pears are produced. These figures apply to the entire tonnage, both eastern and canning, so you can see that if we were short of what we should have provided it was from causes that we do not yet know how to control. Even at that you canned 70 per cent of the previous year's pack.

Now a word as to prices: More than half our pears are sold at auction in the East where the buyers themselves set the price. In 1918, the first year of the association, the Sacramento River pears averaged the grower \$80 a ton, unpacked, in grower's packing house. This included about 35 per cent of No. 2 pears. The canner paid us for No. 1 pears what we asked, or \$70 a ton delivered.

In 1919 the average for all Bartlett's shipped east (No. 1 and No. 2) was \$95.46 a ton, and for River pears \$100.57 per ton. We sold you at \$85 a ton for No. 1, or \$15 a ton cheaper.

In 1920 the pears shipped east netted \$113.73 per ton, and the Sacramento River pears \$104.53 per ton.

The canner paid us \$100. It is true that all things were inflated, and it is probably true that we would have all been better off in 1921 had there not been inflation, but even in 1920 many canners paid outside growers a premium over the association price.

In 1921 the River pears averaged net return from eastern shipment of \$79.32; and all the pears from California \$69.69. You paid \$65.

I hope the jury will decide that we have at least tried to be fair.

The Future

Last year was the lightest crop since 1913. There have been two abnormally small crops. Unless all signs fail we are looking forward to the largest crop from the largest acreage ever harvested in California, possibly 130,000 tons as against last season's 78,000. If you will guarantee the weather we will guarantee the supply, and we shall hope for the largest pack that can be safely marketed by you.

During the next five years the total output should continually increase until it reaches 250,000 tons. It will take the combined efforts of all of us to find markets, fresh, canned and dried.

We have an advertising fund on hand. Last summer we experimented in a modest way with advertising and merchandising fresh pears in two cities, Boston and Philadelphia. At an expense of a nickel a box we more than doubled the demand for pears. We did this at a profit. This fall we expect to start to determine what we can do in a modest way toward increasing the demand for canned and dried pears. We are not forgetful of the fact that without increased demand many orchards may become liabilities instead of assets.

In the meantime I have one definite suggestion which will help to start the ball rolling, and I offer it to you.

The housewife pays a nickel more for a can of pears than for a can of peaches or cots. If pears are always to sell at a premium commensurate with the greater cost of canning pears then the housewife should have an extra value shown her to justify the nickel. We can do this in more than one way. But I will suggest today one of the ways.

Victor, presiding genius of the St. Francis, tells us and shows us that "Pear Salad, a la Victor," is a dainty dish fit to set before a queen. I used

to think before Victor got busy, that pear salad wasn't so much. The old fashioned pear salad was a chunk of pear and a hunk of mayonnaise. The ingredients quarreled. Victor's pear salad, on pear labels, will sell more canned pears. One canner has already arranged to use a recipe on his label. If you can see your way toward doing so, then you will start something, without cost, to be supplemented later on by not less than \$25,000 which we have on hand to work along other and more complete lines, next fall and winter.

In closing let me repeat that our association wants to work with each and every one of you in every matter in which our mutual future welfare is at stake. We hope to be able to do, so that some day you will all say, "The Pear Growers' Association is a fair growers' association."

FOLLOWING CALIFORNIA

Speaking before an overflow meeting of the San Francisco Advertising club, at San Francisco, T. C. Tucker, manager of the California Almond Growers' Exchange said:

"We who went from California to the agricultural conference as delegates found California already enthroned there, crowned with the glory of her farmers' achievements in cooperative organization. The most important recommendation made by the conference was national legislation encouraging organization of farmers' cooperative organizations, patterned after the California cooperative.

"Since that recommendation was made congress has passed and the president has signed such a legislative act. We may look for history-making developments along cooperative lines within the next decade.

"I found at the conference that California had suffered less from the agricultural and industrial depression than any other section of the country. I am convinced that her comparatively happy condition today is due to the stabilizing influences of her farmer cooperatives which give the farmer a voice in determining when and to whom he shall sell and at what price. Thus he has been given a fairer share of the consumer's dollar. Back up California's farm cooperatives. They are building a new California."

Agricultural News Notes of the Pacific Coast

Northern California

Glenn County has 2,000 acres in bearing almonds.

Antioch, Contra Costa County, is making plans to secure water supply from Sand Creek.

A tractor school will be held in Sonoma County, April 24-29. Exact location not yet determined.

The Wyandotte, Butte County Olive Association has decided to join the California Olive Association.

Some 40,000 acres will be planted to rice in Butte County this season. Last year's planting was 30,000 acres.

Turkey raisers of Willows, Glenn County received over \$100,000 for birds sold on the holiday market.

The California Almond Growers Exchange is calling on members to sign crop agency contracts running for five years.

The Lincoln highway has been rerouted to run from Oakland through Hayward and San Leandro.

At the hog auction held at Live Oak, Sutter County, by the farm bureau, 104 head brought average of \$10.70 per hundred.

Alameda and Santa Clara County vegetable growers are expecting good returns for their early crop which were little damaged by cold weather.

President O'Brien of the Tahoe-Ukiah highway announces that the state highway has let contracts for second unit of the highway from the Wadsworth slough around Morris Corners.

Several poultry culling demonstration farms will be located by the farm bureau of Sonoma County during May. Culling will be done in June and July. A flock competition contest will also be started in October.

Directors of the Sacramento chamber of commerce have appointed a committee to attempt the settlement of the suit by the city of Antioch and delta land owners against irrigators of the upper Sacramento Valley.

Several farmers in the Concord district of Contra Costa County who pulled up their grape vines are planting wine grapes; also many new vineyards are being set; largely to Zinfandel, Alicante Bouschet and Petite Sirah.

The Placer County farm bureau has elected for the coming year, John A. Livingston, Auburn, president; Henry W. Ahart, Lincoln, vice-president; Maud Elkins, Auburn, secretary-treasurer; J. A. Teagarden, Auburn, state director.

Land owners and business men interested in water development and irrigation or Northern California met with the state water board at Red Bluff, Tehama County, last week. Location of reservoir sites was particularly stressed.

Action on ordinance proposed for Glenn County, regulating amount of irrigation water which may be applied per acre, has been postponed for further consideration. The district attorney gives his opinion that its passage would be legal.

Growers of strawberry plants in the district from Castella to Delta in Shasta County are shipping largely to the Watsonville section. Horticultural Commissioner Stroup says they will send out 3,000,000 vines this season. They are receiving \$10 a thousand.

Central California

The Hume cannery at Turlock has already opened on spinach.

Four carloads of hogs have already been listed for Fresno's Pork Day this fall.

Plans are being made for a farmers' free market at East Bakersfield, Kern County.

Chas. F. Collins has retired from the office of horticultural commissioner of Tulare County.

The Danish Creamery Company will locate a large plant at Tranquillity, Fresno County.

Kern County supervisors have been making inspection of proposed sites for a county park.

A new center of the Stanislaus County farm bureau has been organized at Dry Creek.

Express shipments of fresh figs last season to New York were very profitable when precooled.

Two new cheese factories at Oakdale, Stanislaus County will be operating within a few weeks.

The California Fruit Exchange is planning to build a packing house at Terra Beila to handle this season's deciduous fruits.

Poultrymen of Delano, Pond, Jasmine, Earlimart, Richgrove, McFarland and Radnor held a poultry show at Delano the last week in February.

Kings County chamber of commerce says that county will make exhibits this year at the state fair and at the Southern California fair at Riverside.

Citrus growers of Richgrove, Tulare County are planning to erect a packing house to handle fruit of that district as well as of Ducor and Jasmine.

West Side irrigators will hold another mass meeting at Newman, March 17, to continue discussion of plans for safeguarding water supplies.

Erection of seven grain elevators in the San Joaquin, Sacramento and Salinas Valleys is planned by the California Farm Bureau Elevator Corporation.

Boundaries of the proposed Pine Flat irrigation project were definitely determined at a recent meeting in Fresno. The project is to be known as the Kings River water storage district.

The Tulare County farm bureau directors have organized with ten departments: organization and publicity, citrus, cattle, stock and dairy, deciduous, vineyard, home, marketing, utilities, poultry.

Bakersfield is planning to hold an election to vote on bond issue of \$150,000 to build levees to protect it from overflow of the Kern. The center of the business district is ten feet lower than the bed of the river one mile to the north.

The newly organized Turlock Melon Growers Association has already secured membership of more than 50 per cent of the melon growers of the district. They are preparing to demand cash on delivery for their melons this season.

The March meetings of the farm home department of the Stanislaus County farm bureau will be all day sessions and meetings will be held at Hickman school, March 14; Tegner, 16; Mitchell, 17; Patterson Community Hall, 20; Denair school, 21; Mountain View, 28.

Southern California

Blackbirds are a serious pest in the Imperial Valley.

Large sales of wool are reported from Imperial Valley.

Many additional plantings of cantaloupes and grapes are announced for the Palo Verde Valley.

An additional \$3,000 has been appropriated for use of weather bureau in citrus protection from frost.

The Costa Mesa Apple Growers' Association, Orange County, held its annual election last week and discussed marketing problems.

The Auto Club of Southern California recommends as precaution in keeping the Ridge Route open next winter that snow plows be maintained along the way.

Large contributions of beans are being made in Ventura County for Near East Relief work. They will be shipped March 6 from Los Angeles.

Shipment of peas from Imperial Valley has begun; tomatoes, it is now estimated, will start May 1, about a week later than usual owing to cold weather.

A tractor school will be held at Santa Barbara, March 27 to April 1, by the university extension service. Farm Adviser, Santa Barbara, can supply information.

The Limoneira ranch near Santa Paula is reported to have expended between \$15,000 and \$20,000 in orchard heating; Rancho Sespe between \$10,000 and \$15,000.

T. J. West of the Calxico Compress Company says that present indications point to planting of cotton on 180,000 acres in Lower California with 50,000 on the American side.

Apple and pear growers meeting at Yucaipa appointed a committee of 16 from apple and pear growing districts south of Tehachapi to devise a plan of cooperative marketing.

Members of the McPherson Heights Citrus Association netted an average of \$2.82 per packed box on citrus fruit shipped the past season. The association shipped 336 cars of Valencias.

The dairy department of the Orange County farm bureau has elected as members of its board of managers H. L. Wakeham, F. D. Plavan, J. R. Raitt, A. H. Moore, Steve Griset and M. Babylon.

Water conservation and reforestation are being urged by an association of city and county officials of Los Angeles. Chas. Bayer is chairman and Dr. Geo. Clements of the chamber of commerce, secretary.

Berkshire swine were to be seen in large numbers at Riverside this week during the American Berkshire Congress. 151 head were exhibited. 21 high school students participated in the junior judging contest.

Honey producers met in Riverside recently to discuss reorganization of their marketing organization. State Market Director Maddox has been holding meetings in southern and central counties in furtherance of the plan.

A test case is being made by the state department of agriculture of the shipping by John Cieghorn of the Highland district of a car of frosted oranges showing "marked drying in more than 20 per cent of the exposed pulp in more than 15 per cent of fruit."

The Coast and General

Portland's Rose Festival will be held June 7-9.

Homemakers' Conference, Oregon Agricultural College, Corvallis, March 20-26.

Arizona will hold its state fair this year. October 30-November 3 are the dates.

The next annual meeting of the National Grange will be held in Wichita, Kansas.

Onion growers of Cochise County, Arizona, are organizing a marketing association.

The Arizona Cattle Growers Association held its annual convention at Globe, February 23 and 24.

Farmers of the Pecos Valley of New Mexico have agreed with the Roswell gin to plant 3,000 acres of cotton.

Acreage planted this year to cantaloupes in the Salt River Valley of Arizona will be the largest ever grown there.

County Agent Pickrell of Yavapai County, Arizona, is in Missouri making purchases of pure bred bulls for cattlemen in his county.

The senate has begun investigation to determine whether a monopoly exists among the dye and chemical makers and to probe activities of their lobbyists.

A new potato quarantine has been issued by the state of Washington against entry of potatoes from California. This to prevent introduction of potato eelworm.

J. E. Mundell, newly appointed county agent of Yuma County, Arizona, has been for a number of years in charge of a government dry farming project at Big Spring, Texas.

California leads in growers cooperative marketing and according to U. S. census 25,772 farms in California market crops cooperatively, selling 17.6 per cent of the cooperatively sold produce in the United States.

Sugar beet growers of the United States have arranged with Cuban sugar interests to limit exports to this country "to the extent considered essential to their interests by the American beet sugar interests."

The bureau of the census and the United States forestry service will cooperate in collecting statistics on lumber resources in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington and Wyoming.

The Whatcom County Dairy Association, Washington, recently made contract for delivery of 1500 tons of powdered milk from its Lynden plant to a New York firm. The deal represents more than \$200,000 and will take from six to eight months to complete.

C. J. Fawcett, director of wool marketing of the American Farm Bureau Federation, reports that practically all of the pooled wools in the various concentration points have been disposed of on a gradually rising market. Particularly is there shortage in the finer grades.

The Commonwealth Farmers' Association of Australia is fathering a plan for a world wheat pool formed by cooperating grain growers of Australia, Canada, the United States and Argentina. President Trethowan of the Australian association is planning a visit to London, Canada and the United States in March.

The State Dairy Cow Competition, 1920-1922

TWO years ago dairy farmers endorsed the plan of arranging for a dairy cow competition to be conducted by the division of animal husbandry of our college beginning in the fall of 1920. After a conference with a representative committee of dairymen and breeders we were able a few months later to announce the competition. This information was published in the form of a station circular which was distributed during the summer of 1920 to dairy farmers and breeders in all parts of the state. Wide publicity was also given to the competition through the agricultural and dairy papers and the press generally. In the objects sought and in general scope and plan the new competition closely resembled the one conducted by the college during 1916-18, the story of which is told in Bulletin 301. We took advantage of the experience gained in that competition and further emphasized the importance of production records by grade and common dairy cows or herds, through more liberal prizes and a larger proportion of these for groups of cows and single cows in such herds. The educational value of a competition of this kind to the rank and file of our dairy farmers is readily seen. They are, as a general rule, behind breeders of pure bred stock in their methods of dairying and relatively few appreciate the vast difference in the capacity of different cows for dairy production or the possibility for increasing production and returns from a dairy that may be reached through adoption of modern methods of feeding and management.

Only about two and a half per cent of the dairy cattle in this and most other states in the union are pure bred registered stock; all the others are just common or scrub cattle of un-

From Address by Prof. F. W. Woll in Awarding Prizes

known or mixed breeding. Both because of their large number and the way in which they are frequently fed and handled anything that can be done to impress on their owners the possibilities of the modern dairy cow will in the aggregate lead to a marked advancement of the dairy industry of the state. Hence in this competition more than in any previous similar undertaking special efforts were made to interest owners of common herds through large and numerous prizes for high records of production. In this we were fortunate in securing the hearty cooperation of the officers and testers of cow testing associations in all parts of the state.

During late years the number of cow testing associations in California has gradually increased until now there are more than 20 of these in active operation. While these associations appeal mainly to the more progressive dairymen they are powerful agencies for improved dairying in the various communities where directed by a live association tester backed by interested public spirited officers of the association. The amount of good that an association tester can do who has the confidence of the farmers is not half appreciated by most people, but it is a fact that the right kind of a man in this position can have more influence toward changing methods and improving dairy herds in his territory than many a college professor or outside speaker whom the practical man too often adjudges theoretical and visionary.

In our efforts to get close to the cow testing association work of the state in connection with the new competition we were very successful in the

case of two of our most important dairy counties, Los Angeles and Humboldt, and also in the case of others more or less success was scored. Reviewing the results of the competition that comes to a close tonight, it seems to us, however, that it may be fairly characterized as a seesaw between dairymen located in these two counties, as you will soon realize later on. While 21 different counties in all were represented among the owners of cows and herds enrolled in the competition, the only two counties other than Los Angeles and Humboldt that had more than a couple of dozen cows to their credit were Stanislaus and Yolo; on the other hand there were 234 cows entered from Los Angeles County and 183 cows from Humboldt. The cause of the liberal support from these two counties can be traced directly to the interest that the officers of the local cow testing associations and the association testers took in this competition from the beginning.

The competition commenced September 1, 1920, with an enrollment of less than 100 cows. Owing to a change in the personnel of the division and to my own absence on leave up to November 1, entries came in rather slowly at first and did not exceed 200 cows until in January, 1921, but from that time on there was a rapid increase in enrollment, and when the entries closed on April 1 last year it was found that over 1,300 cows had been entered in all. Of these, nearly 800 were entered in competition for monthly or ten month records of production and the balance for yearly cow testing association records, the latter all from Humboldt County. Our

four main dairy breeds and dairy Shorthorns were represented among the pure bred cows entered, the Holsteins leading in number, with Jerseys, Guernseys, Shorthorns and Ayrshires following in the order given. Among the grade or common cows Jersey blood predominated, with grade Holsteins, "common" or scrub cows, so called, and Guernsey, Shorthorn and Ayrshire grades following in the order given.

The cows were owned by 71 different men located in 21 widely scattered sections of the state from Del Norte and Humboldt in the north to San Diego and Imperial Counties in the south. The competition was, therefore, truly statewide, as intended.

Monthly reports were issued regularly during the progress of the competition as soon as the returns were in; these were sent to the participating dairymen and to others who had shown their interest in the work. The press was also supplied with regular monthly summaries of the results and gave these liberal space, both in the case of the agricultural and dairy papers of the state and the city and country newspapers. A keen interest in the results published was evidenced, more particularly as to the awards of the monthly prizes of \$25, or a silver trophy of equal value, offered by the California Cultivator. This prize, which was given for the highest average production of butter fat for five grade cows in a herd, was won seven times by the Los Angeles County dairymen and nine times by Humboldt County dairymen, and only once did it go outside these counties, viz., to San Joaquin County, in September, 1920. These 17 prize winning groups of grades averaged 1,440 pounds milk and 67.65 pounds butter

(Continued on Page 272)

The Association and Bean Marketing

THE fourth meeting of the California Bean Growers' Association was held in San Francisco on Saturday, February 18, with a representative attendance from all sections of the state. President J. V. Mendenhall, in his annual address said in part:

The fourth year of the association just ended has been a momentous one. It has been a year of readjusting and reorganizing of its internal affairs, as well as of adjusting itself to meet post-war conditions.

The abnormal conditions which have existed from the very day the association was organized, up to the present time, have certainly not made it easy for it to function as it should nor to bring results which ordinarily would have rewarded our efforts. However, it is not necessary to dwell on the past history of the association, as it is well known to all. Business and financial conditions are improving, and the only way to success is to keep on.

The association is now on a sound business and financial basis. It is ready to proceed with the constructive work which has always been in view—to make bean growing in California profitable by stabilizing the market, through the wise control of the crop, to secure and hold the bean trade by giving it a standardized product, and to market the crop in an orderly manner, thereby guaranteeing to the producer that he will receive the average price at the average cost of doing business for the year.

New Bean Crop Agreement

Several months were occupied in preparing the present crop agreement and formulating amendments to the by-laws to meet its new conditions. Crop agreements and by-laws of many cooperative marketing associations in this and other states were consulted, as well as the best legal and financial authorities. The result is the present crop agreement which, it is believed, meets all requirements, and at the same time works no hardship on any member who has the cooperative

spirit and desires to live up to his obligations.

Association Extends Its Scope

During the past year the association has extended the scope of its operations to those counties south of the Santa Maria-Lompoc district, and now includes what is known as the Los Angeles district, comprising the bean growing section of Los Angeles, San Bernardino, Orange and San Diego counties. A large majority of the growers of beans, "other than Limas," were signed up in the counties mentioned. This membership campaign will be continued during the present year and the indications are that before the 1922 crop is harvested, fully 90 per cent of the growers will have become members of the association.

Warehousing and Processing

The success of every cooperative association in California is based primarily upon the fact that the product it handles has been standardized and advertised, until today California grown products are known all over the civilized world and have the preference of the consumer over similar products grown in the other sections of the country—except beans.

Beans are one of the few crops of the state that have neither been standardized nor properly advertised. Realizing the absolute necessity of standardizing California beans and the fact that this can only be accomplished by having complete supervision of the crop from the time it is harvested until it goes into the hands of the trade, the management has been authorized by the directors to prepare plans and recommend a site for the erection of its own processing and warehousing plants. This work is now going forward, and a report will shortly be ready for the members.

Advertising California Beans

The question of advertising our product under its own trade-mark must also receive our attention. In a recent address before a business organization in San Francisco the representative of one of the largest advertising mediums in the country said:

"Recent plantings in all parts of the state show that California crops are going to be larger in the future than in the past. It means that people of this and other countries will have to be induced to eat more of these products. The best way to induce them to do this is to tell of their goodness, and the cheapest way is to advertise. The task of selling these crops is not going to be an impossible one, for the reason that all are good, and the people of this country can be induced to increase consumption of them if they are told in an attractive and intelligent way of their goodness. The consuming power of the country is enormous. It is far beyond the belief of most people, as clearly shown in comparatively recent consumption of oranges, raisins, prunes, walnuts and other California crops. A very slight increase per person will result in a large increase for the crop.

"Success of the advertising efforts for all California crops is of vital concern to all the people of the state. Successful marketing of these crops is reflected in every quarter of the state. Each day's work that is provided by large industries, whether it be in a vineyard, field or orchard, in a packing house, office or on transportation lines, is one more nail in the prosperity of California."

Areas of Distribution Enlarged

The association is gradually enlarging its avenues of trade, both domestic and foreign. Eastern connections in the selling centers are being added to from time to time and recently a remunerative market has been established in Cuba and other West Indies islands. During the past six months we have shipped to Cuba alone about \$60,000 worth of beans, principally Large Whites, Pinks and Mexican Reds, and the indications are that this particular market will continue to serve as a profitable outlet for a large tonnage of those varieties.

Adverse Propaganda

The past 12 months have been difficult ones for cooperative associations from the point of adverse propaganda which has been and still is being

spread by those interests which are inimical to any organization which has for its object the more economical marketing of the products of the soil and the securing for the producer of a fair profit in return for his investment and labor.

As an instance of just what is being done in this direction the following is quoted from a recent press dispatch dated Washington, D. C., where a senate committee has been investigating the activities of the National Grain Dealers' Association, which was formed last year for the alleged purpose of combating the United Grain Growers', Inc. The secretary of the grain dealers is quoted as having admitted at this investigation that it had spent during six months of last year \$72,757 in combating the farmers' cooperative movement. He is also said to have criticized the secretary of agriculture for what he termed his failure to "check the pernicious political activity of farm bureau county agents."

The Weevil Menace

There is one important matter which seriously requires the attention, not only of our members, but of every bean grower in the state, one that is a growing menace to the industry. It is the alarming increase of weevil in certain sections. Reports from those sections which heretofore had shown but slight damage by the weevil, last season indicated that a greater amount of beans were affected, while known infested sections showed a rapidly increasing development.

Weevil can be quickly and effectually stamped out if growers will give more attention to the planting of certified seed, better cultural methods and closer attention to the handling and storage of the crop in warehouses known to be free from the pest. This is another vital reason why the association should handle the crop after harvest, as investigation has definitely and conclusively shown that many fields have been infected through migration of the weevil from the cleaners and warehouses, as well as the crops being infested in storage.

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This Orchard Yields an Average Income of Six
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RELIABLE TREES AND VINES

are essential to the great fruit industries of the Pacific Coast.

OUR EXPERIENCE

has been gained through thirty-two years of progression in the nursery and orchard business in California.

WE OFFER OUR SERVICES

in undertaking the planting and care of commercial orchards for prospective owners desiring a profitable orchard or vineyard without undertaking the improvement work. We will furnish the land and bring it into bearing under the guarantee that it will be PROFITABLE, or ALL MONEY invested will be returned to the customer with interest. The payments made by customers constitute a first lien on each subdivision tract. If every property becomes highly profitable as we plan all customers will take deed. If for any reason some of them should prove to be only fairly remunerative the customer has not taken a greater hazard than to make a safe real estate loan.

We have been growing orchards for others in conjunction with our nursery business for several years. ALL of these have been profitable to our customers. We are now in a position to serve those interested in high class income properties to the best advantage. Lands already secured for this purpose are situated at strategic locations on or very near paved highways and the very best of soils that can be secured regardless of cost. We now have growing or in the course of improvement a total of sixteen hundred acres, including considerable plantings of Thompson Seedless, Malaga, Emperor and Muscat Vines, also canning and drying peaches, apricots, plums, prunes and figs, including one of the finest young Kadota orchards in the state. These plantings are in Kern, Tulare, Madera, Contra Costa and Merced Counties, adjacent to thriving towns, modern schools, etc. We are willing to put our money in with our customer's and safeguard him against any possibility of a loss. Our part of the investment and our profit comes out of the crops of the properties. Details and location of properties on application.

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Rudiment of Citrus Fertilization

By E. L. Koethen



THE most important element of plant food is nitrogen; it is also the most expensive. There is no other chemical element that compares in importance to the horticulturalist with nitrogen. The air we breathe is made up of 79.02 per cent nitrogen, and yet the plant that grows in it cannot take it into its system except in very small quantities without the aid of outside agencies. It is also the element most likely to become exhausted in our soils as nature is continually on the job of reducing it to the original state in the atmosphere. It is also likely to be found in your soil in a water soluble condition subject to wastage through rain and irrigation run-off. It is the part of good orchard practice to prevent these drains upon the nitrogen supplies in the soil.

The sources of nitrogen for plant use are organic or inorganic, that is, from vegetable and animal matter or from chemicals. As the Japanese who was buying fertilizers classified them—pointing to the nitrate of soda he said "Too muchy medicine." He meant he wanted his fertilizer to be derived from organic sources. He knew the difference between a chemical agent which was quickly available, but also quickly dissipated, and one which is in a natural organic form and becomes available as it becomes decomposed. The organic almost always costs more on the market than the inorganic and is worth more because there is a limited supply and we must have it. The production of inorganic fertilizers is only limited by the size of the production plants and the power available to run them.

The organic materials at our command can be divided into two classes; commercial or sacked goods and raw materials such as manures, straw, etc.

Of the former class blood runs from 12 to 14.5 per cent nitrogen and contains little of other fertilizing elements. Tankage, being a product of the slaughter house also, contains nitrogen from 4 to 10 per cent and phosphoric acid from 2 to 20 per cent, the proportion depending upon the proportion of blood or meat and bone contained in the material from which it is made. The higher the nitrogen content the lower the phosphoric acid will be and, again, the higher the phosphoric acid content, the lower the nitrogen must be. If the proportion is much out of ratio the buyer may be sure there is some reason to be found

in doctoring it with inorganic matter. The purchaser of fertilizers should be sure that there is no substitution for organic matter in order to fortify a low grade material.

The special office of nitrogen in plant feeding is to encourage growth of wood, leaf and fruit. A tree starved for lack of nitrogen will have small leaves, light green or yellow in color, and the wood growth will be short and thin. Of course plant growth needs all the elements, but this is the special office of this element.

Next in importance as a plant food is phosphoric acid. As shown above, it is found in variable quantities in tankage, bone, and manures. It is also found in certain manufactured products. Superphosphate is usually made by treating phosphate rock with sulphuric acid in proper proportion. The product is what is called an available phosphate. This question of availability is a mooted one. It is true that it is water soluble when placed on the land, but there are those who tell us that it reverts as soon as it comes in contact with the lime in the soil. The area of penetration after being applied is said by these to be but a few inches.

The third essential element that is liable to be deficient in our soils is potash. The state chemists tell us that most of our soils are supplied with enough of this element to last for many years. In such case the way to make it available is to give the soil an abundant supply of humus, and the problem is solved. We are convinced that in most cases where the application of potash has benefited orange orchards it would be found that there was a lack of humus and the available potash applied acted where the natural supply was locked up. In the application of potash salts only the sulphate of potash should be used as the lower grades are in association with chlorine compounds that are not good for citrus trees.

The fourth element that is likely to be deficient is lime. We have rested assured for years on the statement that our soils are most of them well supplied with this element. But now we are awakening to the realization that we were mistaken, for so many applications have been made on various orchard soils with beneficial results that we can no longer disguise the fact that many of our soils are deficient in lime and that it is beneficial to supply it in many instances.

March in the Vegetable Garden in Southern Arizona

By M. E. Bemis



MARCH for the ambitious Arizona gardener is quite possibly the most important, if not the busiest, month of the year. A greater variety of things may be planted, and it is the month for planting some of the most important things. The list begins alphabetically with asparagus, and incidentally there are some that believe that asparagus also leads in order of importance as a commercial crop.

This crop ripens early here and always brings good prices. It is of especially fine quality, and trial shipments to eastern markets have proved that there is a possibility of making it a great commercial asset. In returns per acre the reports of the Salt River Valley Water Users' Association show that it is first. Palmetto is the one variety that is recommended for this section. Seed may be sown this month, either in beds broadcast or in rows a foot apart. When rooted, which will be at one year old, it should be transplanted. Some prefer the two year old plants. Rooted plants should be put out in rows three to four feet apart and a foot apart in the row. Roots should be planted not less than six inches deep.

The spring crop of beans may be planted in March. Of bush varieties the Improved Stringless green pod; Black wax and Improved Golden Wax are especial favorites. Burpee's Bush

Lima and the Large Pole Lima are the favorites of the Lima varieties. Kentucky Wonder, Kentucky Wonder Wax and Broad Windsor are best for the pole varieties.

Beets, carrots, lettuce, mustard, early peas, onion sets, radishes and spinach as mentioned in previous articles are still in order for March. Cucumbers may be planted in March. Plant in hills four feet apart each way 8 to 10 seeds in a hill. Cucumbers are sometimes ready for the table six weeks from planting. Klondike, Improved Long Green, Boston Pickling, Arizona Davis Perfect, Early White Spine, Improved Long Green, Lemon and Japanese Climbing are all recommended varieties for Southern Arizona. Citrons are little grown, although they have a place in adding to the variety of preserves. For those who wish to raise them March is a good month to plant. The Preserving citron is the variety for making preserves and the green seeded variety is for stock.

March is the month for melons, especially watermelons. For the very early market many plant in February, covering the plants to protect from frost. The main crop of cantaloupes it is desirable to have ripen early in July, hence the main crop is not planted so early. For the home garden or for local trade plant now. There are many excellent kinds of both water-

melons and cantaloupes. The Klondike is an old favorite, with the Tom Watson a close second. Kleckley Sweet has many admirers and the Chilian melons, both white and black seeded, are popular on the market, although probably not yielding quite as heavily as some others. A new variety was brought to the Phoenix market last year by a grower at Mesa, which was of extraordinary size and splendid flavor. This was from seed brought from Texas from a variety bred up by the originator and which had been further improved by selection in the Salt River Valley. Of cantaloupes the Rocky Ford, Improved Eden Gem and other Gem varieties, as well as several others, are grown successfully and make good shippers. The acreage of cantaloupes in the Salt River Valley this season will be the largest ever grown. Honey Dew melons are being grown more extensively each season. They are splendid shippers and following as they do the cantaloupe crop usually bring good prices.

Pumpkins are in order for March planting. Probably they will never become a commercially important crop but for the home garden should be planted more extensively. Almost all varieties grown anywhere do well here and may be planted either as a spring or fall crop.

Squash should also be planted in March. Squash is easily grown, a general favorite on the local markets, and may have some commercial possibilities for nearby markets. Either the Bush Scalloped or Summer Crook-neck for summer squashes are splendid. Winter varieties such as the Hubbard mature in July and August if planted now and bring good prices on the markets. All squash are easily raised.

Parsnips and salsify should be planted in March. There is only one best variety of each, the Hollow Crown parsnip and Mammoth Sandwich Island salsify.

Tomatoes may be planted as seed in the place where they are to grow or be set out from plants that have been raised in covered beds. Probably the plant method is best. The Phoenix Special, Chalk's Early Jewel, Dwarf Stone and several other varieties are all good.

Peanuts are not grown as extensively as they should be. Some difficulty has been experienced in getting always a satisfactory germination and consequently a good stand, but there are still, in spite of handicaps, many who believe that peanuts are one of our most popular crops, and for the home garden certainly there is a place for peanuts.

THE EVAPORATOR CONFERENCE

By Norman Lombard

Conferences seem to be the order of the day, and if they are effective in clearing up international difficulties they should be equally desirable in business and everyday affairs. Accordingly several hundred growers, financial people, university professors, officials of cooperative associations and representatives of evaporator manufacturers and contractor-builders of evaporators were asked to meet on February 18. The conference assembled at San Francisco, traveled through the Santa Clara Valley and ended its tour at the Hotel Vendome in San Jose, where a banquet was spread.

Several different types of evaporators were examined on the tour and their owners interviewed. Growers from various parts of California who were present had thus a splendid opportunity to study the whole subject of evaporation without fear of undue influence by salesmen or enthusiasts for any particular type or make, and it is conservative to state that numerous converts to evaporation were made on the tour itself, especially when it was realized that the standard field trays can now be used in the modern evaporator.

Professor Christie, evaporator expert of the college of agriculture explained that he was conducting an investigation into the cost of sun drying and had already gone far enough in the work to demonstrate that evaporation was cheaper than sun drying, all factors considered. He explained that the cost of the evaporator would be just about offset by the value of the dry yard, which is frequently the

best land a grower owns and should be producing fruit. The aggregate acreage lying idle in dry yards is now tremendous and should be reduced. He stated that labor, materials and all factors in both methods of drying had been calculated from figures furnished by growers and he pronounced evaporation cheaper than sun drying only after mature deliberation. Of course in some years sun drying is impossible at any cost. The cost is increased by the necessity of stacking, some years more than others, to say nothing of damage caused by rains and heavy dews.

As to quality and weight of the two products, evaporated and sun dried, he cited that of the whole lot of evaporated prunes delivered to the association last year (a perfect sun drying year), 94 per cent had been given the highest quality rating, a remarkable statement, since these "evaporated prunes" included rain damaged fruit which had been rushed through evaporators to save it, and this rain damaged fruit should really not be considered in the class of fruit dried

entirely in evaporators. He stated that evaporated fruit was heavier (less shrinkage in drying), sweeter (because no sugar was lost in fermentation), more pliable and attractive to consumers, had better keeping qualities (because it does not sugar up after packing), and that it was generally free from streaks and air pockets and the golden pit, typical of the best evaporated product, was proof conclusive that the prunes had not fermented either during drying or afterwards. From a sanitary point of view: No objectionable foreign matter can contaminate the fruit cured in an evaporator. Also evaporated fruit lends itself better than the sun dried article to packing in small cartons, which is the method of packing preferred by consumers.

He predicts a great increase in the use of evaporators now that the long period of experimentation and "wild catting" had passed and the really efficient types of evaporators had proven themselves in actual practice.

Several growers presented facts

showing their satisfaction with the results of their experiences with evaporators.

FARM BUREAU MEETINGS IN TEHAMA COUNTY

Regular monthly meetings of the centers of the Tehama County farm bureau: Oak Park, March 10; Johnston-Reeds Creek, 13; Red Bank, 15; Bend, 17; El Camino, 20; Stanford, 22; Liberal, 23; Flourney, 24; Bowman, 25; Richfield, 27; directors, Red Bluff, 25.

Farm home department meetings: Antelope, March 14; Richfield-El Camino, 15; Dairyville, 16; Bend, 17; Oak Park, 20; Vina, 21; Squaw Hill, 22; Flourney, 23; Red Bank, 24; Red Bluff (county meeting), 25; Bowman, 28; Corning, 29; Henleyville, 30.

SELF BORED PROBABLY

"Chollie looks tired. Does he work hard?"

"What! Chollie? He works just about as hard as a sundial does on a rainy day."—Boston Transcript.

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Every Willard Battery Station is conducted according to definite Standards of Service. These are as follows:

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- 2 To maintain such location, equipment, and personnel facilities as will permit each station to offer a complete inspection and advisory, filling, repair, rental and replacement service, in keeping with the needs of the locality in which it is established.
- 3 To maintain repairmen of broad experience, judgment, and mechanical and electrical ability, upon whom owners of all makes of batteries can depend for accurate reports and sound advice as to the condition of their batteries, as well as expert repair service when needed.
- 4 To remember that good-will is the most precious of commercial assets to each one of us; and that the battery owner who comes in for testing and water is as welcome and as fully entitled to prompt, cheerful, expert service as the owner who is in need of work that creates revenue.
- 5 To manifest at all times, and to all visitors and customers, the same courtesy, interest, helpfulness, and good-will that we would like to receive if the position were reversed.

WILLARD STORAGE BATTERY COMPANY, Cleveland, O.
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THREADED RUBBER BATTERY
Willard

March in the Ornamental Garden

Southern California

By Ernest Branton

WING to the absence of hot weather nearly all gardening operations suggested for February may be carried on during March. At this season gardeners propagate hard wooded trees and shrubs with considerable success, even such ornamentals as gingko (malden-hair tree), mulberry and sycamore, also the shrubby flowering quinces. Figs, grapes and olives also root well now. Bridal wreaths (spirea) and many other deciduous flowering shrubs will also root from cuttings, but as gardeners want to make sure, and not spend too much time, they generally layer, that is, cut half way through a low branch, push this part down to or into the soil and cover until rooted, either pegging, down with a wire like a

large hairpin or keeping in place by plenty of soil on top. Plants for such treatment are carissa deutzia, fuchsia, feijoa, forsythia, crepe myrtle, lemon verbena, honeysuckle, magnolia, wiggelia and wistaria.

In making cuttings pruning shears will not do unless cuttings are later trimmed at both ends with a very sharp knife. Cuttings may be six or more inches long, put in soil with one bud above surface and the second one just at surface. Do not push them into soil, but either make a trench or first thrust down a stick larger in diameter than the cutting. To push them down in stiff or harsh soil, bruising the ends, is to invite failure. It is well to note a warning that while cuttings may be taken, present pruning of some of these shrubs will cut away the spring crop of flowers. Prune these immediately after flowering. Altheas, fuchsias and hydran-

geas may be pruned now as they flower much later in the season and on new growth.

It is still not too late to sow seeds of native wild flowers. Get a good sized package of mixed California natives and sow broadcast, giving plenty of water. It is also a good time for broadcasting all flowering annuals. If sown too thickly do not be afraid to thin well, taking out the weaker plants. Unless well thinned the plants will not develop and the flowers will be few and inferior. As a rule seeds sown two months ago have made little progress because of lack of sunshine and heat. For this reason the last sowing of sweet peas may be made; also alyssum, calendula and larkspur. With a touch of hot weather garden sowings (outside seed beds) may be made of ageratum, begonia, coleus, heliotrope, periwinkle and verbena. Many bulbs may still be planted with assurance of fine flower crops, and no better time than now could be chosen for fertilizing or renovating lawns.

Propagation by division of nearly all perennial roots is best done just as they start spring growth or generally during March. Delphinium or larkspur, goldenrod, golden glow, perennial sunflowers and phlox, penstemon and Shasta daisy are a few of the more common of this type. Clumps of chrysanthemums may now be disturbed or stimulated to get cuttings for the coming autumn's flower crop. A prize winning grower takes his cuttings about the middle of March but has fine flowers from cuttings rooted throughout the month of April. Growers of good 'mums root cuttings each year and then throw clumps away, though these latter may be divided and produce fine flowers for house use. During the latter part of March one may plant and divide calla, canna, dahlia, tigridia, tuberosa, plant out the last of gladiolus and other bulbs.

Northern California

By A. R. Gould

WE are getting now into early spring, which means that there should be great activity in the garden. The soil will now respond and seeds will germinate much more quickly. The next few weeks should see everyone busy transplanting as the conditions will be very favorable.

Roses may be planted now and also pruned back. Shade trees, conifers, shrubs, may be planted now, but do not lose sight of the fact that when planting, no matter how small the plant, it should be placed correctly in the position best suited to it and the soil should be well prepared. The hole should be dug large enough and proper space given for root development, as this will mean much to your success in garden development. Correct grouping and arrangement are other important details. In purchasing your trees and shrubs select only the best stock, as it is better to pay a little more and have the right quality than to get cheap weak material that will cause disappointment after time and trouble have been wasted. The best is always the cheapest in the end even in plants.

The slugs just now are getting very busy, and perennial plants in the borders should be thoroughly gone over to destroy them.

Seeds to Sow

Godetia, scabiosa, balsam, petunia, centaurea, cosmos, larkspur, celosia, schizanthus, nemesia, chrysanthemum, dianthus, linaria, clarkia, marigold (African and French), verbena and blue daisy. All these may be sown on a warm border and will transplant easily and give a wealth of bloom.

Early Flowering Sweet Peas

These will now require a stimulant, and liquid manure is ideal. Water three times a week if you wish to have choice blooms and they will keep blooming much longer.

The Water Garden

Water iris thrive in the pool, and the yellow and blue varieties are very pretty, also water poppy, a charming yellow aquatic, and parrot weed, which quickly spreads and has delicate foliage. Then there are a great number of varieties of water lilies, some hardy, some night blooming and some tender.

Climbers

The best climbers for a quick effect are cobeia scandens, Tecoma Australis, mattress vine, passiflora and wild grape, and, of course, some of the stronger growing climbing roses. If you need something very choice as a climber the wistarias are hard to beat. Bignonia cherere is also a pleasing shade and the white and yellow jasmine is fragrant. All these should be given consideration.

Stocks

These very popular flowers will give you bloom throughout most of the summer. They need a fairly rich soil and not too much water.

Southern Arizona

By M. E. Bemis

THOSE who are fortunate enough to be able to secure plants of asters for replanting, or were thoughtful enough to plant the seed of this old favorite in January, may plan in March to transplant into the open.

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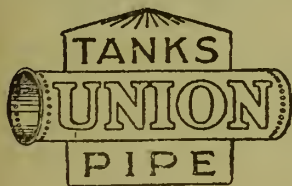
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If given proper attention asters will furnish a wealth of rich blossoms and in varieties of crimson, lavender, pink, white and mixed colors. They need rich soil, but fresh manure should not be used, only rotted manure or compost. Balsams are easily grown, and March is a good time to plant them. Transplanting several times is said to increase the tendency of the plants to produce double blossoms. Best results are obtained by giving them plenty of room and an abundance of water.

Among the plants that grow three feet or more in height and are suitable for the background of flower beds may be mentioned the feathered cockscomb, celosia or celosia plumosa. The flowers are crimson or yellow. The plumes are also ornamental and may be cut and dried for winter flowers. March is the month for planting. Cosmos is another plant that grows to a height of three feet or more and may be utilized for hiding fences or planted against evergreens. The plants should be thinned to 18 inches. Seed may be had in crimson, pink and mixed colors. Castor beans should also be planted in March. There are two varieties which do well in Southern Arizona. The large crimson flowering is much used to produce quick shade. Plants of this variety frequently grow to a height of 15 feet in a season, with branching limbs that furnish as much shade as a good sized tree. The smaller variety is more ornamental.

The helichrysum or strawflower, may be planted now. Rich soil is preferable and transplanting improves it. Four o'clock, larkspur, marigold, nasturtium, petunia, portulaca, sweet alyssum, verbena and zinnia are all old favorites that should have a place in the flower garden, and March is the month to plant them.

All vine seeds should be planted in March. Among these are the Australian pea vine, balloon vine, balsam apple, scarlet runner bean, cardinal climber, cypress vine, dolichos, or hyacinth bean, all kinds of gourds, kudzu vine, moonflower, morning glory and passion flower.

It is not too late for some of the bulbs such as dahlia, gladiolus, Madeira vine, tuberose, canna and caladium. Rose bushes are better set earlier but may still be put out with good success.

Sunflowers are grown for poultry feed, for silage and for shade, but in spite of the usefulness of this plant it is appropriate to include it among the flowering plants that should be planted in March.

STRAIGHTENING WIND BLOWN TREES

I notice frequently accounts in your columns and elsewhere of orchardists' troubles in straightening up wind blown trees. I have used a method for many years with unvarying success, adapted from the Wisconsin raftsmen in handling floating lumber, then known as "the Spanish windlass." The equipment necessary is very simple and inexpensive and results positive.

For ordinary trees, as peaches, apricots, etc., from six to ten inches, one requires a length of 1½ inch pipe, six feet or so long, a crowbar or piece of two by four scantling for a lever, and 25 to 30 feet of good inch rope, a smaller rope for lighter trees and a longer one for taller ones. If doing the work single handed two guy ropes from the top of the vertical pipe to near by trees are necessary. A rope like a clothes line is sufficient as the strain is not great, and a bit of cord to tie the lever to the rope while installing props. If with a helper the guys are unnecessary, as the pipe is easily kept upright by holding.

Method of using: Tie the rope well up on the tree to be raised, inserting a folded gunny sack if bark is tender. Stretch rope in direction tree is to be raised, make a loop hitch and insert crowbar or whatever may be used for a lever. At this point stand the pipe vertically, projected a few inches into the soil, start winding the rope on pipe by simply walking around pipe with the lever (use lever long enough to make the work easy). Trees should be pulled a little more than plumb, anticipating some back settling.

If a heavy pull is required and the soil is loose a block imbedded in the soil at the foot of the pipe will prevent dragging. If the tree is over so far the pull will be horizontal set two by

He beat the train to the crossing a good many times

"It's never touched me yet," he explained when they pointed out the risks.

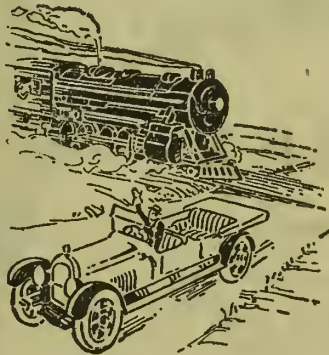
That's the answer a good many people make when they hear that the drug element in tea and coffee often harms nerves and health. They say it's never touched them yet.

Sometimes they only *think* it hasn't.

Wakeful nights, drowsy days, headaches that keep coming more frequently—often are blamed on bad luck when the blame belongs on bad judgment in taking needless chances with harm.

Over on the safe side is Postum, a pure cereal beverage, delicious and satisfying—containing nothing that can harm nerves or digestion. Thousands who used to try their luck with tea or coffee are enthusiastic over having found safety and satisfaction in Postum.

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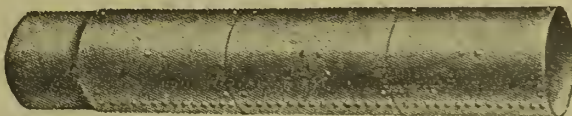
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four under rope near tree to get an up pull for a starter.

Position of small buildings is easily shifted by this device.—Subscriber, Escalon.

COOPERATIVE CANNERIES

At the recent annual meeting of the trustees of the California Cooperative Canneries Albert Haentze was elected president. Mr. Haentze has been active in the work of the association, having served for the past two years as secretary and treasurer. From the report of the meeting made by the San Jose Mercury we quote:

The annual meeting of the trustees of the California Cooperative Canneries, held recently in San Francisco, resulted in the re-election of the same board of directors which has conducted the affairs of the big growers' canning concern during the past year. This board is made up of Messrs. Albert Haentze and S. E. Johnson of San Jose, Frank L. Blain of Visalia, M. S. Amerine of Modesto, and Vernon Campbell, the general manager of the organization. A vacancy existing in the board of trustees, created by the retirement of Frazier O. Reed of this city, was filled by the election of Frank P. McCray, who is one of the prominent growers of the Sunnyvale district and a prominent civil engineer.

A change in the executive management of the canneries was made necessary by the retirement of S. E. Johnson from the presidency of the corporation. Mr. Johnson has served

in this capacity for the past three years and retires from office much to the regret of his fellow associates. He will continue as chairman of the board of trustees.

The position of secretary and treasurer made vacant by Mr. Haentze's elevation to the presidency was filled by the election of D. C. Moore. Mr. Moore has been auditor of the company for some time and is thoroughly equipped by broad business exper-

ience for the position he now holds.

Vernon Campbell continues in the capacity of vice-president and general manager. Mr. Campbell has pioneered the way for cooperation in the canning industry. For the past year he has been fighting in Washington for the modification of the packers' consent decree which deprived the cooperative canneries of their largest market.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Plants Named.

Am sending two specimens for identification, one a flowering shrub, the other the fruit from a small plant. Is the flowering shrub a species of boxwood and how do you start new plants from it? Is the other suitable for a potted plant? Is the fruit poisonous or good to eat?—Subscriber, Orange.

The flowering shrub is laurestine; *Viburnum Tinus*, of the botanist. It grows very easily from good sized hardwood cuttings taken at almost any time of the year. Lower branches may be pressed into the soil and a small portion covered, leaving tip exposed, and will readily root in a few weeks. They may be cut from parent and replanted. You may find some in this condition now on shrub. The fruit is evidently from the Jerusalem Cherry, *Solanum Pseudo-capsicum*, a splendid pot plant. The fruit is not edible.

Pruning Strawberries.

In recent issue of the Cultivator there was an article about strawberries in which you spoke of pruning properly. What do you consider the proper way to prune them so a bed will be in good shape for several years?—Subscriber, Orange.

The first year strawberries need no pruning but afterward are pruned every year if necessary to keep from matting too thickly. Cut off runners so they will not be thrown on top of vines by cultivator passing down the rows. The work is done only when condition of plants demand it.

Top Working Apricots

If apricots are affected by brown rot this spring there will be lots of local grafting done. We want to know best method, kind of wax, best method of keeping scions. Can we graft after leaves on trees have started?—Subscriber, Hollister.

Cut scions now and keep in damp sawdust, moss, shavings or sand until needed, keeping always in cool dark place. Split stubs for cleft grafting are best. After leaves start many prefer bark grafting but this requires more care. Still later some resort to budding. For top working the Los Angeles County farm adviser uses a wax of one pound beeswax to three pounds resin. If weather is cold add more wax; if hot, resin. See article on top working in next issue.

Weak Stock

About a year ago I bought a buck and three does from same pens, but not related, all of mature age, and one doe had about six or eight young nursing. She raised them, and I think that they were the last that she ever raised to maturity. I had another doe that soon had a fine litter, and they also died when they were about half-grown. I raised two does from the first litter that I bought and bred them. They had small litters, but they all died when about half grown or less. I used the same buck for a long time, with the same result continually. Then I thought that perhaps the buck was weak, so I changed, getting a first-class mature but young buck, and the result is no better. They show no signs of sickness until one or two or perhaps three days before they die. Then they will droop around a short time and die. I feed dry alfalfa hay and barley; plenty of clean water. Hutches are larger and better than the majority of hutches, are kept fairly clean, and are located

under the shade of trees, where they get only the sun in the morning to about 10 o'clock. Usually it is not too warm, but occasionally it does get rather warm, and I have seen them panting, but I never saw any direct bad effects from that. I say that I house them under the trees. I do not mean by that that they are kept in a damp, shady place, but the trees are tall and the branches are high, so that there is plenty of air circulation for them. The adults are healthy and strong.—Subscriber, Camarillo.

The main cause is close inbreeding; the small litters and not raising young show this; would dispose of that stock. It may be that the hot sun prostrated, so that stock has not sufficient vitality to produce strong young. Would suggest putting one layer of bagging in front to break the fierce sun rays from 8 to 10, when direct sun is often too strong for your stock. Think it best to procure new foundation stock from other breeders and build up from them, selecting only good, strong, quick maturing young for breeding.—W. D. W.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Purchased on Contract

We purchased land on contract and sold a portion of it on contract. The party to whom we sold does not keep up his payments and recently sold his interest to a third party. Our original vendee has now disappeared. Would he have any right to sell, and what can be done to straighten the matter out?—Subscriber, Hynes.

Your vendee very probably had the right to make this sale of his interest but could not thereby relieve himself of the responsibility of the contract unless the assignment was accepted by you. About the only remedy is to bring action on the contract and have the judgment that the vendees are in default. Then you will be entitled to either a judgment for the purchase price or the return of the land.

Custody of Minor

Can a man who has been convicted of felony and who has otherwise a bad reputation obtain the custody of a minor child in divorce proceedings?—Subscriber, Englewood.

There is no positive rule in respect to the custody of children as it has been deemed best to leave the matter to the discretion of the court in each particular instance. It is generally the case with very young children for the court to give the custody to the mother in any event unless she is in some way unsuitable. It would probably be, in a case such as stated, that if the mother was unsuitable, the child would be placed in some home. It would be out of the ordinary for such husband to obtain the custody.

Fence on Line

A fence which is held in partnership is on a section line. One party deeds a strip along the fence for a public road. Can he legally take possession of his half of the fence and move it across the right of way?—Subscriber, Corcoran.

As the fence was placed on the line with the consent of both parties and both parties contributed thereto, undoubtedly no part of it could be removed from the line except with the consent of both parties. The deed



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for the public road was apparently voluntary, made without the consent of the other owner, and he could not be prejudiced thereby. The one making deed could have required payment for his land and also for his interest in the fence in condemnation proceedings if he had so chosen. As he has been willing to forego this right as against the county he could not make his neighbor suffer for his generosity.

Adoption of Child

A boy takes the name of his foster parents who raise him from childhood. He subsequently marries. Is he the lawful heir to the property of his foster parents? If not, what steps should be taken to secure to him their property? Is deeding or willing property best?—Subscriber.

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Unless the child has been legally adopted he does not become a legal heir of the foster parents, but they can will to him any property which they leave. It would seem that the gift by will would be far better than gift by deed, as that probably would entail difficulties during the lifetime of the foster parents.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Tuberculin Test

A cow of mine reacted to the tuberculin test. The state veterinarian later tested her and gave her a clean bill of health, she having failed to react in two previous tests. Should she have had a larger dose of the serum because of having reacted once?—Subscriber, Orland.

There are cases where a cow might react at the time of the first testing and in time become so far advanced with tuberculosis that there would be no reaction, but a competent man would not mistake a case of that kind. If the tests are applied too close together the later ones will not show much if any reaction and what appeared to be a reaction the first time might have been brought about by something else showing up just at that time. These remarks are directed toward extreme and peculiar cases. Generally the tuberculin test is reliable but occasionally things do not act just right and in those cases a competent man would consider general symptoms and render good judgment. If the amount of tuberculin generally used does not bring a reaction a larger amount would not. In the case you describe if the cow is in good health and has no cough you can dismiss all doubts that you may have in mind. The state veterinarian might make a mistake, but those mistakes are so few now and the tuberculin test is so well understood that they may not be considered.

NEW CREAMERY BUILDING AT UNIVERSITY FARM

Dairying is California's third largest agricultural industry. The value of dairy products in the state in 1920 was \$99,004,358. Of the 778,951 dairy cattle in the state 502,415 cows were required to produce the milk for these products.

Recognizing the place which California now holds in dairying and its prospect of permanence and future development, the legislature in 1917 appropriated funds for a new dairy industry building to be constructed at the university farm. The war delayed its construction and the increase in the cost of building materials made it unwise to make a start until more funds were available. The last legislature provided additional funds for buildings at the university farm and the regents have generously set aside a total of \$195,000 for the construction of the dairy industry building with additional funds for furnishings and equipment.

The building as a whole will be constructed of hollow tile with reinforced concrete frame. It will consist of a two-story main structure, 234 feet long, and a dairy manufacturing wing running back from one end of the main building about 100 feet.

The first floor of the main building will include laboratories for butter and market milk, commercial testing, student testing, farm dairy and bacteriology; a salesroom, offices and student locker room. The second floor will be occupied by three lecture rooms, seminar, reading and dairy products judging rooms, and office and storage space.

The manufacturing wing will house the large creamery laboratory which will be used for teaching advanced students and those electing practice work in butter, cheese, ice cream, market milk and milk condensing. There will also be the milk receiving department, a student cheese laboratory, refrigerating, ice making, storage and machinery rooms.

A distinctive feature of the new dairy building is the provision for several small units of equipment in each department, making it possible for

each student to work independently. The increased equipment will make it possible also for instructors to teach larger sections which will accommodate a larger number of students.

The construction of this building should have a marked influence upon the future development of dairying in California. Facilities will be available for giving a thorough course of instruction and for carrying on investigational work. These facilities should stimulate student interest in dairying and when they go out into the state on dairy farms or in dairy plants we know that they will carry with them the principles that are taught in the class room. They will set standards that others will follow. Eventually they will employ other students that come after them and gradually the whole industry will be raised. The dairy industry of this country is in great need of well trained men. The best source of them is found in the dairy departments of the various state agricultural colleges. The University of California now adds further support to the agriculture of the state by increasing the facilities for dairy teaching.

There should be a great revival in the planting of small fruits and grapes in connection with home gardens. The care of small fruits as regards spraying and other requirements is more

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RAILSBACK SERVICE does not mean giving something for nothing, but it does mean just what Webster says it means.

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Household Department

SALVE, SEQUOIA!

Hail, Sequoia, giant of the trees,
Proud survivor of an ancient race!
In days and years I figure time,
Milleniums thou; thy century is my year.
Long generations of the lesser trees
That frame the forest's leafy aisles
Have come and gone since thou began,
A timid plantlet starting for the skies.

But now thy fluted shaft of cinnamon
shade,
Bearing aloft its crown of pendulous
sprays,
Stands unbending to the tempest's shock
Nor dreads the earthquake's ponderous
tread.
Wrapped in thy thick carapace of bark
Thou fearest not the lightning's flame;
Thou'st outlived the fury of ten thousand
storms.

Not of our day, a thing apart art thou—
Majestic, silent, enwrap perchance in
thoughts
Of ages gone, when Mother Earth was
young.
Emblem of age and immortality,
Tell me, I pray, where hides the spring
Whence thou hast drunk the elixir of life?
Teach me the secret of perennial youth.
—C. I. D. Moore.

STARLIGHT

(Continued from last week)

Chapter two in our calf feeding experiments came that evening when we tried to get one of our cows to adopt Starlight; for of course we could not think of allowing Polly to go on devoting her poor fingers to the cause of a calf's nourishment. We had put our faith in Belle, a large red cow of gentle disposition and irreproachable character. She had a calf two months old.

The moment Starlight set eyes upon her she gave a glad moo and frisked to her side. Belle's calf was on the other side, but Starlight had not noticed it. The cow lowered her head and butted Starlight across the corral.

Fortunately, our cattle are dehorned. Starlight picked herself up, swayed on her poor legs and looked with astonishment at the cow.

Belle threw her a glance of contempt and turned her back. Starlight seemed to regard the act as an invitation to supper, and with an answering moo ambled to the feast.

Belle turned, put down her big head, took Starlight between the legs and flung her in a heap.

Then we determined to try Blackie, and in order to make the proceeding perfectly safe we hitched her to a post. Starlight got three good swallows. Blackie bided her time until the calf was fairly established and was forgetting her late woes; then slap came a black tail on Starlight's ear, and smash came a hoof under Starlight's chin.

Starlight's head flew up, and before she could moo Blackie wheeled, took the calf on her heels and sent her sprawling across the shed.

Now, in our bunch of home cattle we had a venerable white cow that in her youth had given much fine milk and that bore the name of Daisy; but now we called her The Antique because she had come to the last act of usefulness in her long career; we were fattening her for beef.

The Antique was stolidly chewing her cud, but no sooner had Blackie sent Starlight flying than she gave Blackie a look that Polly described as "the most awful look ever seen on any human face," marched up and prodded the black cow's ribs. Then she went to Starlight, bent over her tenderly and began to lick her. Starlight wobbled to her feet. The Antique took the calf under her neck, resumed her cud and defied the world. Gently coaxing, she pushed Starlight to the side of the black cow and admonished her with a second punch in the ribs. Starlight hesitated for a moment and then had her supper.

Because of The Antique's noble act we were bound to keep her at least until she had raised Starlight for us. And to that task she now began to devote her declining years in a manner beautiful to see. She seemed to live only for the motherless calf. She saw to it that Blackie delivered the meals, and between whiles she licked the calf and showed her how to nibble grass.

Starlight proved to be a prankish youngster. One of her tricks was to run away and hide. The Antique would low and call the moment she missed her protegee, and Starlight enjoyed her distress like a naughty child. Many a time we saw her slyly watch-

ing from her retreat while The Antique pranced round in anxiety. At those times Blackie always got a poke in the ribs; The Antique seemed to be searching her to make sure she had not swallowed the calf.

Our ranch is fenced, but on the other side of the wires the range stretches away for miles and miles. Every day the range cattle come by in droves on their way to the springs.

Starlight presently discovered them and learned, as Polly said, that there were children of her own age to play with. Belle held her own child entirely aloof. She would not permit him to associate with a child whose parentage was unknown to the dwellers in the pasture.

But any well behaved child was good enough for the range cattle. The calves called Starlight to come along out and play and cuddled up to her quite as if her mother were not the best Jersey in our part of the state. Starlight crawled beneath the wires and joined the merry throng.

We always knew when she yielded to the temptation, because The Antique told us. Standing on the wrong side of the wires that she was too tall to go under and too stiff to go over, she bellowed out her opinion of range cattle and her desire to have her little Starlight at home.

Then Polly would call, "Starlight—Starli-light!" and Starlight would come prancing. For when Polly called, Starlight always obeyed.

The calf grew sleek and fat and foolhardy. Her free and easy manner of straying about on the range soon began to give us some concern, for the bounty on wolves and coyotes had been taken off, and the creatures were multiplying with alarming rapidity. As cold weather approached they came more boldly to the house and the corrals. Range calves were well grown by October and pretty wild; ranch cattle were inexperienced.

The cows seemed to know that danger was abroad and bunched together as they grazed. But Starlight paid no heed to warnings. What we supposed happened was this: Starlight played one of her hide-and-seek tricks in the bushes, and while her attention was on the old cow's distressful hunt a wolf trailed her and sprang, but failed to pull her down. That is the only way we can account for the long bleeding gash on her flank.

The first we actually knew of the attack was a tremendous bellowing. My sister and I heard it, but we were so well used to The Antique's howling that we paid little attention. It was Polly, who was playing outside, that went to find out what was the matter.

She climbed the ridge that overlooks the meadow and raced back, screaming at the top of her lungs, "Mamma! The wolves are eating up our cows!"

My sister and I were alone. Jim was fencing a distant pasture. My sister snatched up the shotgun and I the rifle, and we followed Polly.

There were some sixty head of stock in the pasture, full grown two year olds, yearlings and perhaps twenty calves. The grown cattle, all cows, had placed the calves in the center and were milling. Round and round they went, like a huge wheel, stamping, snorting, bellowing, and every minute or so charging a wolf. Outside the circle were five wolves, charging the cattle in flying leaps.

Our dehorned cattle had no chance against them. A cow would charge and butt a wolf and sometimes roll it over, but in five seconds it would be up and at another cow.

In all the wild scrimmage of milling cows and jumping wolves we perceived a leader. The Antique pranced round and, snorting defiance, urged her valiant band to victory or death.

We stood on the ridge and tried to decide what to do. Finally, we left Polly and with our guns descended into the lower field.

It is an indescribable sound, the trampling of hundreds of hoofs. It is frightening. At any moment the mill may break, and the stampede rush over you.

My sister and I advanced cautiously through the field until we were within easy shooting distance, but we saw no way of shooting without injuring our cattle. Step by step we moved up

and watched our chance to pick a wolf off the outer edge of the circle.

Every few seconds a blotch of white came into view and then disappeared on the other side of the mill. The white cow was now running free of the herd and bunching them in a tight ring; the rest ran noses to tails. All the two year olds were milling with the cows, but the calves stood still inside, bawling now and then as they thrust their noses into the air and scented the wolves.

Two of the wolves were harrying the white cow, one snapping at her nose, and its mate watching to make a flank attack and ham-string her. The other wolves were idly keeping the mill in motion and waiting for the leader to fall. None of the animals seemed aware of our approach. My sister motioned me to follow, and we tiptoed to one side. Once, twice, thrice the white cow and her pursuers faced us head-on and whirled away. We saw that the forward wolf was running on the outermost track of the great heaving circle.

My sister stood with the gun poised. Four times! The white cow dashed out from the rear. Bang!

It was the prettiest shot I think I ever saw. It bowled the leading wolf completely over just as the white cow swept past us. Some of the shot reached its companion.

The wolf scrambled to its feet and pawed its face. In those few seconds the white cow flashed into view again. She saw the wolf rubbing its eyes; down went her head, and she butted him in the ribs. The beast rolled over and over, staggered to its feet and ran for the range; its companion was at its heels, and the old cow was after them both. Then the mill broke, and the cattle poured out on the plains.

What became of the three other wolves we did not wait to see. Believing that the mill would break with the firing of the gun, we had run for our lives, and it was lucky we did, for the stampede passed over the spot where we had been standing.

At sunset the old white cow and Blackie, with Starlight between them, came quietly home. Then Belle and her precious offspring tagged meekly behind.

The next morning I found Polly seated on the ground, weaving a sagebrush wreath. She held it up for me to admire. "It's for The Antique—I mean dear Daisy," she said, correcting herself. "We mustn't call her queer names any more. This wreath that I'm weaving is a present from Starlight to show Daisy how much she loves her."

CARE OF THE SKIN
By A. M. H.

No part of the body deserves more careful study and attention than the skin, for the body is constantly trying to throw off waste matter. This waste matter is intended by nature to be taken care of and carried off by the bowels, the kidney and the myriads of pores of the skin. So intimately related is the skin to the other great eliminating organs of the body that its sluggish action tends to a diseased condition of these organs. The majority of people neglect the body in the way of frequent washings, and many an ache and pain as well as sickness and severe cold, lies exactly at the door of this neglect.

Crow's feet and wrinkles perhaps disfigure a face more than anything else, and it is well to avoid worry and anger for it is a well known fact that they write fine lines which deepen into wrinkles on the face, and hard water will ruin the best complexion and make the wrinkles come long before they should. Rainwater is best. If this cannot be obtained, distilled or boiled water should be used.

Any woman can prepare her own face powder at home and at very small cost. One of the best and safest to use is made with three parts of cornstarch to one of boric powder with a few drops of perfume added, and this makes an excellent powder for infants and young children.

For body moisture, a powder made with one part of the boric powder, two parts of zinc oxide and four parts of pulverized starch is much used. A lotion for greasy or oily skin is made by dissolving one-half dram of the boric powder in six ounces of rose water and one-half ounce of witch-hazel that is the cause of pimples and black-

This way:

-or this way:

-or this way:

PRUNES STEWED—Wash prunes, cover with warm water, and soak over night. Heat slowly [in water in which they were soaked] to simmering point. Cook until tender but not broken. Slow cooking develops flavor and the natural fruit sugars so that little if any sugar is required. A fireless cooker is excellent for cooking prunes. Soak as directed, heat to the boiling point then set in fireless cooker for several hours.

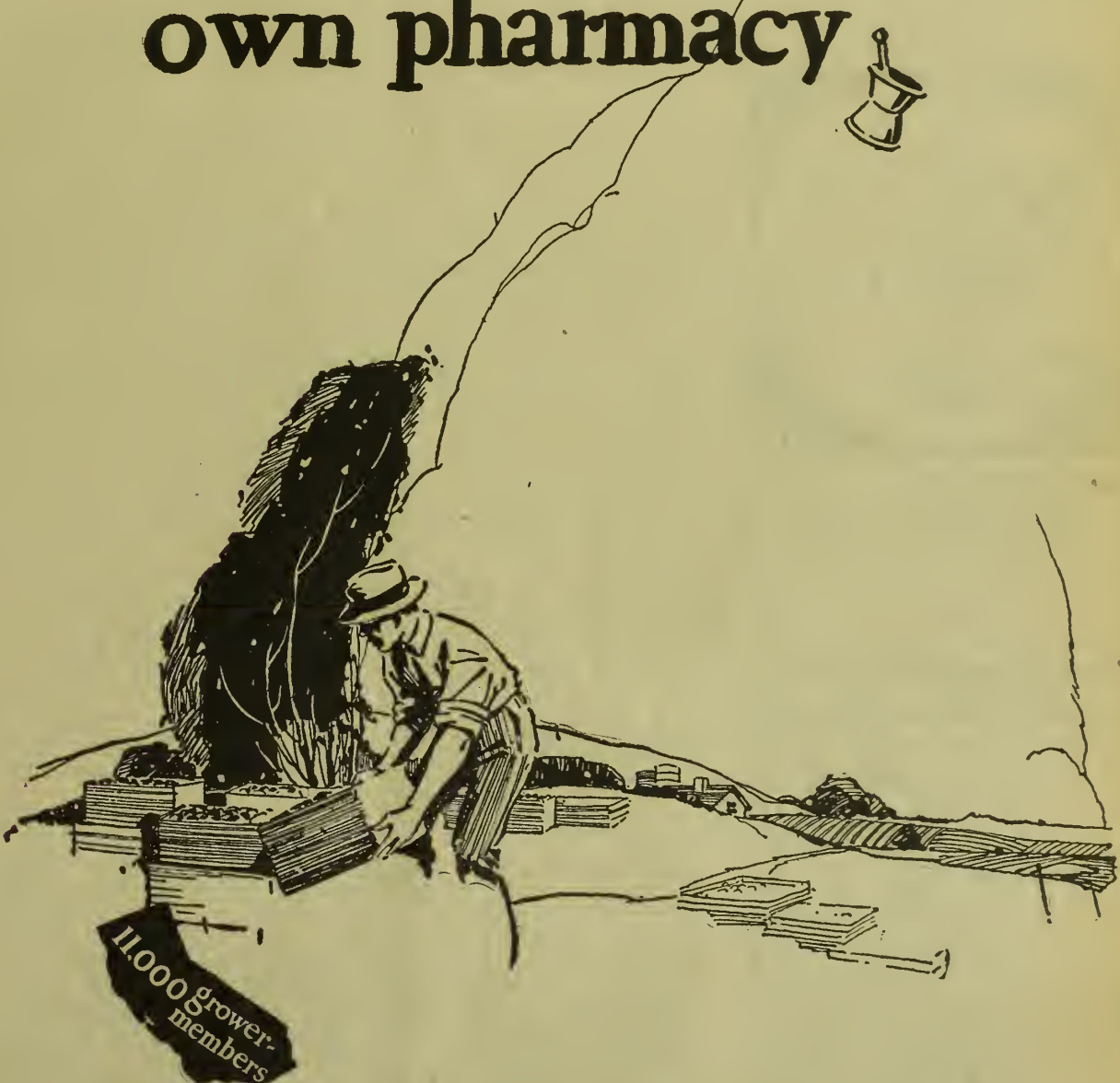
PRUNES BAKED—Wash prunes, cover with warm water and soak over night. Put prunes in a covered baking dish or bean pot, adding the water in which they were soaked. Bake in a very slow oven until fruit is tender but not broken. No sugar is required. The *baking* brings out a new "relishy" flavor in prunes. Served with cream, plain or whipped, or a boiled custard sauce, baked prunes make a splendid dish.

PRUNE JUICE—Wash Prunes, cover with warm water; soak over night. Heat slowly [in water in which they were soaked] to simmering point; cook until fruit is tender and somewhat broken. Keep under boiling point during entire cooking period; no sugar is required. When cooked pour off juice, strain through a fine sieve. The prunes remaining can be pitted and used for prune desserts requiring prune pulp.

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The Steviert Oil Burner burns either distillate or
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heads. A good lotion to use to close
the pores after bathing the face is
made by dissolving one dram of the
same powder in four ounces of witch-
hazel. The moment pimples and cold
sores appear on the face take a dose
of citrate of magnesia, which will cool
the blood and put the system in better
condition, and the cause of all skin
troubles is more than skin deep.
When taking long walks or rides, pro-
tect the skin by using a lotion made
with the well beaten white of egg
mixed with carbonate of magnesia and
wear a thin veil.

HINTS FROM HOUSEKEEPERS

Bran Cookies

I am sending a recipe for bran
cookies which we like very much:

One-third cup shortening, one-half
cup sugar, one-half cup molasses or
honey, one egg, one-fourth teaspoon
baking soda, one-half cup water, one
and one-half cups flour, two teaspoons
baking powder, two cups bran, one-
half cup chopped nuts, one-half
cup raisins. Cream butter and sugar,
add liquid ingredients and then dry
ingredients, saving enough flour to
flour raisins and nuts. Add nuts and
raisins last. Drop from teaspoon upon
a buttered pan and bake about 15
minutes.—Stella Haverland, Santa
Barbara.

RABBIT PIE AND DUMPLINGS

Rabbit may be transformed in much
the same way as chicken. Among

other suggestions are the following:
Canned rabbit (prepared like canned
chicken), rabbit salad, rabbit rolled in
bread crumbs, seasoned, browned and
then put into the fireless cooker and
cooked until tender, rabbit pie, and
rabbit with dumplings.

Rabbit Pie

Clean, dress and cut up the rabbit.
Put in stew pan with onion, parsley,
etc., cover with water and cook slowly
until tender. When half done, add salt
and pepper. Put a small cup in the
center of baking dish, put the rabbit
meat around it, cover with pie crust.
Make incisions in the crust so that
the steam and gas may escape. Wet
the edges of the crust and put on a
little edge of crust around the pie.
Bake in the oven until the crust rises
and browns.

Dumplings

The following recipe for dumplings
should be followed to be used in com-
bination with rabbit: Take two cups
flour, one-half teaspoon salt, 4 tea-
spoons baking powder, 2 teaspoons
butter, three-fourths cup milk. Mix and
sift the dry ingredients. Work in the
butter with the finger tips and add
milk gradually, mixing with a knife.
Toss upon floured board, roll to one-
half inch thickness, and cut with the
biscuit cutter. Place the dumplings
in a buttered steamer, put over a ket-
tle of boiling water and steam for
about 12 minutes. If a steamer is not
available use a perforated pie tin.—
Mary Ann Gray, South Dakota State
College of Agriculture.

American Berkshire Congress

The American Berkshire Congress
and Sale did not have the nation
wide representation which was ex-
pected and this because of some thous-
and and one combinations of circum-
stances which prevented several east-
ern Berkshire breeders attending the
congress at Riverside. Those who
were able to attend, however, "arove"
and united in the holding of a great
meeting and in holding a sale, a short
account of which was given in the last
Cultivator and which was entirely sat-
isfactory. The managing committee
feels highly gratified and especially
appreciates the cooperative spirit of
several firms of the west which united
in putting over the show. The prin-
cipal jolly up feature of the congress
was held at the Mission Inn at River-
side on Tuesday eve, February 20.

The Banquet

The banquet opened with a song, by
Mrs. Geo. Stingle, in the costume of
an old English caterer, the singer be-
ing followed by the chief cook bear-
ing upon his shoulders a huge tray
upon which was a Berkshire pig,
roasted whole. Feast and merriment
reigned. Prof. E. H. Hughes of the
University of California was the toast-
master and presided with pleasing
manner. Mayor Evans of Riverside
gave a very cordial welcoming speech

which was followed by short talks by
prominent visitors throughout the
state. These included Prof. Gordon
H. True, head of the animal husband-
ry department of the university; Prof.
A. W. Oliver, head of the swine divi-
sion of the Oregon agricultural col-
lege; Dr. E. R. Cahill of Indiana; Chas.
Brouse, president of the Riverside
chamber of commerce; H. A. Miller,
livestock representative of the Los
Angeles chamber of commerce, J. A.
McGregor president of the Southern
California Fair Association; Mr.
Booth of Chaffey Union High School;
and Harold Anderson, high man in the
Riverside Junior Judging Contest
team that won the beautiful silver
cup offered by the Southwestern
Berkshire Congress.

The fun was provided by the little
daughter of Fred Hall, newly elected
president of the Southwestern Berk-
shire Congress, in the way of hu-
morous recitations, and two original
Berkshire songs written for the oc-
casion by Mrs. Stingle and sung by her-
self and Mr. Stingle, the title of one
of the songs being, "Watch Berkshire
Breeders Take the Hills in High."
Secretary Stingle provided the very
unique surprise of paying the winning
breeders their cash prizes in real Cal-
ifornia gold.

(List of the winners next week.)



Exhibitors and Officers at the Berkshire Congress at Riverside.

The upper photograph show the exhibitors; the lower one the exhibited. The
three barrows made up the grand champion pen of the Berkshire show held at River-
side last week. This pen was shown by the University of California and was the
winner of the cup offered by the chamber of commerce at Riverside.

The Safe Tonic

embodies elements that
restore strength and
build up the body
via nourishment.

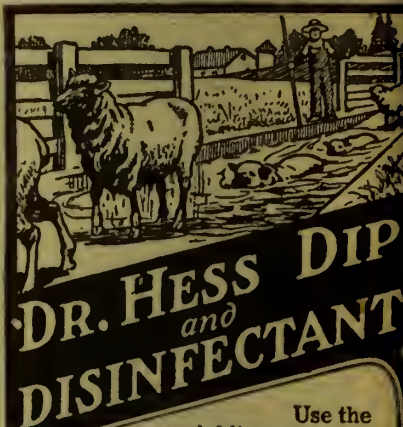
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is a form of tonic-
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makes for a sound
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Use the
sprinkling can about
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tank where the occasion de-
mands. For your hogs, a wal-
low is the most convenient, and
quite effective. To every 70 to
100 gallons of water add one
gallon of Dr. Hess Dip and Dis-
infectant. Then your premises
—the cow barn, the stables, the
pig pen, the poultry house, the
sink, drains, closets, cesspools
—everything, everywhere, will
be pure and healthful.

You can dip, or you can spray
or sprinkle, or apply with a
sponge or brush, Dr. Hess Dip
and Disinfectant to the animal
body. There's scarcely an animal
parasite, skin disease, or in-
fection that Dr. Hess D. and D.
will not remedy. *Guaranteed.*

DR. HESS & CLARK Ashland, Ohio

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son of an International Champion. Start
your herd with these.

H. H. Gable Esparto, Cal.

When Writing Advertisers Please Mention Cultivator.

SHORTHORN SALE A BARGAIN EVENT

That the annual sale of Shorthorns held by the California Shorthorn Breeders Association at the university farm, February 22, failed to register as strong values as the offering merited was due, no doubt, to the fact that the Hereford sale the day before furn-



For the Grand Champion Herd.

This is a photograph of the silver cup offered by the California Cultivator and won by the Italian Vineyard Company of Guast. It was given to the grand champion herd at the American Berkshire Congress at Riverside.

inished many of the buyers with what bulls they needed and that the crowd attending Stockmen's Week was not large enough to absorb the two large sale offerings. In the future, more buyers must be attracted or fewer cattle offered. It is not too much to say that the offering presented was easily the best lot sold in any of the association's spring sales and reflects the splendid improvement that has been underway in California herds during the past two years. While the consignments were quite uniform the buyers, as in the sale the day before, showed a preference for the better lots. An interesting feature of the sale was the fact that the major portion of the offering was contributed by the younger breeders.

The top of the sale was \$675 which was paid for the attractive young bull, Missie's Pardale, from the Elberg herd by W. J. Fulgham. The highest priced female was the red junior yearling daughter of Imp. Caledonia sent in by Howard Vaughn of Dixon. She was purchased by Senator Benj. F. Rush of Suisun for \$300. For the most part buyers showed little preference between the Scotch and Scotch topped sorts. Jack Metzger of Red Bluff, W. J. Fulgham of Visalia, James Barry of Cottonwood and T. H. Ramsey of Red Bluff were the largest buyers.

The sale was managed by Howard Vaughn and Cols. Hull and Davis were the auctioneers. The average established on the bulls and females was \$170.

The principal sales follow:

Consigned by Fair Oaks Ranch, Willits
1. Golden Sunbeam, 2d, red, Jan. 1917; W. J. Fulgham, Visalia, \$170.
2. Fair Oaks Victoria, red, Jan. 1921; Fulgham, \$225.
3. Victoria 3d, white, Nov. 1920; H. C. Muddux & Son, Sacramento, \$205.
11. Fair Oaks Mirth, red, Nov. 1920; Jack Metzger, Red Bluff, \$155.

Consigned by Geo. E. Dierssen, Sacramento
4. Lady Sultan 2d, roan, Jan. 1921; Metzger, \$175.
10. Lady Welcome, roan, Jan. 1921; Metzger, \$150.
12. Choice Lawn, red, June 1917; P. A. Gordon, Grass Valley, \$240.
24. Village Secret, roan, July 1920; W. C. Hammond, Corning, \$215.
38. Roan King, roan, Mar. 1920; D. L. McLemore, Klamath Falls, \$140.
40. Glenbrook King, roan, May 1920; Hammond, \$160.
41. King Archer, roan, Aug. 1921; McLemore, \$140.

Consigned by Edinger-Johnston Co., Hood
14. Wildrose, roan, Feb. 1920; G. G. Pierce, Davis, \$140.
13. Rosebud Countess, roan, Nov. 1920; Metzger, \$160.
15. Lady Bountiful, red, April 1920; Metzger, \$180.
33. Rosebud Stamp, roan, Feb. 1921; James Barry, Cottonwood, \$150.
51. Caledonia's Pride, red, May 1920; Fulgham, \$265.
52. Lavender Stamp, roan, Oct. 1920;

Barry, \$125.
53. Rosebud Pride, roan, Jan. 1921; Barry, \$125.
54. Rosebud Lad, roan, Nov. 1920; Barry, \$125.
55. Rosebud Signet, roan, Nov. 1920; Barry, \$125.

Consigned by Blackhawk Ranch, Diablo
21. Blackhawk Royal Hero, Jan. 1921; Roy Owens, Cottonwood, \$165.
25. Blackhawk White Beau, white, Oct. 1919; S. C. Dorn, Oroville, \$230.
26. Blackhawk President, red, Mar. 1921; G. W. Merritt & Son., Woodland, \$135.
27. Village Marshall 2d, roan, Nov. 1920; J. G. Taylor, Lovelock, Nev., \$275.
28. Blackhawk Baronet, roan, Mar. 1921; Geo. E. Dierssen, Sacramento, \$125.

Consigned by Calendonla Farms, West Sacramento
36. Spicy King, roan, Sept. 1919; Allen Est., Sutter City, \$160.
37. Champlohn Victor, roan, Nov. 1920; Barry, \$175.
39. Spicy Champion 11th, roan, Feb. 1920; Hammond, \$160.

Consigned by Howard Vaughn, Dixon
5. Lady Lustre, red, Mar. 1921; B. F. Rush, Suisun, \$300.
6. Corelli 7th, roan, Aug. 1920; T. H. Ramsey, Red Bluff, \$210.
7. Jenny Lind 27th, red, Mar. 1919; Ramsey, \$160.
8. Gainford Mary, roan, Feb. 1921; Ramsey, \$225.
23. California Type, roan, June 1920; Dierssen, \$375.

35. Best Bort, red, June 1920; Allen Est., \$240.
49. Red Marquis K., red, Apr. 1920; Allen, \$160.
50. Walnut Lawn Robin, red, Oct. 1919; Allen, \$160.

Consigned by Straloch Farms, Davis
38. Hopland Julian, red, Feb. 1920; H. M. Hobart, Red Bluff, \$125.
56. Straloch Announcer, red and white, June 1920; Fulgham, \$145.
57. Straloch Artisan, red and white, June 1920; Fulgham, \$145.
58. Straloch Admiral, roan, June 1920; Chas. Cook, Haywards, \$155.
59. Straloch Autocrat, roan, June 1920; Fulgham, \$145.
66. Gainford America, roan, Dec. 1920; G. C. Dorn, \$160.
67. Straloch Bridegroom, red, Feb. 1921; Allen, \$155.
68. Bard of Straloch, roan, Feb. 1921; Metzger, \$130.
69. Straloch Brigadier, red, Feb. 1921; Geo. Wilson, \$135.
70. Dorothea's Villager, roan, Feb. 1921; Metzger, \$130.

Consigned by T. T. Miller, Hollister
71. Milmar Sultan, roan, Apr. 1920; F. P. Childs, Red Bluff, \$210.
72. Milmar Sultan 6th, red, Dec. 1920; Metzger, \$135.
73. Milmar Dalmeny, white, Mar. 1920; Ed Dean, Sutter, \$150.
74. Milmar Master, roan, May 1920; Hammond, \$165.
75. Milmar Crown, roan, Jan. 1920; Mason Bros., Cordelia, \$160.

76. Oakwood Sultan, white, May 1920; C. W. Currie, Chico, \$210.
77. Milmar Sultan 3d, roan, May 1920.

(Continued on Page 279)

DISPERSAL SALE

37 REGISTERED HOLSTEINS

L. W. Bardsley Herd
Tulare, Calif.

Tuesday, March 14, 1922

Owing to the pressure of other interests, Mr. L. W. Bardsley, Tulare, has decided to make a complete dispersal of his herd of registered Holsteins. Most of the cattle in this herd are young, of good type, and representing most desirable blood lines.

The herd sire, PRINCE RIVERSIDE MEAD, is in the sale. He is a son of the famous King Mead of Riverside, out of a 26 lb. daughter of the century sire, Changeling Butter Boy, next dam a 36 lb. daughter of the century sire, Tidy Abbekerk Prince.

THERE ARE 15 DAUGHTERS of Prince Riverside Mead in the sale, and remember that they are granddaughters of King Mead of Riverside.

GUARANTEED BREEDERS
NO TUBERCULIN TEST
CERTIFICATES

Catalog Free on Request

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CALIFORNIA BREEDERS SALES
AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento, Calif.

SANTA ANITA RANCHO

OFFERS FOR SALE

REGISTERED PERCHERON AND ARABIAN STALLIONS

MAMMOTH JACKS AND JENNETS

HOLSTEIN-FRIESIAN CATTLE

BIG TYPE POLAND-CHINA SWINE

The registered Percheron Stallions offered are an exceptionally fine lot of high-class young horses, of great size, style and quality, from two to five years old.

The Jacks are the big-boned, rangy kind so much desired and sought after by the discriminating breeder who likes to breed and raise a big work mule.

The Jennets are young and mostly all in foal to King Bersheba.

The registered Holstein-Friesian Bulls are twelve to eighteen months old, sired by Prince Walker Cornucopia and out of high yearly-record dams.

All Breeding Stock Guaranteed.

SUITABLE TERMS OF CREDIT MAY BE ARRANGED.

CORRESPONDENCE SOLICITED.



Santa Anita Rancho and Anoakia Breeding Farm

Anita M. Baldwin, Owner SANTA ANITA, CALIF.



The 1922 Guaranty Sale

"THE PACIFIC COAST HOLSTEIN CLASSIC"

65 TOP REGISTERED HOLSTEINS

Rhoades & Rhoades Sale Pavilion

HYNES, CALIFORNIA

Wednesday, April 5, 1922

This will be one of the very best offerings ever made in the West, and the sale comes at a time when the promise for establishing new herds was never better.

At least twenty herds will be represented, the largest number that have yet appeared in this annual event.

Approximately 40% of the cattle were selected from southern California herds and 60% from north of Tehachapi.

Many of the most famous sires in California will have daughters or sons, or both, in this offering, and the list of reference sires is the greatest that has yet appeared in a Western sale.

The offering will include the highest record cow ever sold at public sale in the West, and she is due to calve two weeks after sale to the noted young sire, Sir Aaggie Mead.

To Holstein Owners North of Tehachapi:

Make this sale the occasion for a trip to Southern California—it will be worth your while, even if you do not want to buy.

Do You Know

- THAT Los Angeles County leads the counties of the State in number of registered Holsteins by a considerable number?
- THAT no other area of equal size in the entire West has so many high-record herd bulls in active service as there are south of Tehachapi?
- THAT among these high-class sires there are FIVE that sold for from \$10,000 to \$41,000 each?
- THAT Southern California breeders have registered Holstein breeding females not surpassed, and probably not equalled, in numbers and quality in any area of like size in the entire West?
- THAT Southern California has the largest, strongest and most active local club of Holstein breeders in California?
- THAT you are not keeping abreast of Holstein progress in California unless you have seen the great Southern California herds and breeding farms?

This is a wonderful season of the year to drive from the North to Los Angeles, either by the Valley Route or the Coast Route—splendid paved roads practically all the way.
Plan now to make the trip.

This is a Wonderful Group of Holsteins for Foundation Breeding Material, and the One Opportunity of the Year to Find so Many Animals of this Quality in One Sale

Every animal tuberculin tested and sold subject to 60-day retest by the buyer; every animal positively guaranteed to be a breeder.

The usual liberal terms will be granted by California Breeders' Sales and Pedigree Company to purchasers who make arrangements for credit before sale. Applications for credit may now be made by mail or in person.

WRITE FOR CATALOG NOW

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

Auctioneers:

Col. Ben A. Rhoades and Harold B. Rhoades, Los Angeles

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 14, L. W. Bardsley, Tulare.
April 5, Guaranty Sale, Rhoades & Rhoades, Pavillon, Hynes.

C. G. Lamb, superintendent of the H. G. Ranch of Duelltown, writes regarding the purchase by Captain Gantz of three cars of purebred Ayrshires brought in from the state of Washington. In a sale offering a bunch of cows from this herd the average per cow was better than 50 pounds butter for the month of November. There are certainly no culls in that bunch, but they are to be disposed of to make room for the recent large purchase.

Earl J. Cooper, assistant state club leader of Wisconsin, has been employed by the Holstein-Friesian Association of America to take charge of their calf club work under the direction of President Lowden.

Edward Cebrian, manager of Calodonia Farms, West Sacramento, has loaned to the University of California the Shorthorn bull, Pine Grove King 21st. This bull was shown as a senior yearling at last year's fairs and was second in class at the California state fair. He is a son of Pine Grove King, one of the real bulls of the breed, and his dam is a Victoria by Glennbrook Marquis. Individually, Pine Grove King 21st has much to recommend him and with his rare bloodlines it is expected that he will leave his impress on the university herd.

Bellevue Daisy, grand champion cow at the Pacific International Exposition, Portland, Oregon, last November, showed on the fair circuit from the first of September until the latter part of November. She gave from 35 to 40 pounds of milk a day during this time. She weighs 1,700 pounds and is owned by Innisfall Herd, Davis.

The top Poland China sale of the year was recorded February 6 when Frank R. McDermand of Kansas City sold 34 sows and gilts for an average of \$220. The highest priced sow was sold for \$600.

Hereford breeders are mourning the loss of the great sire, Beau Blanchard. This bull was rated as one of the most successful sires of recent years and had to his credit many sons heading leading herds. He was the sire of Beau Blanchard 76th, owned by Cazler and Sons of Wells, Nevada, and The Peer, now at the head of John A. Bunting's herd at Mission San Jose.

Chas. J. Lemoyne of Lankershim purchased the top sow in the record Duroc sale of the year held by Ed M. Kern of Nebraska. This sow is Cherry Lady, dam of Sensation Leader, the boar that stood first as a junior pig at the 1920 National Swine show and that sired the junior champion sow at the same show last year. The price paid was \$660 and the general average of the sale was \$294 on 70 head.

E. F. Peterson, manager of the Diablo Stock Farm, Danville, writes that sales from their Polled Hereford and Duroc herds have been highly satisfactory during the past few weeks. Besides 16 bulls recently purchased, James Bardin of Salinas has selected 12 head of choice females and a bull as foundation for a pure bred herd. Chas. Bardin also selected 12 females and a herd bull. R. M. Burbidge of Paso Robles bought two yearling heifers. Otto Jorstad, Lincoln; Johnson Bros., Chualar; W. W. Boardman, William and Kroll and Co., Guam, P. I., are among the list of buyers.

Mendocino County, not to be outdone by Humboldt County or by Sonoma and Marin Counties, is now finding a place in the sun with the purebred stock idea. Round Valley, with Covelo as the hub, is the particular spot in interest. The dairymen at Covelo and in its vicinity, having awakened to the importance of making use of their natural advantages, have arranged with the state department of agriculture to have all their

herds, not fewer than 1600, given the tuberculin test. In addition, the dairymen have just bought a carload of purebred Jersey bulls and heifers. The purchase of this stock was under the supervision of Frank B. Astrot of the American Jersey Cattle Club Professor V. C. Bryant of the college of agriculture, and F. E. Buck of Eureka.

The Braemer ranch reports the sale of all their imported Angus cattle to F. Peabody. Also the same ranch reports sale of Hampshire gilt to Borden Bros of Trinidad.

THE STATE DAIRY COW COMPETITION, 1920-1922

(Continued from Page 261)

fat per month per head for the entire period of the competition, ranging during the different months from 83½ to 43½ pounds butter fat per month.

The record period adopted in this competition was the same as in that of 1916 to 1918, viz., ten months, or rather, 305 days. The reason for de-



Homeward Bound — Eager to be Milked

Cows with healthy udders and teats "give down" the milk easily, freely. The slightest injury or discomfort means a sure milk-loss.

Bag-Balm pays for its slight cost many times over in providing a sure, quick relief from udder troubles. Sores, chaps, cuts, scratches, inflamed tissues, hardened or swollen teats, caked Bag—an abnormal udder condition is quickly cleared up by this great penetrating, healing ointment.

Big 10-ounce package at the reduced price of 60c, at general stores, feed dealers, druggists.

DAIRY ASSOCIATION CO., INC.
Yndonville, Vt.

BAG BALM
MADE BY THE KOW-KARE PEOPLE

Kow-Kare and Bag Balm Distributors for California: Germain Seed Co., Los Angeles, Cal.

NOTICE THE POINT

IT'S A NEW FEATURE Found only in The PIERCEASY Bull Ring. No more tearing of the nostrils, because it is now so simple and easy. Just pass the ring thru the nostril, put in one small screw and the work is done quickly, making a clean hole thru the nostril.

Made of a SPECIALLY PREPARED METAL and in SEVERAL SIZES

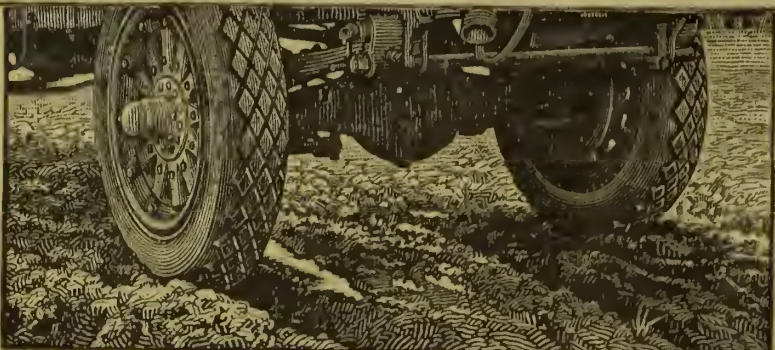
The Pierceasy Bull Ring is the latest and most durable ring on the market. More simple and efficient than the old style bull ring and many times more practical. Buy them from your dealer or send \$2.00 for No. R. B. 2, which is our large size, postpaid. Wagner Specialty Company, Dept. W., Burlington, Wisconsin.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

Reduces Bursal Enlargement, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from Bruises or Strains, stops Spavin Lameness, allays pain. Does not blister, remove the hair or lay up the horse. \$2.50 a bottle at druggists or delivered. Book 1 R free. ABSORBINE, JR., for mankind—2 antiseptic liniment for bruises, cuts, wounds, strains, painful, swollen veins or glands. 1 heals and soothes. \$1.25 a bottle at druggists or postpaid. Will tell you more if you write. W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.



RIDING THE MUDDY ROAD TO MARKET



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"Of all my farm machinery, no one thing is more profitable to me than my truck on Goodyear Cord Tires. It does the work of three teams and speeds up every farm task, especially the hauling of cattle to market. Our local Goodyear Dealer, Rossville Motors Company, renders helpful service on them regularly."—HAROLD MANN, Speedwell Farm, Rossville, Illinois

SPRING turns the country roads to mud, and then the farmer's Goodyear Cord Truck Tires reveal their all-year-'round utility.

On the hub-deep roads and in the soft going of fields and lanes, their All-Weather Tread wins swift and powerful traction. The active pneumatics make more trips per day, cover more ground, and deliver perishable product to market in better condition.

As the roads dry and the ruts harden, the greater strength of Goodyear Cords is demonstrated in their sure dependability and their remarkable mileage at low cost.

Their lasting resilience is a cushion to the load and the driver, and a protection to the valuable truck and the improved road.

Write to Goodyear, Akron, Ohio, or Los Angeles, California, for actual reports of farm hauling on Goodyear Cord Truck Tires.

GOODYEAR

HOLSTEIN *Fred Hartsook* CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

SHORTHORNS Hampshire Sheep

Address
C. Harold Hopkins
Woodland, Calif.

Straloch Farm

(2½ miles west of Davis, Cal.)
Inspection Invited.

Poland - Chinas

All Registered
Manager
J. I. Thompson
Davis, Calif.

IMPORTED Corston Masher

Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and helpers, some with calves at foot, and rebred to the above bull. Most of the helpers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

Warm Creek Land and Livestock Co.
J. Selby Badt Pres. & Mgr., Wells, Nevada

A. M. Easton

Wm. A. Ward

Blackhawk Ranch Shorthorn Cattle

One of the most select herds in America. Only Scotch females of the best families headed by COLLYNIE PRINCE LAVENDER our imported bull that was grand champion at San Francisco.

SHIRE HORSES

A number of good sound young stallions and mares, well bred and priced right. For prices and particulars address

E. LOVELL, Mgr.
Diablo, Contra Costa Co., California

Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

iding upon a ten month period has been fully gone into before; since the ten month records were first introduced into this country in the competition of 1916-18 they have been adopted as a prize division by our main dairy breed associations, and bid fair in time to replace the yearly records, at least in interest and importance to most breeders of dairy cattle. The great advantage of a ten month period lies in the fact that it renders it possible for breeders to obtain long time records of production of their cows without interfering with their regular breeding. Many of the high record cows of the past were never heard from after they had completed their records; by delaying service until late in the lactation, especially with the liberal feeding methods practiced, it proved difficult as a rule, and often even impossible, to get them in calf, and their future usefulness in the dairy was therefore brought to an end. The ten month period allows the breeder to secure a record and a calf too, and we have abundant evidence by this time showing that very high records of production may be secured under normal dairy practice as to time of breeding and calving when conditions generally are favorable.



"Nobody loved me"

"I HAD the thrush—neglect on the part of my first owner. After he sold me I was passed along like a bad penny until I met my friend, the man who owns me now.

"HE sized up my trouble at a glance and what's more knew the remedy.

"BILL, he said, 'Gombault's Caustic Balsam'll have you standin' on four good feet in a jiffy.' And it did!

"WHICH proves if there were more wise owners there'd be more good horses."

GOMBAULT'S CAUSTIC BALSAM

does the work better than firing. Hair will positively grow back natural color.

Reliable remedy for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Windpuffs, Skin Diseases, Thrush, Spavin, Ringbone, Throat and Bronchial Troubles. Will not scar or blemish. Supercedes all firing and cautery.

Sold by druggists, or sent by parcel post on receipt of price \$1.50 per bottle.

AS A HUMAN LINIMENT

It is unsurpassed for muscular and inflammatory rheumatism, sprains, sore throat, burns, bruises, cuts, etc.

The LAWRENCE-WILLIAMS CO.
Cleveland, Ohio

GOMBAULT'S Caustic BALSAM

Blackleg

MAY BE PREVENTED BY USING PARKE, DAVIS & CO.'S SCIENTIFICALLY PREPARED

Blackleg Vaccines

BLACKLEG VACCINE (BLACKLEGIDS)

THE OLD RELIABLE BLACKLEG VACCINE
IN PILL FORM

BLACKLEG AGGRESSIN (GERM-FREE BLACKLEG VACCINE)

A NATURAL AGGRESSIN

BLACKLEG FILTRATE (GERM-FREE BLACKLEG VACCINE)

AN AGGRESSIN MADE FROM CULTURES.

Write for free instructive booklet
on Blackleg Prevention.

ANIMAL INDUSTRY DEPARTMENT OF

Parke, Davis & Co.

DETROIT, MICH.

sible for breeders to obtain long time records of production of their cows without interfering with their regular breeding. Many of the high record cows of the past were never heard from after they had completed their records; by delaying service until late in the lactation, especially with the liberal feeding methods practiced, it proved difficult as a rule, and often even impossible, to get them in calf, and their future usefulness in the dairy was therefore brought to an end. The ten month period allows the breeder to secure a record and a calf too, and we have abundant evidence by this time showing that very high records of production may be secured under normal dairy practice as to time of breeding and calving when conditions generally are favorable.

One of the rules adopted in the competition provides that cows must be bred before the end of the fifth month from freshening. In spite of this liberal provision a considerable number of cows were not with calf within the time limit set and were therefore barred from competing for other prizes than those for monthly records and for the trophies offered by the respective breed associations. As might be expected a higher percentage of heavy yielding cows were barred for this reason than low producers, and the percentage of pure bred cows barred was likewise higher than that of common or grade cows; but nearly every herd represented had at least one or two cows that came under the ban on account of failure to breed; 31 per cent of the pure bred cows completing the record period were not bred within five months from calving and 17 per cent of the grades, or 21.5 per cent of the total number of cows.

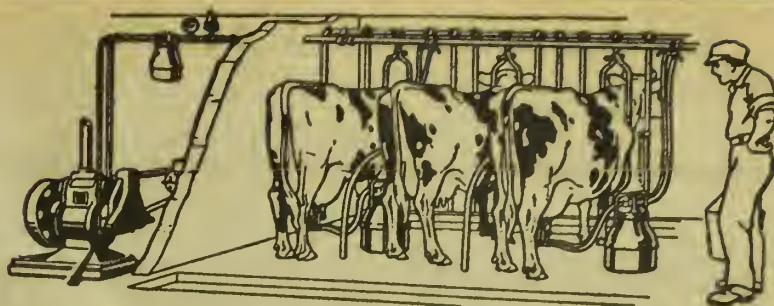
Another restriction to the award of prizes was imposed in the case of pure bred, that they must produce at least 350 pounds butter fat in ten months. This barred others, but not many; about 30 out of all the pure bred cows completing the record period.

The period for entering cows in the competition extended from September 1, 1920, to April 1, 1921. Cows were entered as they freshened during this time, at the option of the owners, and records of production were therefore completed and published from month to month from July, 1921, on. At the close of the competition on the last of January this year 595 ten month records had been completed, and 634 yearly records of cows in herds belonging to a cow testing association, deducting duplications, complete records for 1,260 cows owned by 64 dairy farmers or breeders were thus obtained in the competition, as against 608 cows in 34 different herds in the former competition, an increase of close to 100 per cent in the number of both complete records and owners directly interested in the competition.

The prizes were donated in 1920 by breeders of dairy cattle and business firms interested in the development of the California dairy industry. A cash prize fund of over \$3,000 thus became available, which was set apart for 12 prizes of \$100 to \$300 each for the highest production of butter fat by ten cows in the herd during ten consecutive months and for 16 prizes of \$25 to \$100 each for ten month records made by individual cows. In addition a large number of special prizes of money, silver trophies, registered dairy bull calves, and a Babcock 24 bottle hand tester were donated, making 70 prizes provided for in all, of a total value of approximately \$5,000. The college of agriculture and the fortunate winners are under obligations to the donors of these various prizes who so generously gave of their means to the further promotion of our dairy industry. I take pleasure in publicly acknowledging our indebtedness to them, expressing the hope and the belief that the results of the interest which their gifts gave to the competition will aid materially in making dairy farming in this state a good business to follow, one that will give adequate returns measured in human contentment and happiness, as well as in increased prosperity.

The final list of awards is necessarily held over till next week.

During January, 907 cows were tested in the Stanislaus County cow testing association. 100 produced over 40 pounds butterfat.



More than a Labor Saver

Perhaps the thought has occurred to you—"Why buy a milking machine when help is so plentiful?"

Help usually must be paid for, whether it is plentiful or not; and one dollar saved now is as much as two dollars saved a short time ago.

But with the De Laval you can afford to disregard time saving entirely. The De Laval Milker will save more time and labor than any other milker; but even if it didn't save a minute's time it would still pay you to use one. Why? Because it milks your cows better. It milks them with the same uniform action from milking to milking, day to day, or year to year, no matter if you use one or a dozen units. It combines all of the best features that have ever been developed for milking. It is not merely a substitute for hand milking, but actually better.

Cows are well milked the De Laval way; they like it, and because of this they invariably produce more milk than under any other method of milking.

De Laval Milker users, and there are thousands of them, are almost unanimous in their agreement that the De Laval Milker does increase production, either immediately or over a long period of time—and that the cows' udders and teats are kept in a better condition than with any other method of milking. It is just such favorable results as these that so agreeably surprise De Laval owners, many of whom say they would sell their cows if they couldn't have a De Laval.

Send for "The Better Way of Milking," which contains information from users.

De Laval Pacific Company
61 Beale Street San Francisco

Sooner or later you will use a De Laval Milker and Cream Separator

Sir Prince Aaggie Mead



CONSIDER THE TREMENDOUS PRODUCTION AND DEMONSTRATED ABILITY TO TRANSMIT PRODUCTION ON BOTH SIDES OF HIS PEDIGREE.

His sire, King Aaggie Mead, is a son of the 1,000 lb. foundation cow Aaggie Acme of Riverside, who produced the 1,331 lb. world's strictly official record cow, Aaggie Acme of Riverside, who in turn produced California's only 1,000 lb. junior 2 year old, Miss Aaggie Acme Burke.

His dam, Miss Valley Mead De Kol Walker, with two records above 1,000 lbs. butter in one year, and now making a yearly record that promises to exceed her previous best record of 1,113 lbs., is a daughter of the 1,011 lb. 4 year old De Kol of Valley Mead 2d, who in turn is out of the foundation cow, De Kol of Valley Mead.

HE IS BEING GIVEN HEAVY SERVICE IN BOTH OUR HERDS. KEEP ONE OF HIS SONS IN MIND FOR YOUR HERO SIRE.

OWNED JOINTLY BY
Fred Hartsook and A.W. Morris & Sons Corporation
LAKERSHIP, CALIF. WOODLAND, CALIF.

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The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4 1/2 cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Profitable Poultry News Just Received— Capacity 200,000 chicks, hence prices surprisingly low for quality. One recent order of County Farm Adviser's was 5,000 White Leghorn, 2,500 Brown Leghorn, 850 Red chicks. His orders are coming after two years' extensive trial of our chicks throughout his county. "Had the pleasure of seeing some your Anconas, White Leghorn pullets. They are grand." "Your Barred Rock chicks bought May, 1919, proved great winter layers. Had such good success with your chicks last year, am ordering again." These strains, 180-290 egg Leghorns, Rocks, Reds, Anconas, Wyandottes, Minorcas, Andalusians, ducks, turkeys, early lead many egg laying contests, supply foundation stock, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guarantee. Booking for immediate future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 No. Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Have you had satisfaction with your **BABY CHICKS?**

If not, give us a trial. Our chicks give satisfaction.

DAY OLD DUCKS on orders.

STEELE'S EGG RANCH. Phone Gardena Exchange 692. Moneta, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

White Leghorns: Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.

BABY CHIX. **LAYERS ARE PAYERS.**

Ours pay. Chix and hatching eggs from hens tested and mated for egg production. R. I. Reds, Barred Rocks, Black Minorcas \$16 per 100. White Leghorns \$14. Denton Poultry Yards, Campbell, California.

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each, Bronze Turkey eggs 50 cents, and Pekin Duck eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address Braemar Ranch, Santa Barbara, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Barred Plymouth Rocks, "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vadden, Los Gatos, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

For Sale: White Leghorn Baby Chicks from free range selected hens mated with pedigreed cockerels from 200-287 egg trapnest records. May and June prices \$3.50 per 25, \$6.50 per 50, \$12 per 100. Special prices 500 and 1000 lots. Safe arrival guaranteed; you pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Order now. Established 1898. Must Hatch Incubator Co., 438 Seventh St., Petaluma, Calif.

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Baby Chicks. Barred Rocks and Rhode Island Reds from carefully selected stock. You want the best, we have it. All chicks shipped by parcel post. We pay all charges. Prices for April and May: 25 chicks \$5; 50, \$9.50; 100, \$18. Order early as we are heavily booked. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

White Leghorns, 287 egg strain, vigorous Hoganized two and three year old hens on green range insure strong chicks. Full count live chicks \$15 per hundred. Hatch each Monday. Mrs. Robert Goddard, Los Gatos, California, Route A, Box 122.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Penn's Quality Barred Ply. Rocks and Ferris heavy-egg-type White Leghorns. Rock Cockerels from our well known Utility Strain at \$5.00 and up. Satisfaction guaranteed. Chix and eggs for 1922 delivery. **GOLDEN RULE POULTRY FARM,** Porterville, California.

Baby Chicks: From carefully selected two year old hens. Hogan Strain White Leghorns \$14.00 per hundred; R. I. Reds, Larm Strain \$18.00 per hundred. 25% with order, balance C.O.D. Also hatching eggs from above stock. Oroville Hatchery, Oroville, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grismes Ave., RR 2, Box 130, Burbank, Calif.

Baby Chicks, Barred Rocks, R. I. Reds, White Rocks, Leghorns, Purebred heavy laying strains. Delivered free by parcel post. J. V. Tracy, RD 1, Glen Lily Ranch, Santa Barbara.

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Duckings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. Lyon Hatchery, Gardena, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

For Sale—Turkeys. Bronze, Red, White. Males \$12 and \$15. Females, bred, \$7.00. Eggs \$5.00 dozen. White guineas \$3.00, either sex. Eggs \$3, \$2.50. Muscovy drake \$3.00. Eggs \$2, \$1.50. Houdan hens \$1.75. Eggs \$15, \$2.00. All choice stock. B. Hocking, 541 E. 33rd, Los Angeles, California.

Baby Chicks "well hatched are half raised." Petaluma Incubators produce that kind. They have lots of "Pep." We supply chicks. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. Bonnie Brae Farm, Burbank, California.

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. S. H. Evans, Chowchilla, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1678 W. 46th St., Los Angeles, California.

Thoroughbred Langshans. Excellent layers, large, true to type. Eggs \$2.50, also stock. Francis Rudkin, Fillmore, Calif.

Light Brahma Eggs for hatching, \$2.50 per 15, large stock. J. M. Sigler, Puente.

Pit Games—Old and young trios R. H. Crane Santa Rosa

TURKEYS

TURKEYS—Purebred Giant Bronze.—Four famous Madison Square Garden winners heading this season's flocks: **GOLDBANK VIII,** grand champion 40 lb. yearling cock 1921;

GOLDBANK BOY (his son) first prize cockerel 1921;

GOLDBANK KING, first prize cockerel 1922 (grandson GOLDBANK VIII and son of GOLDBANK IX, this year's champion first prize yearling);

COPPER KING'S BOY, third prize cockerel 1922; and **COPPER KING JR.,** being grandson and son respectively of famous **COPPER KING V,** grand champion of 1919, that weighed 38 lbs. as a yearling. All mated to choice 20 lb. hens. Eggs in season; prices reasonable. Bronze King Farm, Route 2, Box 88A, Merced, California.

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Turkey Raising is one of the most profitable branches of farming when the right methods are used. "Points on Successful Turkey Raising," our seven page illustrated treatise, should save you both time and money. It contains our methods of care, feeding and treatment of disease by which a poult is rarely lost. Price 50c. Satisfaction guaranteed. Richard M. Dodge, Route 2, Bakersfield.

Choice White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Robinson, Hemet, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch Lankershim, California

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1678 W. 46th St., Los Angeles.

SEEDS AND PLANTS

For Sale—Genuine Certified Hairy Peruvian Alfalfa Seed. Duly certified as coming from inspected fields. Each lot numbered and identified with field of which grown. If your dealer does not handle my seed, write or wire to me for prices, samples and statistics. E. F. SANGUINETTI, Established 38 years YUMA, ARIZONA

Berries and Small Fruit Plants. Grow and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. M. J. MONIZ, Berry Specialist, Sebastopol, California

For Sale: Onion Seed, Genuine Sweet Spanish. They yield 8 to 15 tons per acre. Easy to grow and very profitable and are highest priced onion on the market. Now is the time to plant seed. Pack ages 15c, 25c, 50c. Send orders to E. Middleton, 333 W. 2nd St., Pomona, California.

Strawberries—21,600 boxes per acre, from July to November 1921, from Hewitt Improved Mountain Grown Everbearing. Profits sooner and greater than any other crop. Descriptive folder. Carl N. Hewitt, Summit, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Ad 40c per 1,000 for parcel post order. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

100,000 Grape Rooting. Phylloxera free. Thompson, Muscat, Malaga, Emperor, Zinfandel, Zante, Currant, Red Malaga 10 kinds of cutting. Fruit trees, farm garden seeds and plants. Write for circulars. Box 501. Fowler, California.

Special—25 each of Senator Dunlap, Carolina and Banner Everbearing Strawberry plants and 12 Gardena Dewberry plants, the earliest blackberry on the market. All for \$2.00, delivered. W. C. Metcalfe, RFD No. 1, Ontario, California

Cory's Thornless Blackberry Plants, extra fancy, 15c each, or rates by the thousand. Corner Ingewood Ave. and Arborvitae, Ingewood, California. C. C. Bryson.

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write Chas. Mortensen, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00; 2 year old, per hundred \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower, Wm. Mortensen, Route 1, Lodi, California.

San Fernando Mission Grape Cuttings—\$10.00 per thousand at my ranch about 1/2 mile Southeast Old Mission. P. L. Carton, Box 237, San Fernando, California.

Cory Thornless Blackberry—Extra fine foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20 each, \$100.00 per 1,000. A. L. Emery, 58 Kingsley Avenue, Palo Alto, California.

Blackberry Plants: Cory and Burbank thornless varieties. Order now, 1 each. Miller Ranch, 1 mile west of M. Vernon on W. Highland Ave., San Bernardino. Phone 7304.

\$1.00 Will Deliver You 6 Assorted small roses, or 3 large ones, or six berry vine or one pomegranate and one seedling free. Bishops Nursery, Highland, California.

For Sale—Rooted Grape Vines, Pierce California Concord, also Eastern Concord. Navel and Valencia orange trees. Address Box 936, R. 2, San Gabriel.

For Sale—Large Gladioli Bulbs; Panam (beautiful rose), America (flesh pink fifty cents dozen, postpaid. E. D. Baye Santa Cruz, California. Route 2.

Thompson Seedless—A few thousand strictly first class rooted vines for sale at thirty two dollars per thousand. Murray, RFD 1, Box 14, Van Nuys, California.

Alfalfa Seed—Certified Hairy Peruvian Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Try Our Fine Black Raspberry Plants. All kinds; berries, thornless, everbearing; fruit trees, etc. J. L. Lawson, San Jose.

Mason's Everbearing Strawberry Plants. New Variety, Hundred \$1.50. Klondike \$5 thousand. Postpaid. L. Specht, Galifornia.

Strawberry Plants—"Caroline" Extra choice. Bears first year. \$8.00 per thousand. S. T. Stuver, El Cajon, California.

Pure Pollock 10-25 Cantaloupe Seed. Write for prices on this high grade seed. G. A. Price, Miranda, California.

Cory Thornless Blackberry Plants 10 each. W. H. Whitney, R. 6 Box 22, Los Angeles, California.

Florida Sour Orange Seed and California Sweet Seedling orange seed for sale. Milo Hunt, Whittier. Phone 250.

Pear Seed—Japanese, imported direct from Japan. Blight resistant. New crop. W. C. Whitney, Healdsburg, California.

Hubbard Squash Seed \$1.00 per pound. Klondike Watermelon Seed, \$2.00. Charles Flagg, El Monte, California.

HORTICULTURAL PRINTING

Catalogues and Booklets. office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cut of many standard plants. Correspondence invited. The Kruckeberg Press, 21 Court St., Los Angeles

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TREES

Notice to Planters—Having checked our orders we offer 3000 Tuscan Cling and Royal Apricot—4 to 6 feet—\$350.00 per thousand. 1000 Satsuma plum, 35c up. 2000 Placencia and Eureka Walnuts, 60c up according to height. All home grown. Himalaya Blackberry, \$5.00 per hundred. Commercial orchard trees—home garden and citrus trees, grapes, palms, evergreens, etc., reasonable. Snyder Nurseries, opposite the High School, Burbank. Telephone 122-J.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Garter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Machiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Avocado Seedlings in individual paper pots (two by eight) ready to line out in nursery rows or plant where they are to grow. Plants are from one to ten inches high. Not touched by the late frost. Price and further particulars on application to Wm. Chappelow, route 1, box 483 Monrovia, California. All are from hardy (Mexican type) seeds.

Persimmons—I am taking orders for 1922 deliveries of Japanese Persimmons: Hachiya, Tanenashi, Hyakume, Tamopan at prices that will surprise you. Many leading Los Angeles houses are my customers. SPECIAL ATTENTION TO THE TRADE. It will pay you to order now. Fred W. Kelsey, 2 miles West, El Monte, California. Phone Alhambra 919-J-3.

Avocado Trees—I have 300 field grown, thoroughly hardened Fuertes, one and one-half and two years from bud. Large balls of dirt. No better stock to be seen anywhere. \$4 each in quantities, \$5 each for single tree. \$1 extra per tree for crating and shipping. W. A. Spinks, Duarte, California.

Citro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 4 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVELE, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Seedlings—Apple, pear, plum, peach. 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 50 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 3, Chico, Cal.

For Sale: Valencia Late, Washington Naveles, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Avocado Seedlings For Sale, a few thousand, established in paper containers. W. P. Sherlock, R. D. 2 Puente, California.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonard Hart Swingle, Indio, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For Sale—One and two year old Wonderful Pomegranate trees, fine stock. J. M. Irwin, Lindsay, California.

For the Cheapest and Best nursery stock call or write the Home Nursery, Los Angeles, Box 1335, Maywood.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Black Mission and San Pedro Fig Trees. 7000 Malaga grape vines. L. A. Tuttle Nurseries, R. No. 1, Pasadena.

DUCKS

Mammoth White Pekin duck eggs for hatching, \$1 per dozen. A. Surtman, Petaluma, Cal.

HORSES

For Sale—Good young work horses, 1,400 1,600 lbs. R. F. D. No. 1, Box 133, Tracy, California.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. La Corona Goatsery, El Monte, California.

For Sale—Goats: 800 Angoras, mountain raised, mostly young. Kidding April 1 to May 15. Registered sires. I. B. Putnam, Visalia, California, R. A. Box 284.

MISCELLANEOUS

Homespun Tobacco—No. 1 Tennessee red, 5½ lbs., \$1.80; No. 2 smoking 5½ lbs., \$1.65; 5½ lbs., choice burley smoking, \$2.75. All prepaid. Satisfaction or money back. Farmers' Association, Dukedom, Tenn.

Powerene—County Rights Free. It equals gasoline at 5c. Adds power, prevents carbon, saves repairs. Guaranteed safe and harmless. To introduce, the equivalent of 20 gallons prepaid \$1, if ordered now. P. Barnes, Dept. E, Santa Rosa, California.

Attention Property Owners—Don't guess at it. Have your Septic Tanks built by an expert. Satisfaction guaranteed. Write for price to August Nelson, 215 East Main Street, Santa Maria, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Homespun Smoking or Chewing, 5 lbs. \$1.50, 10 lbs. \$2.50. Valuable formula. Smoking 5 lbs. \$1.00. Pigeon Roost, Sedalia, Ky.

Kentucky Natural Leaf Tobacco, smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Ky.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Posts—Lumber Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

For Sale: Hundred head picked dairy cows (grades). Tuberculin tested and stanchion broke. Most cows with third calf. Complete equipment for high class dairy. Address, 216 Third Avenue, Santa Barbara, California.

Innisfail Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Lessees, Davis, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Huaneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

DUROC-JERSEYS

Weanling Boars and Glits by Pathfinder Wonder (Great Wonder 1 Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glits. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs—Moderate prices on bred glits and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

Big Type Durocs—Better Durocs at right prices. Harvey M. Berglund, Dixon, California.

BERKSHIRES

Berkshire Glits—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

HAMPSHIRE

Hampshire Swine—always top the market. We have for sale, purebred Hampshire Hogs of all ages. Write us what you want. Address Braemar Ranch, Santa Barbara, California.

POLAND-CHINAS

Big Boned Poland Chinas—Bred glits and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bennett Bros. Hanford, California.

WANTED

Want to Hear From Owner Having Farm For Sale; give particulars and lowest price. JOHN J. BLACK, 116th Street, Chippewa Falls, Wisconsin.

Experienced Married Dairyman and Hog Raiser wishes to rent, equipped ranch on shares, or position as foreman. Stockman, 1715 O Street, Sacramento, Calif.

We Want a Few Thousand first class navel one and two year old trees not damaged by frost. Southwest Nurseries, Head Office, Harlingen, Texas.

FARM LAND FOR SALE

STROUT'S NEW CATALOG FARMERS! FARMERS! FARMERS!!! Just out—describing in detail 1200 poultry, fruit, truck, stock, dairy, grain, cotton and general farms; farms to meet your requirements—small farms near big cities—large farms in rich agricultural districts—farms with stock, tools, seed, equipment, ready to produce from date of possession—many waterfront and lakeside properties. Just look on page 106 and see how \$700 gets a 160-acre farm with 12 cattle, 24 hogs, poultry, vegetables included, handy village, lots wood, 70 apple and peach trees; good cottage, 2 barns, etc., everything only \$1400. Several pages devoted to "Special Bargain" farms—requiring first payment of \$500 and less. The helpful coast-to-coast service of the organization that last year sold 5100 improved farms throughout the 38 states and Canadian provinces in which it operates is yours for the asking. Start right—get this big illustrated book—study it—and have your crops in for the growing season. Write for FREE copy today. STROUT FARM AGENCY INC., 831 H K, New York Life Bldg., Kansas City, Mo.

120 Acres Farming and Grazing Land, fenced and cross-fenced, 6 room house, barn and out houses, good well, ideal chicken ranch, ¾ mile from town. Free mail every day, school bus runs by door, 60 acres plowed ready to put in. Price \$40 per acre, easy payments. This place in Cholame Valley near Parkfield, Monterey County. C. P. GOULD, 1032 Junipero Ave., Long Beach.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

IRRIGATED FRUIT LAND

Fruit makes California the "Safe Farming" state. Irrigation makes fruit farming safe. We offer irrigated bottom land, best for big yields of fruit, at liberal terms. We have a real opportunity for you.

SUTTER BASIN COMPANY 304 California Fruit Bldg. Sacramento, Cal.

Level Unplanted Lands with Water, suitable for grape culture, \$300.00 an acre, 30 per cent cash, 10 per cent end of first year, 15 per cent end second year, 15 per cent end of third year, 15 per cent end fourth year, 15 per cent end fifth year. Fontana Farms Company, 406 Pacific Finance Building, Los Angeles.

For Rent or Sale—Good farm near Woodville, Tulare County. 8 acres 5 year old Thompsons pruned; 14 acres of alfalfa; 10 acres of 1 year Thompsons; 8 acres of raw land. Ranch is on Tulare-Porterville highway. Electric pump and pipe line. Sale price \$18,000. Address Box 366, care E. E. F., Willows, California.

Farmers, Attention—Literature, newspapers and price list of farm lands of Colusa County, the banner County of the great Sacramento Valley, free for postal card. F. B. Pryor, Colusa, California.

Merced: Yosemite's Gateway, offers best values in irrigated fruit and alfalfa lands. Free information; reference to reliable dealers. Insist your title be certified. Merced Title Guaranty Co., Merced.

Paradise, the Fruit Grower's Opportunity. Water, electricity, telephone, good roads, healthful climate. Write: C. H. Nielsen, Paradise, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Bldgway 5401 Los Angeles Calif

MACHINERY

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Fine Deep Well PUMPING PLANT, 15 h. p. Western engine, just reboared. Famous double acting AMES pump with friction pulley, 8 inch casing, 7 inch brass double acting cylinder, double rods for 120 ft. well; for cash or trade for late model Dodge auto. Demmitt Co., office upstairs, 120 N. Main, Los Angeles.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

HEREFORDS AVERAGE \$163 AT DAVIS

The annual spring sale of the Pacific Coast Hereford Breeders Association was held at the university farm, Davis, during Stockmen's Week and was in a measure a disappointment to the consignors, the 68 head of bulls and females making the general average of \$163. While the level of values can be regarded as quite conservative it represents a considerable penalty to breeders presenting breeding material in poor condition. Throughout the sale the buyers showed a disposition to set fair prices on the better sorts and in nearly every instance a

premium was paid for quality and condition. That fact should be taken home by all breeders who court patronage at public vendue. Furthermore California cattlemen are becoming mighty discriminating in making their selections.

The sale consisted chiefly of bulls and for the most part these were taken by range operators. The A. S. Nichols Co., Sierraville, made selections from the top sorts and J. G. Taylor of Lovelock, Nevada, was the heaviest buyer—taking ten head. W. S. Orvis of Stockton who has been an extensive buyer for the past year added ten females to his herd. S. R. Crowe of Pleasanton secured one of the real bargains when Don Woodford 4th fell to his bid of \$425. J. R. Scheimer of Princeton paid the top price of \$450 for the attractive young bull consigned by the university.

The sale was managed by the California Breeders' Sales and Pedigree Company, Sacramento and Col. H. L. Hull of Iowa was the auctioneer. Col. Davis of Manteca assisted in the ring.

A representative list of sales follow:

Consigned by H. A. Baldwin, Pleasanton

1. Beau President 1st, Nov. 1919; Geo. W. Harwood & Sons, Milford, \$300.

2. Nebraska Lad, Dec. 1920; Roy Owens, Cottonwood, \$260.

3. Junior 28th, July 1920; W. S. Orvis, Stockton, \$210.

4. Superior Mischief 3d, July 1920; R. H. Smith, Ferndale, \$160.

5. Bright Duchess 73d, Nov. 1919; Orvis, \$150.

56. Mischief, Sept. 1918; Orvis, \$160.

57. Elsie, Jan. 1919; Orvis, \$205.

58. Anna Belle, Jan. 1920; P. A. Gordon, Grass Valley, \$185.

Consigned by A. H. Barnum, Moro, Ore.

5. Donald Carlos 3d, Apr. 1920; A. S. Nichols Co., Sierraville, \$325.

6. Val Carlos 2d, May 1920; Nichols, \$330.

7. Beau Carlos Goods, Aug. 1920; Smith, \$410.

59. Princess Valley 7th, Oct. 1916; Orvis, \$180.

60. Nettie Donlad, July 1917; Orvis, \$165.

Consigned by H. M. Barngrover, Stockton

8. Don Woodford 4th, Nov. 1917; S. R. Crowe, Pleasanton, \$425.

9. Edgewood 6th, Mar. 1920; J. G. Taylor, Lovelock, Nev., \$145.

10. Don Thelmo, Jan. 1920; Taylor, \$145.

11. Edson D., May 1920; Taylor, \$145.

12. Don Virgil, May 1920; Taylor, \$160.

13. Modest Monte, Feb. 1920; Crowe, \$150.

14. Donna's Beau, Mar. 1920; Taylor, \$145.

15. Merry Rosemont, Jan. 1920; Taylor, \$135.

16. Beau Lightly, Feb. 1920; Taylor, \$135.

17. Little Rosemont, Feb. 1920; Delta Land Co., Lodi, \$135.

18. Mary's Will, Mar. 1920; Taylor, \$135.

19. Drillmaster, Feb. 1920; Taylor, \$135.

61. Freightress, Nov. 1917; Gordon, \$120.

62. Miss Laura, Aug. 1916; Orvis, \$200.

63. Freightress 3d, Aug. 1917; Orvis, \$135.

Consigned by Roland Bass, Standish

20. Tom Corinna, Aug. 1920; D. M. McLemore, Klamath Falls, \$115.

21. Oswald, June 1920; McLemore, \$115.

22. Hiawatha, Aug. 1920; McLemore, \$115.

23. Traveler, June 1920; McLemore, \$115.

Consigned by W. J. Bemmerly, Woodland

24. Frank Cook, Dec. 1920; Crowe, \$160.

Consigned by Wm. Briggs, Dixon

26. Blanchard, Apr. 1920; Smith, \$175.

28. Rupert Dare, Oct. 1920; Smith, \$135.

Consigned by H. H. Gable, Esparto

37. Sol Blanchard, Mar. 1920; Delta Land Co., \$180.

38. Pat Comfort, Mar. 1920; Henry Schneider, Slough House, \$170.

39. Woolsey, Feb. 1920; Schneider, \$170.

40. Isidro, Apr. 1920; Schneider, \$170.

64. Adiana, Mar. 1920; J. R. Scheimer, Princeton, \$130.

65. Sapphire, Mar. 1920; Scheimer, \$130.

66. Maid Marian, Feb. 1920; Scheimer, \$130.

Consigned by G. W. Harwood, Milford

41. Gaylord, Dec. 1916; Delta Land Co., \$115.

Consigned by Jas. B. McNeerney, Carlton, Ore.

45. Blanchard Gay Lad, July 1919; Nichols Co., \$335.

46. Blanchard Lad 20th; H. W. Hobart, Red Bluff, \$160.

47. Beau Parsifal, Sept. 1920; Orvis, \$175.

48. Mystic Blanchard, Jan. 1920; Smith, \$225.

Consigned by Ed T. Morgan, Northam, Nev.

72. Riverside Connie, Aug. 1919; C. B. Kidwell, Dixon.

73. Miss Perfect 3d, Mar. 1917; S. B. Raney, Davis, \$150.

74. Miss C. 28th, May 1919, and C. C.; Kidwell, \$150.

75. Miss C. 10th, Jan. 1919, and C. C.; Orvis, \$160.

76. Grace George, Mar. 1918, and C. C.; Orvis, \$160.

Consigned by University of California

77. Bright Bessie, Mar. 1920; Orvis, \$130.

54. Sophie's Fairfax; Scheimer, \$450.

Consigned by J. A. Bunting, Mission San Jose

33. Bourbon C., Jan. 1920; F. P. Childs, Red Bluff, \$120.

34. Mission Apple, Nov. 1920; L. M. Reggio, Angel's Camp, \$130.

35. Mission Wing, Nov. 1920; Taylor, \$140.

Renew Your Flock SPRING PULLETS TOM BARRON STRAIN

These birds have no equal
for laying capacity.

Write for general catalog
Everything for the Poultryman

C. E. HILL CO.

418 11th St. Oakland, Cal.

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 20, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, anything like it anywhere. Perfect ventilation.

We are exclusive hatchers for spring of 1922, for F. B. Rigbardeon, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 selected breeding hens.

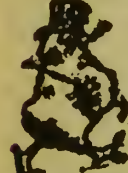
Agent for "Pride of Petaluma" Brooder Stores.

Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

B. R. HOLLOWAY

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"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

PIONEER HATCHERY

320 So. Spring St., Los Angeles, Calif.

"World's Largest Chick Dealers"

The Redwing Hatchery

Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY,

2030 E. Florence Ave., Los Angeles, Calif



Baby Chicks

Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

Fancier's Exchange

640 So. Main St., Los Angeles, Cal.

CURTISS THE POULTRY PRODUCER

This farm entirely devoted to raising of baby chicks and developing pullets. Most efficient methods known used, coupled with equipment approved by U. S. Experimental Farms as best by test. All pullets sold soon as weaned, hardened and free from cockerels.

We save you time, money, and worry by stocking you either big or small for commercial egg production.

Fancy or General Utility Stock
Write Us for Prices

CURTISS POULTRY FARM

Phone 78-J-4

RFD 1, Box 163 East San Gabriel, Calif.
1st Street and Grand Ave.

For the Benefit of the Beginner



AS A rule it is always the safest plan for beginners to be guided, to a degree at least, by the experiences of the successful poultrymen in the same neighborhood. Through costly experience and close observation these men have learned that certain methods of yarding, housing, breeding or feeding are best in that particular locality.

Location

When we consider the production of perishable commodities, especially eggs, which must be marketed very promptly, nearness to market is a most important item. Under the intensive system which surrounds egg production in Southern California the price of land within reasonable limits is not a controlling factor. In other words, it seldom pays to buy cheap land remote from market with the idea of saving expense. A poultry ranch should be located either on a boulevard or a good road so that eggs may be handled at lowest cost. The price charged for hauling eggs or feed is dependent upon ease of access. Where the arrangement of the ranch makes loading difficult no feed dealer can make the lowest price, and no truckman wants to drive into premises where he is in danger of getting stuck in mud or sand.

Water

If Southern California is to become one of the leading poultry sections of the United States it will be because our hens have green feed the year round. Abundance of water is necessary for growing this feed. Anyone buying land for a poultry project will do well first to investigate the water supply for irrigation. Good management can overcome many other difficulties, but a poultry ranch without water is hopeless.

Fundamental Problems

Four great problems face the beginner in the poultry business: incubation, brooding, egg producing marketing. Finding a solution for anyone of these is a man sized job. Yet the beginner, as a rule, having small experience, is face to face with the entire group and must solve them in one way or another.

Incubation

It is well for every poultryman to know something practical about incubation, yet for the beginner to invest in an incubator room and high priced equipment is seldom good business at first. The hatching of chicks has been so standardized that it will not be difficult to secure strong, well bred chicks at a moderate cost.

Brooding

It is not possible at the present time to have brooding done by a specialist. The efforts to establish great brooding plants have, up to the present, not proven successful. Unfortunately it is necessary, even for the beginner, to make arrangements to brood his own chicks.

The three fundamental things which must be considered in brooding chicks are fresh air; proper temperature which will make all the chicks comfortable, especially in the morning; and moderate feeding. We wish to bear down on fresh air and overfeeding. A great many chicks are overfed, especially in the afternoon. Any chick which comes out in the morning with feed in its crop was overfed the day before.

Egg Production

Egg production is the thing which will make or break the poultryman. It will cost at present prices from \$1.50 to \$2 to feed a hen one year. A hen must lay eggs to this amount before she pays for her board. For this reason the production of eggs is the keystone of the poultry industry. It is practically impossible to show a considerable profit unless a reasonable percentage of the eggs marketed are sold in the fall and winter. A great deal is being done in every section of the country to build up the quality of the laying stock. The most profitable are the so-called 'laying strains.' When we have secured laying hens or pullets from such stock, feeding is the next consideration. The

Southern California poultryman is at present face to face with the fiercest competition from middle western farmers. It is therefore necessary that California poultrymen, with their superior skill, ability to produce eggs when eggs are high, and the ability to supply eggs of uniform quality, more than offset the advantage which the eastern grower has with cheaper feeds. For a little more than two years, Southern California has been shipping eggs to the eastern markets and so far has been very successful in meeting competition. The California poultryman, however, cannot afford to waste money buying feeds which will not give the highest results. While chemical analyses are valuable, it requires a feeding test to form an intelligent conclusion. The selection of good breeding cockerels is of great importance, but in our opinion, proper feeding is of still greater importance, because it is possible to demonstrate that through improper feeding, the chicks hatched are not normal and the losses from the very beginning are excessive. This loss extends beyond the brooder stage into the laying house.

Marketing

Where the beginner has but a few hens, it is probable that he will find a local market for his product, or he can with advantage perform the marketing service and secure an increased return on his product; but where he has 500 hens or more, the increasing amount of time which it takes will soon tell on the production of his flock. In other words, if time is spent in marketing which should be spent in caring for the hens and thus securing the largest production, then the whole proposition is in danger of failing from neglect of the poultry itself.

The great marketing associations are formed especially to take care of this very problem, and these associations are constantly growing in power and importance. Sooner or later, the poultryman should investigate the advantages of selling his eggs through the organization. If our marketing problems in Southern California are met in an intelligent way, and if the poultryman will show equal intelligence in feeding his flocks, there is nothing to fear from present conditions. The production of eggs in this district has grown to immense proportions. It would be folly to continue to increase production when one-fourth to one-third must already find a market outside the state unless efforts be made at the same to develop outside markets. As a whole, the poultry industry of Southern California is abreast of the times in brooding, feeding, egg production and marketing.

To build up a great industry in Southern California, we need only to follow the lines already laid down. This will give employment to many who are seeking homes in California and also bring to the state large returns from eggs sold in New York and other eastern markets. We anticipate that it is only a question of time until the California cold storage egg will stand as high in the estimation of buyers in the east as the California extra fresh does at the present moment.—The Cooperative Poultryman.

SOUTHERN CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The Rhode Island Red pen owned by Ferd Heying takes first place for pen production for January with 174½ eggs, while Geo. C. England's White Leghorn pen is a close second with 173½ eggs, and California Leghorn Breeders third with 171½ eggs. The Anconas make their first appearance among the higher producers, C. W. Norton's pen taking a place with the highest ten pens.

For individual production the Rhode Island Reds win both first and second places for the month, birds belonging to Ferd Heying laying 27 and 26 eggs respectively. Third place was taken by G. B. Wilken's White Leghorn No. 307 with a production of 25 eggs for the month.

The egg production for the contest flock for January was 28.23 per cent. The birds consumed on an average 2.64



THE POMONA

Duplex Plunger Deep
Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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Manufacturers of the

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ADAMS PIPE WORK

New and second hand pipe and casing
Riveted steel pipe, valves and fittings
Mail orders given prompt attention
Write, phone or call.

2025 Bay St., Los Angeles, Cal

The E. Z. CLOVER CUTTE



\$8.50

Postage Extra

For small Poultry

Plants. Made of the

best material and fully guaranteed. Cut dry or green feed. Weight, 15 pounds. Crated. Ask your dealer or write for circular.

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Moe's Poultry Supplies

Chick Feeders



Use Moe's Poultry Yard Fixtures. Designed by specialists, made to last. Ask your dealer and send for our catalogue.

HOEFT & COMPANY, INC.

220 No. Alameda St. Los Angeles, Cal



Try the Coulson

System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars. Coulson Co., Petaluma, Cal.

Chickens Sick? Hens Not Laying?

GERMOZONE will rid your chickens of worms, mites, lice, ticks, and all other parasites. It is a powerful disinfectant, kills germs, and keeps them healthy. For over 10 years the dependable remedy. Get GERMONE, also GERMONE Lotion, at drug or feed stores. If no dealer, order by mail. Footman will collect 75c and \$1.50 plus. No extra charge.

GERMOZONE Co., Dept. F-30

When Writing Advertisers Please Mention Cultivator

pounds grain, 2.84 pounds mash and 7 pounds green feed.

Owing to the lateness in the season when many of the birds began to lay the rule barring from competition any bird laying 50 per cent or more of eggs weighing less than 22 ounces to the dozen in any one month after January 1 will not be put into effect until February 1.

All birds are White Leghorns except as otherwise noted.

Highest Pens

Ferd Heying (R. I. R.), 174% eggs; Geo. C. England, 173%; California Leghorn Breeders, 171%; E. E. Eisenberg, 164%; E. E. Rogers, 163%; R. C. Gibson, 159%; F. M. Molby, 133%; C. W. Norton (Ancona), 129%; M. A. Schofield, 126%; B. S. Smallwood, 124%.

Highest Birds

Ferd Heying (R. I. R.), 27 eggs; Ferd Heying (R. I. R.), 26; Geo. B. Wilken, 25; B. S. Smallwood, 24; R. C. Gibson, 24; Geo. C. England, 24.

NEWS FROM FARM BUREAU EGG LAYING CONTEST

The production of the 62 ten hen entries is rapidly climbing with the approach of spring. The average yield for the 31 days of January was 44.4 per cent, an increase of 11.9 per cent over December. Alex. Stewart's pen of heavy producers still holds its position as leading pen which it has held since the beginning of the contest, October first, but it has at last had to step aside in favor of R. H. Young's ten promising layers as high pen and blue ribbon winner for the month. Mr. Stewart and his ten splendid pullets are to be congratulated for it is not often that one pen will so consistently hold the lead and at the same time win the blue ribbon for high pen for the month in three consecutive months. Alex. Stewart's pen took second ribbon for January production and Bolfin's Poultry Farm of Gilroy came third. Stewart's hen again won first ribbon for high hen for the month with a yield of 28 eggs, making her total to date 107 eggs, which is the highest individual score in the contest to the present time.

The high hens for January are owned by Alex. Stewart and Mrs. Kleinsmith, 28 eggs; Hollywood

PIPE

RIVETED WATER PIPE

Montague Well Casing and Riveted Steel Pipe for Surface Irrigation.

Oil and Water Tanks, Siphons, Stacks and Steel Flumes.

Write for Price List No. 3.

Montague Pipe and Steel Co.

WELL CASING

San Francisco.

No Rubber but More Stretch in

EXCELLO SUSPENSERS

—and a Year's Wear Guaranteed—

Ask Your Dealer

Price 75c

Ask for No-Way Garters and Hose Supporters

No-Way Stretch Suspender Co., Mfrs., Adrian, Mich.

Bee Hives and Supplies

Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

The A. I. ROOT COMPANY, Dept. B.

1824 E. 18th St., Los Angeles, Cal.

PACKERS OF AIRLINE HONEY

Farm, W. H. Marshall, Alex. Stewart, R. H. Young, Komatsu, H. C. Kleinsmith, 26 eggs.

Fourteen individuals have laid 75 per cent or better for the first four months, and the ten highest are: Stewart, 107 eggs; Kleinsmith, 104 (Barred Rock); Marshall, 104; Thornehill, 102; Stewart, 102; Thornehill, 98; Corbett, 97; Stewart, 97; Russell, 95; Hanson's, 94.

This month the contest flock consumed an average of 8.83 pounds of mash and 11.1 pounds of grain per 100 hens per day at a cost of 12.37 cents. The mash cost \$2.28 and the grain \$1.80 per 100 pounds.

Poultry Queries

Conducted by Jean A. Koethen

Hens With Spurs

Some of my White Leghorn hens, one year old, have spurs like a rooster. Would you advise cutting the spurs off, and would you cut them off smooth or just pull off the cover?—Subscriber, Cloverdale.

Cut the spurs off smooth, but not too close to the shank. I do not know why the hens of some strains grow spurs as they advance in age. The thing seems to be congenital, and is not uncommon in old hens though rare in young ones. If you wish to breed out the tendency do not use these hens in the breeding yard.

Vegetable Protein

Why do most laying mashers contain soya bean meal and oil cake meal, and what is the food value and digestibility?—Subscriber, Glendale.

Soya bean meal and linseed oil cake meal are rich in vegetable protein, the oil cake having a nutritive ratio of 1 to 2 and the soy bean a ratio of 1 to .9. Digestibility of protein in oil cake is about 25 per cent and in soya bean nearly 30 per cent. These vegetable meals are somewhat cheaper than meat, and when used in a mash with meat give apparently as good results as meat alone. Experiments at Davis showed that when vegetable and animal protein were used half and half in the laying mash the hens produced as many eggs as when all animal protein was used.

Narragansett Turkeys

I have Narragansett turkeys and would like to communicate with some one else who has this breed. Mine are the Silver Tipped Wild and Black Mohawk.—A McCall, Watsonville.

Mrs. T. T. Middleton of Lone Star Ranch, Lankershim, very kindly sends a list of Middle West breeders of Narragansetts. The list includes Mrs. Perry Meyers, Fredonia, Kansas; F. L. Peterson, Asherville, Kansas; Mrs. Charles Dietz, Manchester, Oklahoma, and others.

White Orpingtons

In looking over the Cultivator poultry ads I notice there are several Buff Orpington ads but none of White Orpingtons. Is this because Buffs are better than Whites? I have been told that White Rocks are the same as White Orpingtons. Is this true? I should like to buy a little White Orpington stock.—Subscriber, San Gabriel.

I believe Buff Orpingtons have a better reputation as layers than the Whites. At any rate they have made better records in some of the egg laying contests and have always been more popular. White Orpingtons have not been bred extensively in California and are seldom seen outside the show room. The White Rock is a smaller bird than the White Orpington and is an American breed while the Orpington is English. White Rocks have in general the same characteristics as the Barred Rocks.

Ipecac for Turkeys

Will you please tell me how to use ipecac for blackhead in turkeys?—Subscriber, Prosser, Wash.

The ipecac treatment, as recommended by the Doctors Wegeforth of San Diego, consisted in separating the sick birds from the flock and giving them 10 drops of fluid extract of ipecac three times a day, continuing this

dosage for three days and then decreasing to 10 drops twice a day for three days, and then finally once a day for three days. As a preventive measure a teaspoon of powdered ipecac was given twice a week for each unit of 20 turkeys, and the disease did not appear, at least had not appeared when the report was published.

Culling Pullets

At what age should pullets first be culled by the Hogan method?—Subscriber, El Centro.

Pullets are Hoganized just before they begin to lay, but are culled by appearance, vitality, etc., all winter. Some poultrymen remove from the

flock every pullet that goes broody before July and every pullet that stops laying for any reason whatever during winter and spring.

Brooding

Can you recommend a brooder for 500 chicks? Is not this too many for one flock? Can I brood 500 chicks in a house 6 by 12?—Subscriber, El Centro.

Many poultrymen brood as many as 1,000 chicks around one stove or under one electric hover. There is not much danger of the chicks trampling one another if they are warm and comfortable. Any good brooder stove will hover this number if it is of the proper

(Continued on Page 279)

KROYER BUILT

WIZARD 4-PULL TRACTOR

Has Four Fundamental Exclusive Advantages

DEPENDABILITY

1. The Only Tractor With a Rigid 4-Wheel Drive

The Wizard has all the traction of a track machine—under some conditions more—but without prohibitive up-keep expense of track tractors.

2. The Only Tractor Without Oil or Grease Cups.

Automatically oiled throughout. A great time saver.

3. The Only Tractor That is Absolutely Enclosed.

Every working part, except wheels and fan, protected against dust and dirt.

4. 35% Reserve Power After Delivering Normal Pull.

Built with over-strong parts throughout to support maximum performance.

30 Years of Development

The Wizard is Kroyer Built, and represents 30 years of experience and development by men who know tractors. It is a perfected tractor.

Send for specifications and other particulars

Kroyer Motors Company

Los Angeles Harbor San Pedro, California

QUALITY

Buckeye Brooders Are Profit Insurance

IT isn't the eggs you hatch, it's the chicks you raise that bring profits. The Buckeye

"Colony" Brooders are insurance toward success because they raise every raisable chick at a fourth the labor and half the expense. They prevent crowding, overheating and chilling, which cause that awful mortality that takes the heart out of the raiser. With them chicken raising becomes profitable and is no longer a gamble.

WRITE YOUR GUARANTEE

Buckeye "Colony" Brooders are made in three sizes and burn coal, gas or oil.

For years we have urged the purchaser to write his own guarantee on these brooders and we will sign it and refund the money if at the end of thirty days the purchaser is not satisfied.

Our new booklet, "The Revolution in Chick Raising" gives the reasons for this wonderful assurance of success, tells how poultry raising may be made profitable—and proves our statements. Get it for your guidance. Sent free on request.

THE BUCKEYE INCUBATOR COMPANY

World's Largest Manufacturers of Incubators and Brooders

914 Euclid Avenue, SPRINGFIELD, OHIO

Distributors: Portland Seed Co., 180-186 Front St., Portland, Ore.; Spokane Seed Co., 906 First Ave., Spokane, Wash.; Coulson Poultry & Stock Food Co., Petaluma, Cal.; Ansel W. Robinson, 1275 Market St., San Francisco, Cal.; Darrow Bros. Seed & Supply Co., 325 Shoshone St., West, Twin Falls, Idaho; Porter Walton Seed Co., 522-34 S. 3rd West, Salt Lake City, Utah.

Los Angeles Markets

Los Angeles, March 8, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 36 cents.

CHEESE

Brokers' prices: California firsts, 21@23. EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 24; case count, 22; pullets, 20.

POULTRY

Price to producers: Hens, 30; colored, 30; broilers, 40@45; roasters, 38; old roosters, 16; fryers, 45; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 47; old, live, 35; dr., 43; hens, live, 40; dr., 47; small hen and tom, 15; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, March 7.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00. Cattle (on foot gross weight): Steers

good, 7.50; medium, 7.00; cows, good, 6.50; medium, 6.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 8.50. Sheep: Ewes, 4.00@4.50; lambs, 12.00@13.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 1.00@1.40. Stocktons: Burbanks, per cwt., best, mostly 2.40@2.60, few best, 2.65@2.75; poorer, 2.00@2.25. Idahos: Russets, best, mostly 2.35@2.50. Sweet Potatoes: Movement moderate, market weak. Locals, No. 1, best, per lug, 85@90; poorer, 60@75 per lug. Arkansas: Nancy Halls, 4½@5.

Onions: Demand light, market weak. Stocktons: Per cwt., White Globes, best, mostly 8.50; browns, best, mostly 6.75@7.25; lugs, whites, best, 2.75@3.00; browns, 2.25@2.50. Garlic: 7@8 lb.; poorer, 5@6.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, March 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.50@1.60. Brussels sprouts: Mostly 16@18 per lb. Bunched vegetables: Per doz. bunches: Turnips, 35@40; carrots and beets, 70@75; radishes, 15@20; parsley, 15@20; spinach, 35@40; mustard, 25@30.

Cabbage: Per field crate, 1.75@2.00; best, 2.25.

Cauliflower: Market firm. Per field crate, 2.25@3.25, according to quality.

Celery: Market stronger. Locals: Best, 5.00@6.50; poorer, 2.25@4.00.

Cucumbers: Market steady. Hothouse, mostly 1.50@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 75@1.00 crate.

Lettuce: Demand moderate, market weaker. Locals: 2.00@2.25; poorer, 1.50@1.75 per field crate, according to quality.

Imperial Valley, packed crates, 3.25@4.00. Parsnips: 1.00@1.25 crate.

Onions: Green, 15@20 bunch.

Peppers: Mexican chili, mostly 10@12; Bell, mostly 20@25.

Rhubarb: Box, 2.00.

Tomatoes: Market weak. Mex., lug, repacked, 3.00@3.25; per lb., 8@10.

CITRUS FRUITS

Lemons: Demand and movement moderate. Market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 1.75@2.00.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 5.25@5.75; market pack, 2.50@4.50, according to quality; culls, 50@1.00; few best, 1.50.

Tangerines: Demand and movement light, market weak. Best, 7@8; poorer, 5@6.

HAY

Alfalfa Growers of California report: Prevailing prices last week, delivered in the vicinity of Los Angeles:

No. 1 dairy alfalfa.....25.00

Standard.....20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats.....20.00@26.00

Barley.....18.00@22.00

Alfalfa, Rabbit.....24.00@28.00

Alfalfa, No. 1 Dairy.....18.00@21.00

Standard.....16.00@18.00

Straw.....10.00

San Francisco Markets

San Francisco, March 8, 1922.

BUTTER

Extras.....35

CHEESE

Dairy Exchange quotations:

California Young America, fancy.....24

Oregon Trips.....24

Oregon Young America.....25

EGGS

Dairy Exchange Quotations:

Extra.....26

Extra Pullets.....24

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs., 43@45 per lb.;

1½ to 2 lbs., 43@45; 2 to 3 lbs., 43@45.

Colored Fryers: 2½ to 3 lbs., 43@45.

Colored Old Roosters: 18@29 lb.

Leghorn Old Roosters: 16@18 per lb.

Leghorn Hens: 2½ to 3 lbs., 25@26 per lb.;

3 lbs. and over, 27@28 per lb.

Large Colored Hens: 28@30 per lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 32@33 per lb.

Dressed Turkeys: Young, 42@44 per lb.;

off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@24 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7@7½ per lb.;

second quality, 6@6½; cows and heifers,

No. 1, 5½@6½; second quality, 4½@5½;

bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.;

heavy, 7@8 per lb.

Sheep: Wethers, 7@8 per lb.; ewes, 4@5.

Lambs: 11½@12½.

Hogs: Hard, fat, grain-fed, weighing

125 to 200 lbs., 12 lb.; do, 200 to 250 lbs.,

11 lb.; do, 250 to 300 lbs., 10 lb.; light sows,

10 lb.; heavy, 9 lb.

California Farm Bureau Marketing Association reports:

No. Hogs	Av. Wt.	Dock	Price
Modesto, March 1			
92	160	.....	12.00
17	203	.....	11.50
9	232	.....	11.00
10	470	.....	10.50
1	310	.....	9.50

129 hogs

1 car, 20 consignors, \$2,580.95.

Chowchilla, March 2

59	172	.....	11.70
21	220	.....	11.20
10	274	.....	10.70
3	380	50	8.70
2 stags	405	.....	4.00

95 hogs

1 car, 17 consignors, \$2,126.57.

Fresno, March 3

93	161	.....	11.85
23	239	.....	9.60
2	440	20	6.60

1 stag

119 hogs

1 car, 10 consignors, \$2,382.26.

Wasco, March 4

110	157	.....	11.90
74	194	.....	11.80
33	217	.....	11.30
24	118	.....	10.35
5	336	.....	9.90
2	280	.....	9.50
2	430	.....	8.00
1	400	.....	5.00

251 hogs

2 cars, 29 consignors, \$5,169.44.

Total for the week, 594 hogs, 76 consignors, 5 cars, \$12,259.22 total amount.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms:

Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 16.00@18.00 per crate.

Asparagus: 50 per lb.

Bunched Vegetables: Carrots 50@60 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20; radishes, 30.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 4.00@6.00 crate; poorer, 2.00@3.00 crate.

Eggplant: Florida and Mex., 20@30.

Endive: 4@55 per lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Imperial Valley, 3.50@4.00 crate; poorer, 2.00@2.75.

Onions: Cold storage, browns, firm, mostly, 6.00@6.50; White Globe, mostly 8.00@9.00; green onions, 2.00@2.50 per bx.

Peas 15@25 per lb.

Peppers: Florida and Mex., 15@20 per lb.; chilis, 10@17½.

Potatoes: Rivers, fancy, 2.15@2.30; Oregon Burbanks, 2.15@2.40 cwt.; Idaho Netteed Gems, 2.50@2.75; Salinas, 3.00@3.75 cwt.

Pumpkins: Per sack, 75@1.00 per sk.

Rhubarb: So., 1.55@2.00 per 30 lb. box; Bay, 15@17 per lb.

Squash: Cream, 1.25 per lug; Hubbard, 1.25@1.50 per 90 lb. sack; So., 3.00@3.50 per cwt.

Sprouts: 12@15 lb.

Sweet Potatoes: Per cwt., 3.50@3.90.

Yams: Arkansas yams, 2.00@2.15 per 40 to 50 lb. basket; New Mexico, 2.00@2.15.

Tomatoes: Repacked, Mex., 2.50@3.00 per L. A. lug; off grades, 2.00@2.50; 1.75@2.25 per crate.

Turnips: 1.25@1.50 sack.

BEANS

Below California Bean Growers Association shippers' prices choice cleaned:

Large Whites.....5.65

Small Whites.....5.75

Pinks.....5.75

Mexican Reds.....5.35

Red Kidney.....7.50

Henderson Bush.....8.25

Cranberries.....7.60

Bayos.....6.00

Blackeyes.....5.40

HONEY

Continued favorable rains have increased the chances for a heavy honey crop until present prospects are for one of the largest yields that the state has produced. The sage crop has been especially helped by the rain and even the flow of orange is expected to be greater than had been anticipated. Beekeepers are therefore increasingly anxious to dispose of their holdings of old honey before the new crop is ready for market. As a result, the market has a slightly weaker feeling, but there has been little change in prices. Movement to eastern points has been fair to moderate. Light amber alfalfa, while it is probably in heavier supply than any other honey left in the state, has sold in carlots at 6½c per pound for California points. White sage is offered in straight carlots at 10½c per pound and 11c in less than carlots. Light amber sage is offered at 8c in straight cars and 8½c per pound in smaller lots. A few small sales of white orange are reported at 11@11½c per pound, f. o. b. Beeswax: Market dull, supplies ample, but demand light, some selling at 22c cash, 25c in trade.

RICE

Rice Association prices:

Bag, 2.40@2.55 f. o. b. points.

NUTS

IXL almonds, 25 lb.; soft shell almonds, 16; do, hard, 10; budded walnuts, 32; soft shell walnuts, 30; Manchurian walnuts, 14; Brazil, 17; pecans, extra large, 23; Filberts, 14 lb.

HAY AND FEED

A. W. Scott & Co. says:

We quote today wholesale prices in carload lots as appear from dealers transfers upon the markets in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added, according to conditions).

Wheat hay No. 1.....	17.00@19.00
Wheat hay, fair grade.....	14.00@17.00
Tame oat hay.....	15.00@18.00
Wild oat hay.....	11.00@13.00
Alfalfa hay.....	14.00@17.00
Stock hay.....	7.00@10.00
Rollod Barley.....	29.00@30.00
Ground Barley.....	30.00@32.00
Oats, Rolled Feed.....	34.00@35.00
Bran and Millrun.....	32.00@34.00
Middlings.....	43.00@45.00
Coconut Meal.....	22.00@25.00
Alfalfa Meal.....	22.00@24.00
Cottonseed Meal.....	40.00@42.00
Sugar Beet Pulp.....	27.00@29.00
Molasses Tanks.....	17.00 Barr. 25.00
Milo.....	40.00@42.00
Cornmeal and Cracked Corn.....	35.00@38.00
Scratch Feed.....	45.00@47.00

GRAIN

Sales on Grain Exchange:

Barley: Feed, 1.25@1.32½; shipping 1.35@1.45.

Wheat: Mill, 2.15@2.25.

Red Feed Oats: 1.50@1.65.

Corn: California yellow, 2.10@2.20 eastern yellow, No. 2, 1.45@1.47; No. 3, 1.25@1.27; kafir, in bulk, 1.70@1.72½; white Egyptian, 2.00@2.10; California re-milo, 1.85@1.92½; do, bulk, 1.75@1.80 eastern red, 1.87½@1.90; No. 2, blk., 1.4@1.49.

Citrus Markets

Los Angeles, March 8, 1922.

Packing houses in nearly all Navel sections are in operation. Shipments from Southern California points are ranging between 50 and 150 carloads per day. Central California is doing but little shipping, only one or two carloads daily. He output was largely cleaned up in the hold day trade. Florida is now shipping around 100 cars of oranges and some days equal as many of grapefruit. Prices being received are entirely satisfactory.

Lemons, on the other hand, are weakening, and inducements to ship at this moment are not large.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California Oranges, 7,205 cars; lemons, 2,230; total, 9,435. To same date last season: Oranges, 9,389; lemons, 2,118; total, 11,507. From Central California to date this season: Oranges, 4,219; lemons, 99; total, 4,318. To same date last season: Oranges, 4,290; lemons, 103; total, 4,393. From Northern California to date this season: Oranges, 369; lemons, 7; total, 376. To same date last season: Oranges, 305; lemons, 4; total, 309.

AT THE AUCTIONS

March 6

New York: 26 or., 2 lem. Market higher: Navels 3.85@6.85, Bloods halves 2.25@2.75, Tange halves 3.00@3.80, lem. 3.20@5.20.

Boston: 8 or., 4 lem. Nav. 5.80@7.40, lem. 2.90@5.50.

Cleveland: 8 or., 1 lem. Nav. 2.80@6.40, lem. 5.30@5.35.

Philadelphia: 2 or., 1 lem. Nav. 4.40@6.55, lem. 3.65.

Pittsburg: 2 or., 2 lem. Nav. 5.80@6.05, lem. 1.55@3.70.

St. Louis: 5 or., 3 lem. Nav. 5.00@5.80, lem. 2.10@4.30.

March 7

New York: 9 or., 1 lem. Nav. 4.65@6.65, Tange halves 2.70@3.40, Blood halves 2.20@2.55, lem. 4.55@5.70.

Boston: 7 or., 3 lem. Nav. 4.95@6.85, Bloods halves 2.40@2.90, lem. 3.00@5.85.

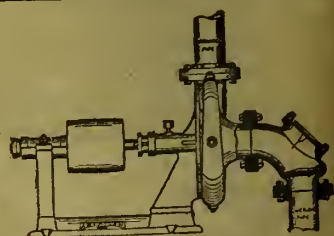
Philadelphia: 1 or., 1 lem. Nav. 5.55@6.40, Bloods halves 2.65@2.95, lem. 3.85@4.40.

THE VANISHING RACE

"Every city," says a trade journal

"is face to face with the problem of widening its streets."

Given time, the problem will settle itself. In a few more years the sidewalks can be taken up and given over to vehicular traffic. There won't be any pedestrians left.—Detroit Blaette (Munch).



American Centrifugal Pumps

Every American Pump is guaranteed to meet all conditions specified and to perform the work for which it is sold. If your water problem can be solved with any pump it can be solved with an American. Write for catalogs of horizontal and vertical centrifugal pumps and deep-well turbines and name of your nearest dealer.

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BETTER GARDENS
EASY TO KILL WEEDS
AND MULCH THE SOIL

Don't do garden work the slow, backbreaking way. The BARKER makes the finest gardens possible—quickly, easily. Simply push along rows (like lawn mower) —8 blades revolving against underground knife destroy the weeds and in same operation break the crust into level, porous, moisture-retaining mulch. Aerate soil. "Best Weed Killer Ever Used." Has leaf guards, also shovels for deeper cultivation. A boy can run it—do more and better work than 10 men with hoes.

Write for FREE BOOK
Illustrated book, postpaid, gives prices delivered to your station, contains valuable information on gardening, letters from users, etc. A card brings it. Write today.

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WATER POWER OF THE WORLD

Forty per cent of the developed water power of the world is in the United States, where water wheels having a capacity of 9,243,000 horsepower have been installed, according to a recent statement of the United States geological survey. The leading states in developed water power are New York, with 1,300,000 horsepower, and California, with 1,111,000. These state totals compare favorably with those for some of the most progressive countries in water power development in Europe, where France leads with 1,400,000 horsepower, Norway has 1,350,000 horsepower, Sweden 1,200,000 horsepower, and Switzerland 1,070,000 horsepower. The largest percentage of power has been developed in the New England states, where the capacity of the water wheels installed is 1,381,000 horsepower and the estimated potential power at low water without storage is 868,000 horsepower. In the Pacific Coast states, Washington, Oregon and California, the capacity of water wheels installed is 1,893,000 horsepower and the potential power at low water without storage is 11,500,000 horsepower. The largest water power development in the world is at Niagara Falls, where the plants in operation have a capacity of 870,000 horsepower, of which 385,500 horsepower is on the United States side. The capacity of the plants at Niagara is being increased by 114,500 horsepower in the United States and 300,000 horsepower in Canada. Other large plants are one of 170,000 horsepower on the Mississippi at Keokuk, Iowa, from which power is transmitted to St. Louis, and two plants aggregating 268,500 horsepower on St. Maurice River in Canada, from which power is transmitted to Montreal, Quebec and other cities. Canada ranks next to the United States in water power development, with 2,418,000 horsepower, or over ten per cent of the world's total.

Europe has one-third of the developed water power in the world. Two plants at Rjukan, in Norway, have a total capacity of 239,000 horsepower, and at Trollhattan Falls the Swedish government has installed a plant of 155,000 horsepower. At Lake Ffully, in Switzerland, the remarkably high head of 5,413 feet is utilized. France, Germany, Norway, Sweden and Switzerland have each developed more than 1,000,000 horsepower.

In Asia, Japan, with 1,000,000 horsepower, and India, with only 150,000 horsepower, are the foremost countries in water-power development.

New Zealand has developed only 15,000 horsepower but is rapidly increasing this amount. Australia has practically no developed water power. The island of Pava has 56,000 horsepower developed or to be developed by plants under construction. Africa possesses only 11,000 horsepower of developed water power.

The total potential water power of the world is estimated at 439 million horsepower at low water, of which 62 million horsepower is in North America and 28 million in the United States. Africa is richest in undeveloped water power, with 190 million horsepower; Asia has 71 million horsepower, South America 54 million horsepower, and Europe 45 million horsepower.

The World Atlas of Commercial Geology, Part II, Water Power of the World, which has just been published by the United States geological survey, summarizes all present knowledge of that subject, mentions briefly some of the world's largest water power developments, and gives estimates by countries and by continents of the developed and undeveloped water power. It includes 37 pages of text and 10 maps and is sold for \$1.00 copy. Write to U. S. geological survey, Washington, D. C.

HONEY PRODUCERS ARE COOPERATING

Honey producers of the state, it is reported from the office of Deputy Market Director Britt, are reorganizing with signal success. The California Honey Producers' Cooperative Exchange, in units, is holding meetings at various centers of honey production and is gathering all possible force to carry the industry through the present and third year of existence, conceded to be the critical period.

The directors of the association include Watson W. Culver and Floyd M. Jeffner of San Diego; Willis Lynch,

Stockton; Reese Powell, Riverside; Casper Houser, Sacramento; Myron H. Wells and Royal G. Wilke, Los Angeles.

Honey production of 1922, it is predicted by those who know, will more than double that of last year. Hundreds of carloads are already contracted to be shipped through the Panama to Great Britain and continental Europe.

MARKET RADIO NEWS SERVICE

Market news reports on livestock, fruits, vegetables, grain, and dairy products are now being broadcasted daily from the Post Office Department's wireless station at Washington, D. C., and can be received within a radius of approximately 600 miles. The territory covered includes nearly all the states east of the Mississippi. It is reported also that the messages have been heard in Texas.

At 12:30 p. m. a report is broadcasted giving the day's receipts of cattle, calves, hogs and sheep at the ten principal livestock markets throughout the country and also a brief message pertaining to the opening of the Chicago and St. Louis hog markets. A complete report of conditions and prices in the Chicago and St. Louis livestock markets is sent at 2:30 p. m., and the prices of fruits and vegetables in the ten principal consuming markets, at 3:30. A dairy products report of the New York City and Chicago markets is sent at 5:00 p. m., and at 5:30, a press dispatch on the Chicago grain market. At 7:30 in the evening a complete report on the Chicago grain market giving closing, future and cash grain prices, and also a summary of the Chicago livestock market and Eastern wholesalers' fresh meat market, is broadcasted. At 8:00 p. m. a report is sent giving complete quotations on fruits and vegetables in the leading consuming markets.

Each morning at 10:30 a radiophone report is broadcasted showing the price retailers pay wholesalers for fruits and vegetables in the Washington market. This report can be heard within a radius of 100 miles or more.

The establishment of this schedule extends the chain necessary to enable the agricultural interests in all parts of the United States to obtain daily information of conditions and prices of agricultural products in the leading markets of the country.

BEST CONDITION OF FRUIT FOR STORAGE

The most satisfactory condition of maturity of fruit for storage purposes is the condition known as "firm-ripe," which is the same condition which has been found most satisfactory for shipping. This fact has been determined by investigations carried on with peaches, pears and avocados in particular by E. L. Overholser, assistant professor of pomology at the University of California agricultural experiment station.

Striking differences have appeared between different varieties of these fruits in regard to the length of time in which they will keep in storage. Some varieties of plums can be kept until November, others can be stored but a few days. Apricots in general cannot be kept so long, the maximum time being two months for one variety, while most varieties cannot be held more than one or two weeks.

Tests for the most satisfactory temperatures for keeping pears show that pears harvested in the proper condition at maturity can be kept at 30 to 32 degrees Fahrenheit. When prematurely picked, however, a more satisfactory temperature is 36 degrees Fahrenheit, which allows ripening to take place. Avocados have been found to keep best at about 40 degrees Fahrenheit.

QUALIFYING

"So this applicant for the bookkeeper's job claims he is a college man?" asked the bank president, addressing his clerk. "Has he anything to back up that claim? Can he qualify?"

The clerk stepped to the door and returned.

"The young man says," he reported, "that with your kind permission he will come in and give the college yell." —American Legion Weekly.

JERSEY BREEDERS

The California Jersey breeders held their semi-annual meeting at the University Farm during the annual Stockmen's Week and the meeting was attended by 35 enthusiastic Jersey breeders. The meeting was addressed by Frank B. Astroth, field representative of the American Jersey Cattle Club, Ivan H. Loughary, secretary of the Oregon Jersey Cattle Club and B. H. Rawl, educational director of the California Central Creameries. All of the speakers emphasized the importance of more official testing and the need of taking up the accredited herd work in California, leading up to the eradication of tuberculosis. During the course of the meeting the breeders instructed the secretary to take up the matter of accredited herd work with Dr. Iverson, of the state department of agriculture, and urged that he do all he could to expedite the accredited herd plan. The various breeders present signifying their desire to immediately take up the accredited herd work were: D. F. Conant, Modesto, M. Fortini, Orland, Judge Peter J. Shields, Sacramento, C. A. Arvedson, College City, H. McComas, Modesto, N. H. Locke & Co., Lockeford, A. J. Cooper, Chowchilla, W. J. Hackett, Ceres, J. H. Sawyer, Galt.

It developed that there was a very great demand for Jersey heifers and cows within the state and plans for bringing stuff in from outside of the state were discussed. The Jersey breeders are very anxious to have more cattle and will get back of any plan which has for its purpose the bringing in of desirable "she-stuff."

The breeders present felt after due consideration that the fees for official testing should be reduced and a committee consisting of Guy H. Miller, D. F. Conant and J. W. Coppini, was appointed to interview the authorities in charge of official testing within the state.

POULTRY QUERIES

(Continued from Page 277)

size. I should not like to try to hover 500 chicks in so small a house. You could brood half that number, hardly more.

Silver Laced Wyandottes

Can you give me the address of someone who has pure bred Silver Laced Wyandottes?—Subscriber, Watts.

Will some subscriber who has this breed kindly let the world know it?

SHORTHORN SALE

(Continued from Page 271)

78. Milmar Stamp 2d, red, May 1920; Fulgham, \$225.

79. Milmar Sultan 7th, roan, Dec. 1920; Metzger, \$135.

Consigned by H. M. Elberg, Woodland

20. Missie Parkdale, roan, Jan. 1920; Fulgham, \$675.

29. Village Champion, white, Dec. 1920; J. G. Taylor, \$185.

30. Missie's Champion, roan, Jan. 1921; Taylor, \$185.

31. Rosie's Champion, roan, Sept. 1920; Metzger, \$270.

43. Champion Bud, roan, Jan. 1921; Metzger, \$130.

44. Clara's Champion, roan, Dec. 1920; Barry, \$175.

45. Roselawn's Master, roan, Dec. 1920; Metzger, \$130.

Consigned by University of California

9. Sunny Memory, red, May 1919; P. A. Gordon, \$225.

Consigned by R. T. McGurk, Stockton

17. Bessie's Danseuse, red, Apr. 1917; M. B. Church, Grass Valley, \$135.

GRAZING FEES IN INSTALLMENTS

Requirements that grazing fees on stock using national forest ranges be paid 30 days in advance were waived by Secretary Wallace, permitting the payment of fees this year in two installments. Under new regulations payment must be made on or before the date stock enters national forests and on or before December 1, 1922, without interest on the deferred amount.

In 1921 more than 38,000 livestock owners grazed 2,129,500 cattle and horses and 7,455,600 sheep and goats in the national forests of the western states.

BERKSHIRE ANNUAL

The annual meeting of the Southwestern Berkshire Congress was held in connection with the national congress at Riverside last week. Officers elected for the coming year are: President, F. L. Hall, Perris; vice-president,

C. T. Johns, Cucamonga; secretary, George A. Stingle, El Monte. Others elected on the directorate were: R. A. Condee, Chino; D. J. Bastanbury, La Habra; Robert S. Jones, Etiwanda; Alex. Wilson, Guasti.

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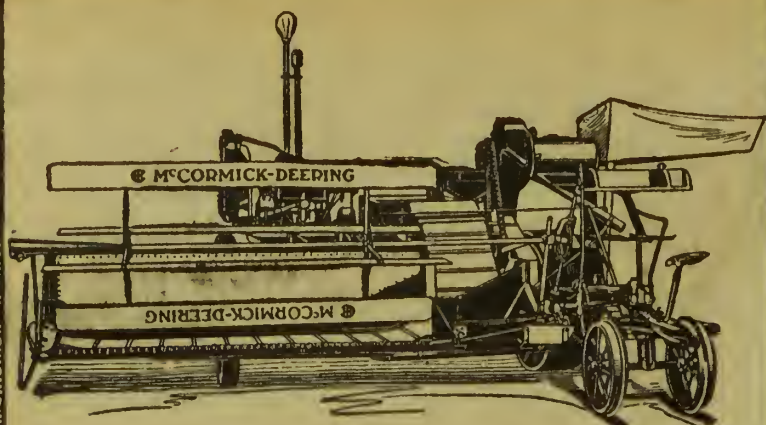
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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

March 18, 1922

No. 11

Gas Does It Quickly and Well



In a year like the present when rains are seasonable and sometimes unseasonable, it is necessary to do an immense amount of work in a short time as soon as the soil can be handled. That is, it is necessary to do it quickly if the soil is to be available for crops during the present season. Hence there is demand for power which can be driven to the limit in hours and in load. The increased area of seed bed preparation made possible through use of the tractor is a valuable consideration. Ten hours a day does not tire it for when that time has passed a new driver may press the button and with aid of electric lights keep the machine going through the night. The tractor has made a place for itself which will broaden as the years go by.

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A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916

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C. B. Messenger, Editor.
Ernest Brauntun, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
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Regular Contributors

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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, March 18, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTE

The photograph on the cover this week is strong argument for economical farm operation. Where one can attach two or more implements to one tractor and leave the seed bed ready for the planting or perhaps, as is often done, prepare the seed bed and drill in the seed at the same operation, there certainly is farm efficiency. Especially in a delayed season such as this it is necessary to have equipment that will make it possible to do the work in double quick time and do it right.

It takes \$71 worth of labor each year to support a cow. How much butter does the cow give in return for that labor? Lots of farmers can't answer that question.

CENSOR OUR WORDS

Speaking of farm loans, Secretary Wallace called attention to the advantage which some farm loan companies are taking of farmers. He said:

"One of the matters which I shall present to the conference is the thoroughly selfish and grasping attitude of many companies of different sorts

which loan money on farm mortgages. Large numbers of farm mortgages are coming due and must be renewed. Large numbers of farmers whose lands are not mortgaged are finding it necessary to mortgage them to raise money to pay floating debts which they can not meet in any other way. The farmers will have a hard time to get through this crop season and maintain their production. In view of this it is discouraging to note that many companies and individuals who are in the business of loaning money on farm mortgages are taking advantage of the farmers' distress to heartlessly extort a rate of interest and terms of loan which can not be justified. The farmer is being compelled to pay six, six and a half and seven per cent on five and ten year loans, without optional payments, and to these high interest rates a commission of five or six and in some cases as high as ten per cent is being added. Also many companies are cutting down the amount they loan per acre to the lowest possible point, thus restricting the farmers' credit at the very time when it should be expanded as far as may be done safely.

"There is no better security than a conservative loan on a producing farm, and such loans should be made at a relatively low rate of interest. No one should find fault with such restrictions as may be dictated by sound business prudence, nor should any one object to a fair interest rate, determined not by the temporary distress of the borrower but by the probable loan value of money during the next five years. But in this time of national stress one finds it necessary to rigidly censor his own words when speaking of some of the practices being followed by altogether too many companies and individuals engaged in the farm mortgage business."

? ? ?

Here is a question from a stock man which we are unable to answer. It is an honest, square question of a man willing to do his share if he only has a fighting chance. The inquirer lives in Santa Cruz County. Here is his letter entire:

"I will appreciate it very much if you will give me your candid opinion as to the future prospects of the beef cattle and hog business. Would you consider as a good investment a ranch of about 1400 acres, of which 500 acres are tillable, the remainder in pasture with oak timber, partly stocked, with necessary buildings, tools and equipment? I have had some experience in stock raising but don't know as to the future of the industry."

Unfortunately a candid opinion, expressed even because of widest observation, is of little real value these days of reconstruction. Conditions are different from those obtaining in any previous period of the world's history, and when we look at marketing, transportation and other conditions our first impulse is to say "Don't." But we recall that at the time Abraham Lincoln was assassinated and, though the war was practically over, the outlook was most serious and one of our greatest statesmen, in an effort to give at least a word of encouragement, remarked, "God reigns and the government at Washington still lives." General conditions today are vastly better than at that moment, though from a financial standpoint the outlook for the farmer is even bluer than in those days following the Civil War. Rural economists assert that "Low prices for farm products and high prices for manufactured goods represent an abnormal condition which cannot last."

Their deductions are made because of comparison of population and production figures for every year of the present century:

"The economists consider 1899 the starting point of their inquiry and represent the population, the farm production and the factory production of that year with 100 percent. Increases thereafter are indicated by 'index numbers, such as 103 or 124, meaning that there has been a jump of 3 or of 24 per cent, as the case may be. By 1903 population stood at 108, farm output at 105 and manufactures at 125. In 1907, population had still further advanced beyond food production, 117 as compared to 112, and factory output had raced ahead still further, to 156.

"In 1911 the figures stand 125, 117 and 158 respectively, and in 1914, when war broke out, population had increased 32 percent, farm products 35 percent and factory output 102 percent. In 1919, at the end of the war, the index figures read: population, 139, agriculture 138, manufactures 228. The economists contend that with food production just about keeping pace with population, while the supply of manufactured goods runs far ahead, farm prices in normal times will increase more rapidly than the price of the things factories can make. This, they say, held true in the first 15 years of the century, the normal 15 before the war, and it will hold true again."

That looks hopeful but we fear hardly gives the answer which will be most hopeful to our inquirer so we are going to pass the question along as we have many times before and ask our subscribers to unite in a bit of a conference as to whether a man can, under ordinarily favorable conditions, be justified in extending his farming operations. The same mail which brings the inquiry brings a communication from Mr. Spellmeyer as to encouraging the boys to enter upon a farming career. This discussion will be given in a later Cultivator and we ask transportation people and others to express themselves.

TO FIGHT OR NOT TO FIGHT

Many a California citrus grower is asking seriously as to the advisability of frost protection. He is not asking this for the first time for the question has been renewed repeatedly since the first citrus planting in California. It has already been answered by a great number of orchardists that it pays to heat the orchards. They have acted upon that belief, have thoroughly equipped and have succeeded, sometimes completely, sometimes only partially, in saving their crops. Again there have been others who have said that the obstacles, such as lack of capital, excessive cost, lack of ability to command labor at the exact instant it must be had to successfully fight frosts, are so great, and considering the fact that the severe frost only comes every half dozen or dozen years, they have decided to gamble on it—take their chances with the weather. Thus far the great majority of the citrus growers have been in the latter class, but as was the case after the freeze in 1913 and again in 1919 the present year's cold spell is creating renewed interest in orchard heating equipment.

If cost were not a consideration, there are now heaters so effective and provision for oil storage may be made so complete that with sufficient labor force immunity from frost damage may be secured, but with the better heaters ranging as high as \$7 and with some orchardists maintaining that there should be at least 100 heaters per acre to cope with cold as severe as that of this year it may be readily seen that the frost fighting equipment of a comparatively small orange grove calls for investment of a small fortune. So there are some

long thoughts on the part of orange and lemon growers.

This question has been taken up by the California Fruit Growers' Exchange, which has appointed committee from members of the board of directors. In addition a subcommittee has been named, connected with the Fruit Growers' Supply Company.

The question has been taken up by the Fruit Growers Supply Company the board of directors of which has appointed a committee to investigate as to whether a more satisfactory and economical heater may not be secured. The committee consists of W. K. Beattie of the Stewart Citrus Association; C. C. Teague of Limoneira Company, Santa Paula; H. A. Lynn of Riverside Arlington Heights Association; D. C. Cruikshank, La Verne Citrus Association; R. H. Wilkinson, Semi-Tropic Fruit Exchange; R. L. Willits, Queen Colony, Corona; R. L. Knox, San Antonio Exchange, Pomona; and J. D. Culbertson and H. E. Wallcott, committeemen at large. The formal report of this committee has been presented to the general board at its meeting this week and will be quoted from more largely in our next issue. In a word it has to do with standardization of heaters. Methods of work, handling of labor, cooperation with the weather bureau have been most thoroughly worked out in former years, but the really dependable heater to be had at a reasonable cost has been made a study by the committee. Mr. Hutchens, manager of the Supply, says that there will probably be no investigations or demonstrations along the lines of new methods. The idea will be to stick to California oil which has proven itself to be the best and most dependable fuel on earth and then secure the heater which delivers the maximum heat of the oil.

STANDARDIZING SERVICE

California has been a pioneer in fruit standardization. She has appreciated the value of reputation and tried earnestly to ship every box of fruit which would be equaled by every other box bearing the same brand or mark. She has succeeded. If not to perfection, she has achieved a great measure of commercial success. Diamond Brand, Sun-Maid or Sun-Kist and many other brands have arrived at the point where they are known to mean dependability. In line with this our county horticultural commissioners and the officers working under direction of the state department of agriculture have standardized or, perhaps more correctly, are standardizing, the service.

The federal department of agriculture is likewise rendering valuable aid, but we believe the department at Washington is rather more deliberate in breaking away from red tape and following new methods. The police service of the department has endeavored to prevent cull citrus fruits from being dumped in the eastern markets, and with this every grower is in harmony, but when the federal authorities make inspection of a car and then hold on siding for ten, sometimes possibly 15, days before releasing, it is rendering "service" which certainly lacks much of being standardized. The citrus league has a desire to aid the department in this matter of standardization and to that end has secured H. H. Warner of the state department of agriculture, who has gone to Washington and is representing the league in an effort to secure quicker release of perishable fruits.

California Cultivator

Vol. LVIII, No. 11

Los Angeles, March 18, 1922

One Dollar Yearly



WILL WORK WONDERS IN HARNESS

Cartoon used by permission of M. H. de Young of the San Francisco Chronicle.

Measurements of Colorado River Flow

THE development of the agricultural, water power and other resources and the construction of works to prevent floods in the drainage basin of the Colorado River offers problems of national and international as well as local and state interest, for the basin has an area of 244,000 square miles and includes parts of seven states and of Mexico. As all such development in the basin is primarily limited by the quantity of water available, reliable stream flow data, showing the total annual discharge of the river and its distribution through the year and through the drainage basin, are needed for the proper consideration of the problems involved, among which are the effect of the use of the water on the interests of the several states or of the United States, the location and design of hydraulic structures, and the administration and operation of hydraulic works.

A study of the information now on hand indicates that the principal needs can be met by accurate records of the flow of the river taken at 12 base gaging stations, six on the main river and six on the principal tributaries. In addition to these base stations secondary stations will doubt-

less be needed for the solution of special problems. The base stations on the main stream are Yuma, Topock, Boulder Canyon, Bright Angel, Lees Ferry and Cisco. The stations on the tributary streams are on the Green, San Juan, Little Colorado, Virgin, Williams and Gila.

For the purpose of coordinating stream gaging in the Colorado River basin and obtaining the data required, the United States geological survey proposes to cooperate with all those who are interested in the development of the basin in establishing and maintaining these base stations according to standards that will yield records of the highest type. These standards will require that the stations be equipped with water stage recorders and measurement cables.

In studying the water resources of the United States the geological survey maintains offices in 22 districts and three subdistricts. Four of these lie in part within the Colorado River drainage basin, as follows:

Arizona: Roger C. Rice, district engineer, 104 Agricultural Building, University of Arizona, Tucson, Arizona.

Colorado, Wyoming and New Mexico: Robert Follansbee, district engi-

(Continued on Page 290.)

Control the Colorado

The eyes of the Southwest are on the Colorado River Basin; the eyes of the nation are on the Southwest. Congress is considering some of our problems, rather, some of the problems which are nation wide in influence and which only congress can solve. It is due to ourselves, we of the Southwest, that we join in the campaign of education. Millions east of the Rockies have an idea that congress, in making appropriations or in advancing revolving funds for the development of the Southwest, is developing extreme sectionalism. Congress did not aid the settler in the valley of the Ohio in clearing off the beech and maple trees, so why should congress aid in reclaiming the desert? But as it exists today the desert is a liability of our nation. As it should exist tomorrow it will be a wonderful asset which will return thousands for hundreds spent in its reclamation. Statements can be made which will appeal to long headed business people of the East. We of the Southwest should pass on these statements. We should show wherein the reclamation of desert lands, the conserving of flood waters, the creation of hydro-electric power is a movement national in scope and national in benefits.

We are glad to give on this page an article furnished by the geological survey, touching upon some of the preliminary work which it has conducted for a period of years. The measurements made and data gathered are necessary before definite plans can be completed.

Besides, there is a statement made by Arnold Kruckman, secretary of the League of the Southwest, regarding some of the accomplishments and lack of accomplishments of the Colorado River Commission which is meeting with Herbert Hoover this week.

Again we make a limited extract from the Fall-Davis report which was presented to the United States senate by Secretary Fall on March 1. This report will certainly prove invaluable in convincing congress of the awful menace of the Colorado uncontrolled and the wonderful wealth of the Colorado reclaimed.



Agricultural News Notes of the Pacific Coast

Northern California

Large plantings of peaches are being made in Tehama County.

The accredited hatchery list in Sonoma County for March includes 15 names.

The new wool laboratory will soon be completed at the university farm at Davis.

An epidemic of coccidiosis among baby chicks in Sonoma County has alarmed poultrymen.

Directors of the Glenn-Colusa irrigation district have sent out water rates for the coming season.

Improvements are to be made on the Sonora-Tuolumne road that will eliminate the Buckhorn grade.

R. B. Eason, poultry specialist of the agricultural extension service, is making a survey in Sonoma County.

A sale of 30,000 bags of rice was made by the California Rice Growers Association at \$2.60 for No. 1 paddy.

Asparagus canners are reported offering 6 and 6½ cents a pound in the Rio Vista district of Solano County. Shipments are practically a month late this year.

R. L. Nougaret, in charge of the state viticultural service, is canvassing grape growing sections to learn probable requirements for cars in the shipping season.

Entries closed March 1 in the Sonoma County Apple Growers contest. The object of the contest is to determine best methods of culture to obtain quality and production.

Bodega-Valley Ford farm center has begun arrangements for a dairy cattle show to be held at Valley Ford the early part of June, jointly with Tomales farm center of Marin County.

The last right of way deed in the northern unit of the Santa Rosa-Schellville state highway has been signed and bids for construction will soon be invited by the highway commission.

The annual membership meeting of the Sonoma County farm bureau was held at Santa Rosa, February 22. President Walker of the state federation spoke on the agricultural conference at Washington.

At the request of Placer County growers E. O. Essig and W. P. Duruz of the university's deciduous experiment station at Mountain View will study control of peach twig borer in Placer County orchards.

The use of tobacco dust to fight bird and insect pests is urged by Horticultural Commissioner Bremner of Sonoma County who says that more than \$100,000 damage yearly is done by birds in eating off the new fruit buds in Sonoma County orchards.

Officers of Sonoma County farm bureau for 1922: president, Sheridan W. Baker, Santa Rosa; vice-president, John R. Denman, Petaluma; directors at large, Wm. Motle, Sebastopol; Arthur LeBaron, Valley Ford; C. E. Humbert, Cloverdale; E. O. Hussey, Cinnabar.

The California Cherry Growers Association has been conducting a membership drive in Alameda and San Joaquin Counties. Directors are: L. A. Frei and F. W. Maddock for Sonoma County; L. F. Coombs, Napa; A. B. Haslacher and C. Searles, San Joaquin; C. Long, Jr., Alameda.

Central California

Raisin Day this year will be held on April 29.

A Madera County dairy council was organized at Chowchilla recently.

The milk sugar plant is now in operation at Gustine, Merced County.

The Turlock Melon Growers' Association has elected its permanent board of directors.

Stockmen in the Coalinga section are planning to increase their herds because of splendid feed prospects.

Frank R. Brann, formerly deputy, is now horticultural commissioner of Tulare County, following retirement of C. C. Collins.

Early planted wheat in the Mariposa section has been held back by cold weather and heavy rains, but farmers expect record breaking crop.

Miller & Lux have won their injunction suit against the Madera irrigation district enjoining issuance of \$700,000 bonds for the Chowchilla project.

Farm center meetings in Kern County: Mountain View, March 20; Pond, 22; Inyokern, 23; Rosedale, 24; Shafter, 27; Arvin, 31; directors, Bakersfield, April 1.

Santa Cruz County recently secured the services of a home demonstration agent; now the women of Monterey County are asking that one be appointed for their county.

At a meeting of dairymen called at Salinas, Monterey County, by the state dairy council, a committee was appointed to make initial plans for the forming of a cow testing association.

A peach packing plant and a fig packing plant will be built at Dinuba by the California Peach & Fig Growers. Both are to be ready for the coming fruit season. They will be of concrete.

Over 97 per cent of the acreage in prunes and apricots in Tulare County is signed up with the Prune & Apricot Growers' Association. The Visalia plant of the association is in charge of R. J. Morehouse.

Farm home department meetings in Kern County: Committee, March 18; Edison-Fairfax, 20; Weed Patch, 21; Arvin, 22; Inyokern, 24; Rio Bravo, 27; Pond, 28; McFarland, 29; methods training class, 30.

Citrus growers of the Richgrove-Ducor district want a packing house and whether it will be at Richgrove or Ducor is to be decided by circulation of petitions to sign up at least 800 acres in the chosen district.

Dairymen of Merced and Stanislaus Counties met at Newman March 8. One of the main features was a judging contest of 12 cows with known milking records. Manager Greene of the dairy council was one of the speakers.

Officers of the Tulare Cooperative Poultry Association were reelected at the recent meeting of the board of directors, as follows: President, Elbert George; vice-president, R. H. Jones; treasurer and secretary, I. N. Foss; manager, I. N. Foss.

Officials of the Sun Maid Raisin Growers reelected for the coming year: president, Wylie M. Giffen; vice-presidents, Hector Burness and Frank H. Wilson; general manager; F. A. Seymour; treasurer, Milo L. Rowell; secretary and assistant manager, C. A. Murdoch; assistant secretary, R. B. Thompson.

Southern California

Palo Verde cantalope growers have formed an organization.

40,000 acres were planted to barley is estimate for Orange County.

Imperial County has chosen October 23-28 as dates for its fall fair.

A carload of Limas was sent last week from Hueneme for Near East Relief.

Large shipments of cotton are being made to Galveston and New Orleans from Calexico.

Cantaloupe and lettuce growers of Palo Verde Valley are going ahead with organization plans.

The Pomona chamber of commerce has voted to hold each fall an agricultural and horticultural fair.

Fifty dollar fines were imposed on two Hindus at Calipatra who had employed children in picking cotton.

Imperial Valley mourns the death of Charles R. Rockwood, who was chief engineer of the Imperial Irrigation District.

The Garden Grove Citrus Association of Orange County shipped out 242 cars of fruit this year as against 176 last year.

Associated chambers of commerce of Riverside County are making big plans for Dairy Day, April 8, at Riverside.

Perris, Riverside County, cotton growers will this year plant Acala instead of Durango. One thousand acres will be put in.

Contracts for the stretch of highway between Banning and Whitewater will be let this spring by the state highway commission.

Tractor school at Redlands, March 13-18. Carloads of grapefruit from the Oasis district are being packed and shipped from Thermal.

It is proposed to hold the annual Orange County automobile show with the Valencia orange show at Anaheim the latter part of May.

The Yucaipa farm center has chosen officers for the coming year: F. H. Gilmore, director; F. E. Dillon, vice-director; C. B. Rous, secretary.

E. D. McSweeney talked to potato growers of the Nuevo farm center of Riverside County at their last meeting on necessity of using best seed.

It is announced that the California Fruit Growers Exchange will delay until next year purchase of steamship line, owing to serious frost damage.

A campaign is going on for collection of \$30,000 to be spent in river protection work in the Yorba-Richfield-Anaheim district of Orange County.

Los Angeles County supervisors have instructed the county flood control engineer to proceed with preliminary survey of the San Gabriel dam project.

The Mohave irrigation district has started condemnation proceedings against the Arrowhead Reservoir and Power Company in its fight for waters of Arrowhead Lake.

The steamer Ohio sailed from Los Angeles harbor, March 6, loaded with food and clothing for Russian famine sufferers. Other shipments will be made from time to time.

E. G. Dezell who has been assistant manager of the California Fruit Growers Exchange has been named general manager to take the position left vacant by the death of G. H. Powell.

The Coast and General

Peaches grown in South Africa are on sale in New York.

Snow has been melting rapidly on ranges in northern Arizona.

Cotton planting in Arizona so far has been restricted to the Yuma section.

The next meeting of the Arizona Cattle Growers' Association will be held at Prescott in July.

The International Apple Shippers' Association will hold its annual convention at Seattle, Wash., July 26.

The Utah state prison at Salt Lake City has one of the first herds of Guernseys established in the state.

The agricultural bloc in congress has started definite attack on the proposal to pay soldier bonus by sales tax.

Hop growers of the Yakima Valley of Washington have formed an organization to study cultural and marketing conditions.

Colorado has a pure seed law. Tests are made at the seed laboratory at the Colorado Agricultural College at Fort Collins.

About half the cotton of the Salt River Valley of Arizona has been ginned. 77,000 bales is estimated as the total output.

The Colorado division of marketing says there is need in that state of an additional grade for potatoes between U. S. Grades No. 1 and No. 2.

Sheep raisers and others interested met in annual meeting at the Washington irrigation experiment station at Prosser, Washington, March 7.

Secretary of the Interior Fall has signed and forwarded to congress the Davis report on the Colorado River reclamation and flood control project.

Potato growers of Aroostook County, Maine, are petitioning the interstate commerce commission to extend to their crop the general freight reduction of 10 per cent.

Washington has quarantined against filbert stock from Montana, Colorado, Wyoming, New Mexico and eastern states in an endeavor to prevent filbert blight from entering the state.

Nine cars of certified seed potatoes of the Burbank and other varieties recently were shipped from the potato farm of Charles H. Greely at Pioneer, Washington to Watsonville, California.

A bill has been passed by the house and sent to the senate authorizing entrymen and owners under government constructed and operated projects to form irrigation districts under state laws.

Grays Harbor County, Washington, bankers at Aberdeen pledged the Holstein breeders of the county between \$12,000 and \$20,000 in long-term loans to finance immediate importation of at least 100 head of purebred dairy stock.

Early potatoes and asparagus are coming up in the Salt River Valley of Arizona, but crops there and in the Yuma Valley have been of slow development owing to low temperature. Alfalfa is looking well, but is not up to normal.

At the recent annual convention of the Arizona Cattle Growers' Association at Globe, Henry G. Boice was elected president and J. M. Ronstadt vice-president. A committee was appointed to work out consolidation plans between the Arizona Wool Growers' and Cattle Growers' Association.

Review of the Orange Situation

By F. W. Read, Chief Bureau of Standardization,
Department of Agriculture

THE department of agriculture feels that present legislation governing the shipment of frosted citrus fruits is inadequate, especially during the period immediately following a freeze and up to the time when the drying out standards established under the statute of 1915 can be applied. Mr. Hecke has already indicated that he will call a representative meeting of citrus fruit growers and shippers as soon as practicable with a view to requesting the industry to select a committee to draft a bill which can be presented to the coming session of the legislature, regulating the shipment of frozen oranges and other citrus fruits in a very definite and comprehensive manner. It is felt that the industry should take this means of instructing the state department of agriculture how they desire their problems to be handled so that there can never be any question in the future as to the right and wrong of any particular feature of an enforcement policy affecting shipments of frozen fruit. This is a constructive suggestion well worth the serious thought of every grower and shipper of oranges and lemons in the entire state.

Immediately following the freeze the department took such action as was possible to secure the opinion of interested growers and shippers concerning regulations governing the movement of frozen fruit. A mass meeting was held in the offices of the Los Angeles chamber of commerce on January 24 and at that time the proposed regulations, subsequently issued, were discussed at considerable length. These regulations were approved by

the growers and shippers present, representing over 90 per cent of the citrus fruit tonnage. In a number of subsequent mass meetings, two of which were called by the California Citrus League in Los Angeles, the regulations of the department were approved by a large majority vote. The last meeting at which the regulations of the department were endorsed was held on February 6 and was attended by between 400 and 500 prominent shippers and growers.

In the meantime the county horticultural commissioners, acting under the direction of the state department of agriculture, as provided by law, were inspecting every shipment of oranges leaving the state or consigned to points within the state. Opposition to the regulations was encountered and it was necessary to draw complaints directed against certain shippers. The first case to be considered came before the superior court in San Bernardino County on February 7. Judge Goodcell held that the department had no right to make a violation of rules and regulations issued under authority of the fruit and vegetable law, the subject of a misdemeanor charge. The court pointed out, however, that had the complaint been based on section ten of the fruit and vegetable act, namely, that oranges could not be shipped if frosted to such an extent as to endanger the reputation of the industry, the case would have been tried on its merits. Under the circumstances, however,

the state had no opportunity to present evidence tending to show whether the fruit in question was 5 per cent, 10 per cent or 100 per cent frozen. There has been so much misunderstanding as to the exact language and import of Judge Goodcell's decision that the following excerpt from the official court record giving his findings may be of interest: "I think everybody in the country should be imbued with a proper spirit to protect the citrus industry of this state from the incalculable injury which would follow from the shipment of frosted fruit. I think every fruit grower recognizes that the shipment of that kind of fruit will work an immense injury to the citrus fruit industry of this state, and I think that everybody should be pleased that the department of agriculture is doing everything it can under a piece of loosely constructed and illy considered piece of legislation to protect the citrus fruit industry of the state; but the only thing the court can do is to take the law that the legislature gives us, and doing that I do not think that the director of agriculture has a right to pass a regulation or a rule, the violation of which will be a crime; I do not think they have a right to maintain this criminal prosecution for a violation of those rules, and viewing the matter as it does, the court will direct that the writ of habeas corpus as prayed for in the petition be issued and the petitioner discharged."

If the decision of this particular

court is taken as authority, however, it opens a very serious question for the consideration of citrus fruit growers and shippers to the effect that there is no adequate legislation at the present time regulating shipments of oranges during the period immediately following a freeze and up to the time when the drying out standards can be applied. It is for this reason that the director of agriculture has suggested the appointment of a strong legislative committee to consider the matter, representing the citrus fruit industry.

It should be noted that the United States department of agriculture has for years issued rules and regulations interpreting and defining its attitude in the enforcement of many laws which are exceedingly general in language. The United States pure foods and drugs act, for instance, provides among other things that "food shall be deemed adulterated if it consists in whole or in part of a decomposed animal or vegetable substance." This is essentially the exact wording of the law, which, it will be seen, so far as that particular section is concerned, is very general in character. The secretary of agriculture then proceeds, in the case of oranges, to state that "citrus fruit shall be deemed inferior and decomposed within the meaning of the act if the contents of any package in interstate commerce contain 15 per cent or more of citrus fruit which on a transverse section through the center shows a marked drying in 20 per cent or more of the exposed pulp." This is a regulation of the department of agriculture, but of course

(Continued on Page 288.)

Rudiments of Fertilization

E. L. Koethen

WHILE the various elements are all needed for rounded plant development they each have a specific office to perform, and without a good balance the best results cannot be obtained. The specific office of nitrogen in plant life is to encourage growth, both of wood and fruit. A tree starved for lack of nitrogen will have small leaves, light green or yellow in color, and the wood growth will be short and slender.

Phosphoric acid is chiefly concerned in the production of fruit. We knew of an orchard that had been very heavily fertilized for a series of years with rich stable manure. For a time it produced phenomenal results, then crop failures came. The grower approached an experienced neighbor about it and was advised to apply steamed bone meal. The result was magical. The ranch had become phosphorus poor, and the bone meal supplied the lack.

Potash is supposed especially to strengthen the wood growth, it not being so brittle if sufficient potash is present in the soil.

Lime is needed as a corrective of soil evils, in addition to the fact that it is a necessary plant food. It goes into the structure of the plant and makes up a portion of its weight, but as a remedy for soggy and inert soil it is important. Without it the proper bacterial action cannot take place. Soil that is deficient in lime melts down and becomes solid and lacking in mellowness. In this respect its ac-

tion is similar to that of organic matter in the soil. While it helps to break down the organic materials and makes them more quickly available it also must be used in conjunction with other materials, as without other sources of plant food the soil soon becomes deficient in plant food, much sooner than it would without the additional lime. Some salesmen have told growers that lime was all the fertilizer the soil would need for the year that they applied lime. In their anxiety to get the profits from the sale of the lime they have led some growers astray, we fear. After the use of lime other fertilizers are more needed than ever. Limestone countries are known to be rich agricultural lands, and it is the practice in these countries to apply lime to the soils which are underlaid with lime, so that we may well inquire into our needs for liming.

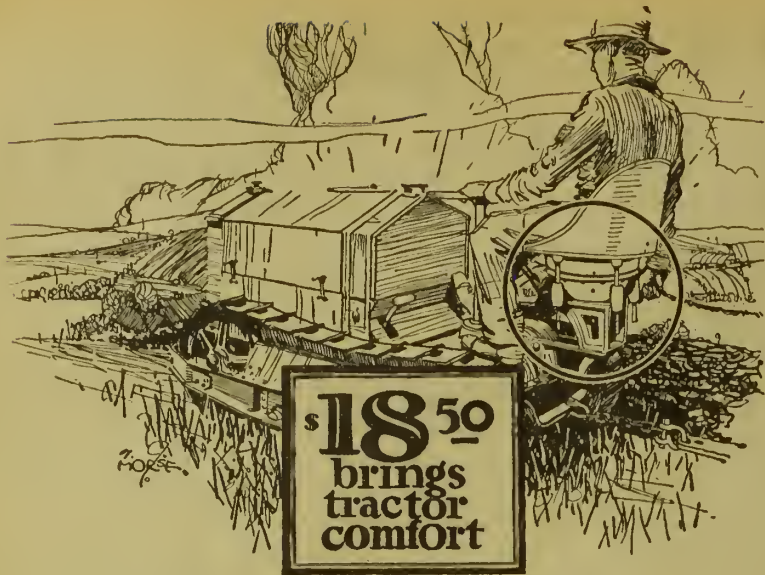
The above elements are about all that are required for our consideration. In choosing what to apply the selection is not nearly as difficult as we have been led to believe. In fact, it is rather simple. We may determine at the outset that the nitrogen is the most deficient element. This is always needed and we are not likely to use too much at the present prices. Being the most expensive element it must first be considered. If it is purchased in organic form there is com-

paratively little loss if more should be applied at one time than is absolutely needed. Knowing the previous history of the orchard the grower can easily judge whether phosphorus is needed. It is a fact that analyses have shown that in the run-off of water only a trace of this element has been detected. So once in the soil it is there until used. But as it is a comparatively cheap element it is safe to apply a little more than is actually needed. For this reason it is customary to use a tankage running high or low in phosphorus as the grower may deem best at each application. We are of the opinion that an application of tankage containing about eight per cent of this element where the nitrogen runs about eight per cent, is nearly a balanced ration for the ranch at an application. This would be especially for the winter application. For the late spring or summer we would advise one running higher in phosphoric acid for the reason that it is not best to use large applications of nitrogen at that period unless necessary. This is in order to allow the trees to attain their growth and go to rest naturally in autumn.

As to the potash needed it is a question whether we need consider it at all. On some sandy and other soils it may be necessary, but on our granitic loams it is very questionable if it is needed.

As seen above, it would be well to

consider the use of lime from time to time. Then we have the situation about like this: Nitrogen in the form of humic materials especially. Plenty of humus making materials as a soil solvent. Phosphoric acid for luck and to insure results. With this exception, other considerations are only occasional. This seems to us a very simple program. The humus may be obtained from cover crop or manure or straw of some kind, preferably alfalfa or bean straw. Nitrogen additional from blood or tankage. Perhaps some inorganic nitrogen to stimulate the setting fruit. The complication comes in when we are about to make our purchases. Prices differ, sources differ. Trade preferences may determine our action. But we must remember that we have a fine fertilizer law that protects the grower in his purchases. When we buy we are pretty sure we are going to get what we pay for. There is little chance of substitution if we insist on the requirements of the law. It is true that some purchases have in the past been made from unlicensed houses. If you do this it is your lookout. The goods you buy from licensed houses are subject to state inspection at unexpected intervals, and this protects you. It was not always so. When the present fertilizer law went into operation there were several of the larger concerns that had to go out of business. Their sources of profit were gone. But we care little for that. We have no sympathy for a business that cannot stand the light of day.



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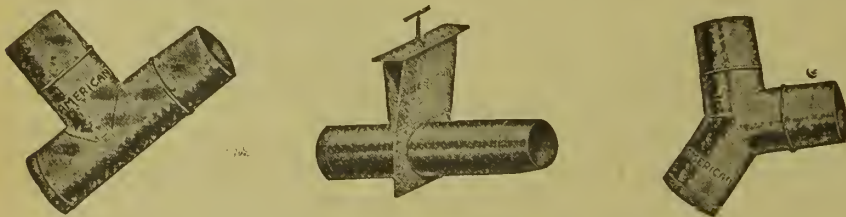
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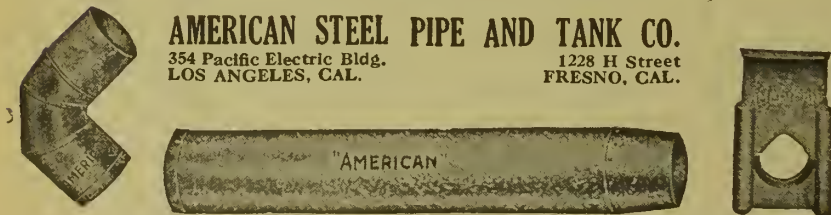
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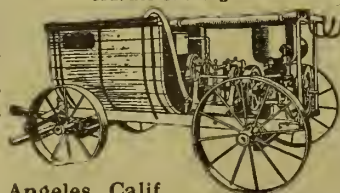


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MOVING OLD TREES

There is no age limit on moving trees. If proper care is taken any tree, even apple or peach, may safely be moved. The only question the mover should consider is: Will it pay? With fruit trees it is doubtless better to plant young trees than transplant those eight or ten years old. Still, the job is not hopeless or even doubtful as to results. In California we move magnolias and other large evergreen trees, of a half century of growth, with tons of earth. In eastern states large oaks and elms are easily moved during winter when soil is frozen in a solid mass.

To move deciduous fruit trees of large size the work should be done while they are most dormant, preferably during December and January; never after buds begin to swell. If soil is not full of water from rains soak it full two or three days before the moving. For an eight or ten year old tree dig a trench around tree, down below the root zone if possible, the inner side of which is not nearer than three feet to the trunk. Cut all roots with a sharp shovel, ax or pruning shears, being careful to look them over before replanting and make clean cuts with shears or saw on all cut ends. On the larger stubs it may be as well to paint or wax them. With a garden fork or other tool dig away soil from ends of roots toward trunk, equally on all sides, stopping when ball is small enough so it may conveniently be moved with tree. As the most important part of transplanting lies in solidifying soil close to trunk it is better not to dig away this important anchorage zone if it can be moved with tree. Have the hole for new set dug before digging out tree and see that it is amply large. It is a good plan to loosen soil deeply in bottom of hole so surplus water may not remain stagnant about roots. When replacing soil pulverize it well, leaving no large lumps, tramp it down solidly but do not tread on roots, and soak heavily several times with water.

BIG PEACH ORCHARD

The planting of what is said to be the world's largest peach orchard will be completed within two weeks by the Rio Oso Fruit Company, whose president is Freeman B. Mills, Tokay grape grower of Lodi. Mr. Mills is the secretary of the California Fruit Exchange and a fruit grower of many years' experience. About 600 acres will be planted this year to cling peaches and 300 more next spring. This is part of the 7,000 acres of Natomas lands sold by the Sandercock Land Company to the California Hemp Industries and resold by the Hemp Company to Mr. Mills and associates. This land was purchased a month and a half ago and the Rio Oso Fruit Company immediately put nine big tractors to work in clearing brush, trees, plowing and leveling.

About 1,500 trees are being planted each day and over 404,000 will be planted this season.

SUTTER CLINGS

Sutter County now claims to be the real for sure cling peach county of the state. Commissioner Harry Stabler has made some investigations and reported to his board of supervisors. From his report it is noted that the total of cling peaches set out in December, January and February was 2,209 acres, making 10,000 acres a conservative estimate as the planting in the county. February saw 87,293 cling trees, or 873 acres, planted.

Sutter County in five years in average seasons will have a production of cling peaches that will require 25 canneries of the capacity of the plant now operating in Yuba City to handle it. This local cannery in one season usually cans 3,700 tons of peaches.

DEHYDRATION OF PRUNES A SUCCESS

Dehydration of prunes is a success, declares A. W. Christie, assistant professor of fruit products at the University of California agricultural experiment station. Of the dehydrated prunes delivered to the Prune and Apricot Growers' Association in 1921, 95 per cent were of the first quality. Dehydration has proved to be as cheap as sun drying and often produces a superior product. It has been found also that dehydrated prunes can be as

easily processed in the packing houses as sun dried prunes. In addition to prunes, experiments have been made by Professor Christie, in cooperation with commercial firms, on berries, apricots, peaches, pears, apples and pumpkin. In many cases the results of these investigations have been applied commercially with marked success. Rapid expansion of the dehydrating industry in California is predicted.

CARE OF TUB PLANTS

Owners of tub plants of considerable size are urged not to hold them many years with the expectation of continued health and vigor, even with the best of care. Careful attention to watering and fertilization will prolong the days of presentable appearance, but the method is at best faulty.

One should remember that the greater the leaf surface the greater the transpiration and exhaustion of sap supply. The latter is dependent on the area of its root penetration and supply of soil moisture and this is necessarily much restricted in tubs, boxes or other receptacles. If so held for a considerable time leaf reduction and impairment of vigor are natural results. Therefore move annually to larger holders or plant in garden and refill boxes with younger plants.

Dry Land Planting

Fruits Which Require Little
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ALMONDS—This is a fine time to plant because trees are cheap and planters are neglecting almonds this season. This will result in high markets by the time the trees begin bearing.

Don't follow the crowd, think for yourself.

6000 Trees—6 Best Varieties

Prices on application

State quantities wanted

APRICOTS—Royal, Newcastle, etc.

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CLING PEACHES—Tuscan, Phillips, Simms, Selma and others.

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Stakes to be made from choice Redwood timber.

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Early and Productive. Delicious. Strong trees 75c each. \$48 per 100.

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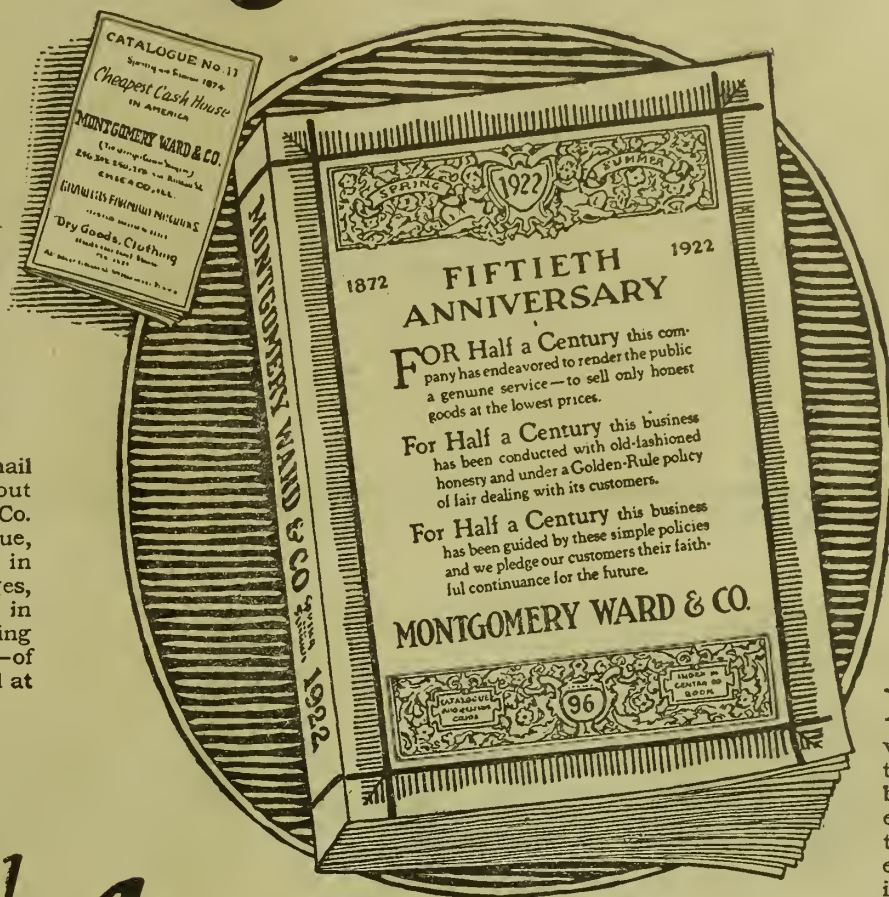
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THE first little one-page mail order leaflets were sent out by Montgomery Ward & Co. in 1872. The first catalogue, pictured above, was issued in 1874. It contained eight pages, about three by five inches in size. This was the beginning of the mail order business—of selling goods direct by mail at one small profit.



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FIFTY years of fair dealing, of prices that always offered a saving, and today this big Golden Jubilee Catalogue contains everything for the Home, the Farm and the Family—everything at money-saving prices.

50th Anniversary

This big Golden Jubilee Catalogue pictured above is priced to match the spirit of the times. Some things are priced at no profit, many things at very little profit. It is your best guide to the lowest prices.

THIS is the Golden Anniversary of Montgomery Ward & Co. We have completed Fifty Years in the service of the American Public.

In 1872 this business was begun in one small room, twelve by fourteen feet.

Today, millions buy from us on faith in the name: "Montgomery Ward."

Upon what is that faith founded? Upon Fifty Years of fair dealing, upon Fifty Years devoted to selling only goods of standard quality at the lowest possible prices.

This 50th Anniversary Catalogue keeps faith with our customers. It is priced to meet present-day conditions. It is filled with new, fresh merchandise with every price based upon the new low costs of production.

Some things at No Profit Many things at Little Profit

At Montgomery Ward & Co. we believe we owe a duty to our customers—that it is our duty to sell everything today at the lowest possible prices.

We believe we owe a duty to the American Farmer. Therefore, we are selling *all our Tillage Tools absolutely without profit to us.*

Many of these tools are actually priced at less than it would cost us to replace them today. This is the way we are keeping faith with the American Farmer.

And to the American Woman we are offering almost equal advantages—New York Fashions, selected in New York by Ward's own Fashion Experts. All are offered at the lowest prices possible today.

Everything needed in the home—everything to make the home more attractive—everything priced at a big saving for you.

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We are entering our second half century of business existence. And we step forward with the spirit of youth, of progress in Service and Saving for you.

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Buy from this 50th Anniversary Catalogue. Know that the price you pay is the right price for whatever you buy. Know that every order you send, every letter you write, will be handled in the full spirit of the Golden Rule.

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If you haven't our 50th Anniversary Catalogue, borrow one from a neighbor or write us for one.

REVIEW OF THE ORANGE SITUATION

(Continued from Page 285.)

In the case of alleged violations the federal government for years has based complaint upon violation of the pure food and drugs act itself. In other words, the procedure of the United States government in the matter of frozen oranges has been for years exactly the same as that of the state department of agriculture during the past month or more.

It has been erroneously alleged that the state inspectors were not trained citrus fruit men. The inspectors of the state department of agriculture are chosen on the basis of their practical knowledge for the work in which they are to be engaged. The state supervising inspector in Southern California is an expert citrus fruit man, has been in complete charge of an orange packing house, knows the citrus fruit industry and its problems and has a sympathy and appreciation for the grower which has tempered the entire enforcement policy. The

same might be said of the other inspectors employed by the state, and I feel certain that the county inspectors as a group are as practical, as sympathetic, as efficient as any similar group of enforcing officials to be found anywhere in the United States.

It has been stated by some shippers that fruit which county and state inspectors rejected and which was actually moved to market sold at very high prices, thus proving that the inspection service was unsound and that the regulations were faulty. Such conclusions are hastily drawn and do not represent the facts. It is true that a few shippers who have not cooperated have been able to forward and sell badly damaged fruit at good prices because the industry generally has supported the enforcement officials. The prices received are undoubtedly accounted for in part, at least, by the fact that many of the markets of the country were comparatively bare of fruit at the time these shipments reached their destination. Moreover, a good price paid by the carlot receiver does not always indicate that

the ultimate consumer has received good oranges. The citrus fruit industry can only be protected by stimulating the right attitude on the part of the consumer. A permanently satisfied customer is worth more than a temporary profit realized on an individual shipment.

It is now known that a number of shipments made in the face of protest by the county and state inspectors to points even within the state and showing no evidence of frost injury except the characteristic water soaked appearance of the segment walls and the presence of crystals were subsequently condemned by state officials at destination on the basis of the drying out standards. Interstate shipments of the same character have also been condemned by the United States bureau of chemistry.

In a calamity as great as this one has been differences of opinion are bound to arise and there will always be groups of individuals on the one side who believe the lines have been drawn too sharply and similar groups on the other side who believe that

the regulations are not strict enough. It is the primary function of the state department of agriculture to serve the interests of the growers and producers, and while it is undoubtedly true that some shipments of merchantable fruit have been delayed by the standards enforced nobody was able to suggest any test or group of tests more applicable to the situation than those actually promulgated by the department and which would allow this merchantable fruit to go forward while still preventing the shipment of badly damaged oranges.

The present standards being used by the state department of agriculture and the county horticultural commissioners are those found in the statute of 1915, providing that no oranges shall be moved to market if the fruit in boxes or in bulk, or if the contents of any package contains 15 per cent or more of citrus fruits which on a transverse section through the center shows a marked drying in 20 per cent or more of the exposed pulp. These standards will permit the shipment of all fruit that is really merchantable, and it is my firm belief that any delay in moving merchantable fruit occasioned by the regulations of the department has been more than compensated by the maintenance of the markets through stopping a rush of badly damaged oranges to Eastern and Middle Western centers of distribution. Such a rush of fruit could only have demoralized the situation and would indeed have occasioned irreparable injury to the growers and to the citrus industry.

It would indeed be unfortunate if nothing constructive came from the experience of this freeze. The suggestion to appoint a thoroughly representative committee to draft adequate legislation for the future is a thought which will be put into action. In addition, a test trip to New York City with a car of oranges showing characteristic frost injury has already been arranged with a view to determining such important questions as rapidity of drying out and the actual condition of the fruit at destination. Practical citrus men know that the crystalline deposit and the water soaked appearance of the segment walls is in a season such as this one a positive indication of frost damage before drying out or evaporation sets in. This test trip made under average transportation conditions will prove this fact to all. The trip is being undertaken by the United States bureau of markets and crop estimates and is another indication that constructive results will be forthcoming from the experiences of the past several weeks. It is quite possible that the standards adopted were not perfect, but no one was able at the meetings held by the department and by the Citrus League to suggest anything better. I feel that the policy pursued was the most intelligent possible in view of all the circumstances and it is my judgment that had the department of agriculture and the county horticultural commissioners not maintained a thorough inspection of the oranges offered for shipment a repetition of the disastrous experiences of 1913 would have been the inevitable result.

NURSERYMEN CONFER

A meeting of the executive committee of the state nurserymen's association was held in Los Angeles, March 3, to confer with state and county horticultural officials regarding existing quarantine and inspection laws. Those present were: President Barnicott, Newcastle; Secretary Grady, Donald McLaren, Hans Plath, San Francisco; E. W. Horton, Fresno; Max J. Crow, Gilroy; J. S. Armstrong, Ontario; Roy F. Wilcox, Montebello; Fred H. Howard, chairman, Los Angeles. The state was represented by Director G. H. Mecke, Harry S. Smith, Fred Brosius, Sacramento; C. H. Vary, Los Angeles; A. P. Messenger, San Pedro. The county commissioners were: A. H. Call, Ventura; H. J. Ryan, Los Angeles, and Inspectors Edouard and Bittel of Mr. Ryan's staff.

After the points of difference of opinion were freely discussed, a committee was appointed to meet and formulate a program and plan of action to lay the matter before the state agricultural legislative committee. This joint committee consists, for the nursery interests, of the legislation committee: J. E. Bergtholdt, chairman, Newcastle; Daniel Mac-



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Rorie, San Francisco; E. B. Wash- burn, Pasadena. The state will be rep- resented by Harry S. Smith and Fred Brosius, the county horticultural commissioners by their president, H. J. Ryan, Los Angeles. At present deal- ers may ship by freight or express and shipments are inspected at desti- nation. But when they ship by mail to obscure points the postmaster re- mails parcel to nearest postoffice where there is an inspector, it is opened, repacked and remailed to original destination. The consignee is required to pay additional postage on each mail movement. Packages are sometimes carelessly repacked by in- spectors, which, together with time consumed, may result in death of plants. The control is under a ruling by the postmaster general and subject to acceptance by the state.

CHAYOTE CULTURE

The chayote (Sechium edule) is a vegetable rapidly gaining in public favor and is now on sale by all seeds- men and at fruit stalls and groceries. The root is perennial and fairly hardy; the top is cut down by hard frosts or dries and withers in favored spots. As the plant is a rampant climber it is well to provide ample range in the way of trellis, fence or arbor. It makes a fine summer cover for the latter.

Though the chayote will grow in any soil it does best in rich, well drained sandy loam. If land is low and drainage poor, plant on ridges as is done for sweet potatoes. The en- tire fruit is planted, for, though it be- longs to the melon-squash family, it has but one seed, a large one; the only member of a large and variable family with but one seed. Plant with the big or seed end covered with not more than two inches of soil and let the smaller end stick out of soil. Cul- tivate deeply at first but when roots develop they are close to surface and light cultivation and mulching is best, otherwise frequent waterings are ad- vised. If field culture is practiced the plants are grown ten or 12 feet apart each way and given a large T-shaped trellis to clamber over.

The chayote is a vigorous grower and a hungry feeder and will consume large quantities of animal manures or commercial fertilizers. Rather more potash is required than for the aver- age truck crop. The better practice is to use barnyard manure in general and wood ashes around each plant. The latter furnishes both potash and lime. The fruits should be allowed to remain on vines until fully mature but not until they begin to sprout a new vine. Wrapped in paper separately, packed in excelsior and put in a cool place, they are excellent keepers. Chayotes are not especially subject to pests or diseases but occasionally have the same troubles as cucumbers and melons.

PROTECT YOUR PEACHES

"Peach growers should profit by last year's experience when thousands of dollars worth of their fruit was lost throughout the state by being infested with larvae of the peach moth and now prepare to spray thoroughly and prop- erly for the control of this pest," says Theo. D. Urbahns of the bureau of pest control, state department of agri- culture.

Among others, even experienced peach growers had difficulty in con- trolling this pest last season with the old established control methods. The lime-sulphur, 1-10, has given good control for the average grower during the average season. We also know that there is a chance of poor appli- cation and the past spraying season was followed by heavy rains. Some growers used the dry lime-sulphur in solutions too weak for effective work.

For the present season at least let us stay with the standard control for the peach moth and peach leaf curl by spraying thoroughly with lime- sulphur when the buds start to swell. If it rains immediately after the spray- ing, spray again.

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MEASUREMENT OF FLOW OF COLORADO RIVER

(Continued from Page 283.)

neer, 403 Postoffice Building, Denver, Colorado.

Utah and Nevada: A. B. Purton, district engineer, 313 Federal Building, Salt Lake City, Utah.

California: H. D. McGlashan, district engineer, 328 Custom House, San Francisco (suboffice, 602 Federal Building, Los Angeles).

The larger part of the work required in connection with the base stations mentioned above will be done in the Arizona district.

The principal users of stream flow records at present are the United States government (represented by the reclamation service, the federal power commission, the weather bureau, the national park service, the geological survey and the Colorado River commission), the states in which the drainage area lies, the local water users, and the permittees, licensees and applicants for permits or licenses under the federal power commission.

The geological survey can furnish, in addition to records of stream flow, many topographic maps, geologic reports and other data that have a direct bearing upon the solution of the problems of the Colorado River drainage basin. These data may be obtained from the director, U. S. Geological Survey, Washington, District of Columbia, or from the district engineers in the basin, named above.

A LOOK AT THE REPORT



THESE are great days for the Southwest. We are all dreaming dreams and trying to visualize the Southwest of the future, and we are hoping congress will, as now appears because of recommendations of Secretary Fall, Arthur P. Davis and others, take action which will mean a great step in the development of the Southwest. If the recommendations of Director Davis' report are followed it will mean safety for Imperial Valley first and irrigation water, cheap power and development for vast numbers of other acres in the seven Southwest states.

A few of the recommendations submitted to Secretary Fall by Director Davis of the reclamation service follow:

"It is recommended that through suitable exchange the United States undertake the construction with government funds of a high line canal from Laguna Dam to the Imperial Valley to be reimbursed by the lands benefited.

"It is recommended that the public lands that can be reclaimed by such works be reserved for settlement by ex-service men under conditions securing actual settlement and cultivation.

"It is recommended that through suitable exchange the United States undertake the construction with government funds of a reservoir at or near Boulder Canyon in the lower Colorado River to be reimbursed from leasing the power privileges incident thereto.

"It is recommended that any state interested in this development shall have the right at its election to contribute an equitable part of the cost of the construction of the reservoir and receive for its contribution a proportionate share of power at cost to be determined by the secretary of the interior.

"It is recommended that the secretary of the interior be empowered after full hearing of all concerned to allot the various applicants their due proportion of the power privileges and to allocate the cost and benefits of this high line.

"It is recommended that every development hereafter authorized to be undertaken on the Colorado River by federal action or otherwise be required in both construction and operation to give priority of right and use:

"To river regulation and flood control.

"To use of storage water for irrigation.

"To development of power."

SOME JOB UP TO THE COMMISSION



THE Colorado River Commission is meeting in Phoenix this week. Presumably Secretary Hoover called this meeting in the heart of the Colorado Basin so that all the communities deeply concerned in this development of the Southwest might be there and present their interests. Regarding this meeting and some of the problems before the commission and action, or rather lack of action, by the committee, Secretary Arnold Kruckman of the League of the Southwest writes:

Chairman Hoover represents the federal government on this commission. He brings his exceptional abilities as engineer, financier, administrator and publicist to function upon the problems of the Colorado River on behalf of all the people of the United States. As secretary of the department of commerce he is a direct contact between the people of the Southwest and the president. Naturally, therefore, on this occasion Secretary Hoover will seek to ascertain the wishes, desires, aspirations and viewpoints of all the people in all the states in all parts of the Colorado Basin. Consequently, it seems imperative that every community or interest directly or indirectly or remotely affected by the proposed projects on the Colorado River shall be competently and substantially represented at the impending meeting.

The Colorado River Commission was created jointly by the federal government and the seven states of the Colorado Basin. Its function is to formulate the terms upon which a compact may be made to divide the waters of the Colorado River among the states at interest. Eventually its conclusions will be submitted for action to the congress of the United States and to the legislatures of the seven states.

It is reported that at the initial meeting recently held in Washington

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each commissioner presented an approximate estimate of undeveloped acreage upon which his state based its claim for unappropriated Colorado River water. Particularly conspicuous were the following estimates: Colorado, 1,800,000 acres; New Mexico, 1,400,000 acres; Utah, 1,000,000 acres; Nevada, 82,000 acres. The estimates of Wyoming, Arizona and California were modest and closely followed the estimates made by Director Arthur P. Davis of the United States reclamation service in his various recent reports.

It was also proposed that the states above Boulder Canyon limit their program of development for a period of 20 years.

There appears, however, to have been wide divergence in the views of the several commissioners. Colorado, for instance, holds that it has complete sovereignty over all water originating within its boundaries. Other states, contrariwise, hold with the federal government that all unappropriated waters of interstate streams, like unappropriated public lands, belong to the people of the United States. It appeared also that several commissioners were not adequately equipped with data or information to enable them to participate in any affirmative declaration of the broadest nature.

After five strenuous days developed apparently irreconcilable differences concerning principles, quantities and time, the commissioner from Wyoming offered a broad minded formula, negative in regard to facts or figures, but affirmative in endorsing the broad principle of the proposed development of the resources of the Colorado River. The commissioners from Colorado and Utah declared they were unable to support even such a formula without further consulting their principals at home. Therefore, naturally, the chairman had no choice but to bring the meeting to a close.

The implication of what transpired at Washington is clear. It is essential that all communities and interests in all states of the Colorado Basin send authoritative and influential representatives to the meeting at Phoenix, Arizona, on March 15. The commissioner from each state should have immediately available the counsel and cooperation of his most competent constituents.

It is obvious much of the immediate as well as future progress and prosperity of the Southwest depends upon the conclusions reached by this commission. It is urgent that every community alertly and watchfully follow its proceedings.

CONTROL MEALY BUGS

Methods of controlling mealy bugs on pear trees have been developed by Prof. E. O. Essig. He has found that successful results can be obtained by removing the outer rugged bark very carefully, particularly on Winter Nelis trees. This should be followed by two or three thorough applications of miscible oil or crude carbolic acid spray before the buds begin to swell. In case of very serious infestation the spraying should be followed during the early development of the fruit by the application of plain water in order to kill as many of the newly hatched insects as possible.

The crude carbolic acid spray will give thoroughly satisfactory results at a very much less cost than the proprietary materials. It can be made as follows: Dissolve 40 pounds whale oil soap in 25 to 30 gallons hot water. Add five gallons crude carbolic acid and five or ten gallons spray distillate. Stir thoroughly. Add water to make 50 gallons. Bring to a boil and stir for 20 minutes. For use, dilute one part of this stock solution with 20 parts of water.

NEW BLACKBERRY PEST

Methods of controlling a new blackberry pest, the blister mite, are being investigated by E. O. Essig, associate professor of entomology of the University of California agricultural experiment station. This new pest is attacking and causing great damage to Himalaya blackberries in the Santa Clara Valley. It attacks the blossoms and developing berries, causing deformation, abortion and uneven ripening. For the present, recommendations for control consist in winter, spring and summer applications of weak solutions of commercial lime-sulphur and wettable sulphurs.

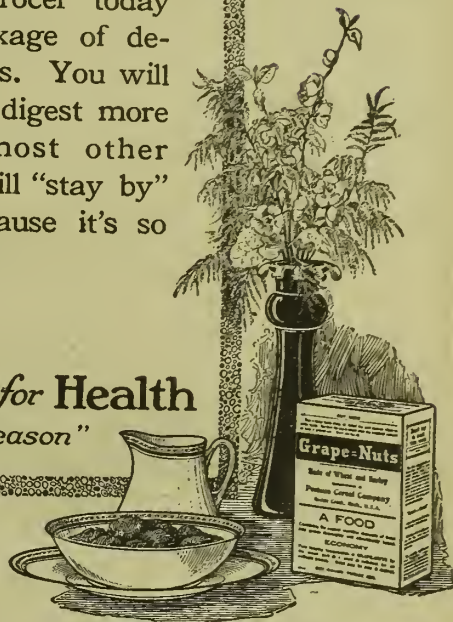
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REX SPRAYS - The Standard for 20 years

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Whitewash Protects From Sunscald



HE current issue of the Los Angeles County Farm Bureau Monthly gives resume of Prof. J. C. Whitten's recommendations for whitewashing young trees to prevent sunscald. From it we quote:

The trunks of trees should be whitewashed as soon as planted to prevent sunscald and drying out of the buds and growing layer. Whitewashing should be kept up each winter for the first three to five years after the young trees are planted. Exposed trunks or bare main limbs of older trees are also protected from sun blister if kept whitewashed.

Sunscald is more severe in winter even though the injury may not be noticeable until summer. The coloring matter in the bark of trees absorbs enough of the sun's rays on sunny days to raise the temperature of the growing layer to from 25 to 35 degrees above the temperature of the air. This renders the cells of the growing layer and buds, especially on the sunny side of the tree, turgid, active and tender.

As the sun goes down at night the temperature of the tree falls promptly to the temperature of the air, which may be freezing or even below. This

fluctuation injures the growing layer and buds.

Whitewash reflects the sun's rays, keeping the tree at, or a little below, atmospheric temperature. This keeps the tissues of the tree dormant, even during the sunny days, preventing injury when the temperature drops gradually at night.

A study of the temperature of trunks and twigs during summer shows that the upward passage of cool water from the roots and its evaporation from the twigs and leaves cools the parts of the tree above ground. During the hot, dry days of summer the trunks and twigs are usually cooled to from 15 to 20 degrees below the temperature of the air. This is more marked adjacent to green leaves which evaporate much water and least marked on long, bare trunks and main limbs which have no twigs and leaves to evaporate the water. This emphasizes the desirability of preserving rosettes of leaves and short fruiting twigs all up and down the trunks and main limbs to shade and cool the parts where sunscald usually occurs, also of low headed trees. These leaves also digest plant food to nourish the limbs, trunks and roots,

maintaining a thicker, healthier annual ring of new sap wood.

If sunscald begins on the south side of the trunk and main limbs in winter it can continue during the summer. Winter sunscald dries out the tissues and opposes the development of sapwood and green leafy twigs on the exposed parts. Cool sap is not readily carried through these dried and injured parts so they are less cooled during hot summer days.

A good whitewash which will stick may be made as follows: Slack 15

pounds lime in 2 pounds salt. Sift 3 pounds sulphur while lime is slacking. The heat of the slacking lime acts on the salt and sulphur so as to form a wash that will stick. Add water to make a thick whitewash and apply to tree trunks by means of a spray pump or a brush.

Whitewashing the trunks of young trees or sunscalded parts of older trees is desirable, especially in winter. It is not necessary on older trees with thick bark and which have twigs that shade the limbs.

The Walnut in Northern California

By Leonard Coates



HERE are several problems relating to the walnut industry in Northern California that remain unsolved, among them being root stocks, method of culture, and varieties. Offering an opinion as to the first, I would say that the assumption that the native black walnut is the one and only stock on which the cultivated varieties should be budded or grafted is a mistake, just as much so as if it were asserted that the peach is the only stock for the prune, the apricot for the apricot, and so on.

In other words, soils and moisture conditions vary as much if applied to the walnut as to other fruits. The black walnut stock had its inning, of course, and won out on the strength of its resistance to the oak-root fungus.

The mature walnut orchards of Southern California and the more or less isolated walnut trees and avenues in Northern California that were planted 20 or more years ago are presumably all either seedlings or grafted on seedlings of their own species. To the casual observer nothing is wrong with these trees under ordinary good treatment. In orchards of more recent date there are frequently some trees on native black walnut root and some on their own root. Invariably, if the soil is heavy, the latter are the better trees. In some cases which I could point out those trees on their own root are almost double the size of the others of same age.

In France only seedlings of their own kind are used, and, according to Prof. Howard, oak root fungus is abundant. Moreover, I saw these walnut trees planted under very extreme conditions: some in black bottom soils, kept moist by flowing streams; others high up the mountain side. Seedlings there are often trained to 10 or 12 feet before being grafted in the orchard, the trunk being wrapped with rye stalks or other material to prevent injury by frost or sun. As the trees become too old for profit from nuts they are cut down and the long, straight trunks used for billiard cues, gun stocks, etc. I saw whole trainloads of such logs.

The point is, why throw completely into the discard the *Juglans regia* as a stock? It certainly is better in some soils than *P. nigra*, and the ravages of oak root fungus seem very slight to warrant such condemnation. Where this disease is known to exist by all means use the most resistant stock, but not, necessarily, where the fungus is not prevalent.

Methods of propagation and culture vary greatly, each man's way seeming right in his own eyes. A grower showed me over his walnut orchard, mainly top grafted on black walnut but reserved inspection of his finest trees until the last. He had no use for nursery trees, top-working was the only way, etc. But the "finest trees" were nursery trees grafted in the usual way! The black walnut is advocated, and with reason, as the harder stock to top-work and which will stand the more abuse. On the other hand, where spring frosts prevail, or sometimes occur, the early flowing sap of *J. nigra* starts growth sooner than if Franquette or Mayette or Serotina seedling were used. I have seen some orchards—not very extensive ones—grafted so high that a 16 foot ladder was necessary to reach the first branches; others, much more numerous, branched two or three feet from the ground. The walnut tree may not need cutting back except to shape it, but the average tree certainly requires a great deal more thinning out.

Walnut orchards are spaced all the way from 25 to 60 feet apart with or without permanent inter-cropping. Is either extreme desirable, and with all varieties, on all soils?

Franquette grows upright, Mayette tries to reach the ground, Payne makes a small, compact tree, Concord a medium between these. They require different spacing as well as different pruning.

The varieties best suited to Northern California are undoubtedly of the Mayette and Franquette types, and those growers and nurserymen who



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will devote some time and land to the experiment by planting some selected seedlings and noting results will occasionally stumble upon something of superior merit. There are several already having deservedly local reputations but which may need still further testing under different conditions to determine their full value. Climatic conditions in Lake county very much resemble those about Tonlins, in the Grenoble district, and the walnut industry there is becoming important. A large proportion of the nuts shipped graded Jumbos.

The more one sees of California, the more one is impressed with the knowledge of her marvelous food production possibilities and real development, but just beginning, as it were.

AVOCADO VALUES
By Ernest Brauntorr

Avocados must be regarded from two distinct points of view by Californians. It is quite certain that the chief point of value to the consumer is flavor. It is equally certain that the grower's chief consideration is keeping quality. With the increasing acreage and yield our fruits must find a market at least as far east as Chicago and Mississippi River points.

Unless the consumers like the flavor of avocados they will not eat them. Some people do not like oily fruits of any kind. With the olive: Some eat them every day, others do not eat them at all, though having "sampled" them a hundred times or more over a range of years. Many have tried avocados by the score and never found one with a flavor that pleased. Therefore flavor will dominate retailing of the fruit. "Oil content" is a point the average consumer cares little about. Keeping is of little importance to the buyer for home use, as he is in the "consuming" business and doubtless wishes to eat the fruit as soon as possible. All fruits sell on appearances and the best "lookers" will catch the most coin. Neither the size of the fruit nor relative size of seed will be much considered by the average consumer.

On the other hand, the grower must look to his market and it matters little where that market is. The fruits must keep until sold, whether at San Francisco or Los Angeles, Kansas City or Chicago. Just as good keeping qualities are required for profitable handling in home markets as for shipping under refrigeration, for at home the fruits are much handled and exposed to high temperatures and therefore deteriorate more rapidly than in transit eastward. These considerations are going to have a heavy bearing on planting in the days to come. Even today the best posted contemplating planter is scratching his dome of thought and asking himself (and others) "What varieties shall I plant?"

CANNED SALAD

The big plant of the California Co-operative Canneries at San Jose has been the scene of considerable activity recently, where, under direction of the superintendent, Walter Holmes, a considerable force has been engaged in the packing of fruit salad. This product is made up of various fruits which are packed in the cannery during the regular fruit season and which are now being assembled, or rather mixed together, carefully under a selected formula, producing a very delicious table salad. This appeals to the housewife in that it greatly lightens the work in the home and gives her a fruit salad which contains all of the delicious California fruits.

This is the second run on this product which the growers' cannery has made. A previous pack was quickly taken by the trade, resulting in large repeat orders. It is anticipated that the demand for this product will very greatly increase and eventually result in the cannery operating during a considerable part of the period when ordinarily there is no work available.

Generally speaking, raspberries will not stand very hot or dry weather. Blackberries can endure hot weather, but not hot drying winds. Dewberries are grown mostly in the warmer parts of the country. In very cold sections the plants of these fruits should receive some kind of winter protection.

GRAFTING DECIDUOUS TREES
By Ernest Brauntorr

ARM ADVISER HODGSON has recently been holding a ten day series of field meets on top grafting deciduous trees. After a short talk Mr. Hodgson demonstrates in the orchard the most approved methods of top working by cleft grafting.

"There are several reasons for top working. In newly planted districts much of the planting has been testing to see what varieties are best for local conditions, for market, etc. It is amazing to see the number of orchard planters who do not investigate market conditions before planting and so set many of the wrong varieties to meet local demand. Even tastes vary, as in the egg market; New York demands white eggs while Boston will have none but brown. The planting of right varieties should be the first consideration.

"Sterility is another reason for top working. Many trees are either self sterile or partially so, and a poor set of fruit results through lack of cross

pollination. Japanese varietles of plums are nearly all self sterile, also some cherries, apples, and occasionally pears. Some cases are known of peaches partially self sterile. Heath Cling always bears best next varieties that bloom at same time. In planting or top working every ninth tree is sufficient. Some orchardists so handle every third tree in every third row. Determine what varieties you need to help you. Eastern or European plums do not cross pollinate with the Japanese. Of the latter Satsuma is the most deficient, though the best plum for local markets. There seems to be two strains of Satsuma; one is poor, the other good. A close second to Satsuma in the local market is the Santa Rosa, a good early plum. Climax is a good pollinizer though some years rather late.

"Walnut growers are doing much top working. Nearly all the older walnut orchards are largely seedlings and at least one-fourth have been found to be 'boarders' or not self supporting, and top working is almost imperative. The citrus grower was the pioneer in top grafting to in-

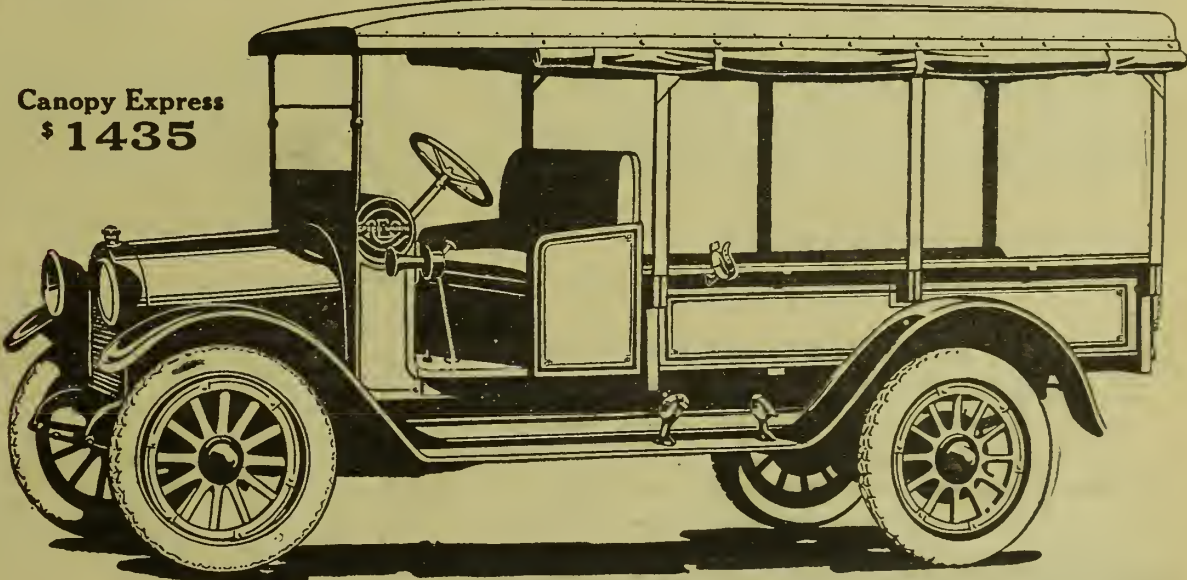
crease yield. This change may be made at almost any time of the year but now is as favorable as any season. Saw off to stubs, split the top and insert grafts. Later bark grafting is done, wherein the wood is not split. Still later we may safely bud. Remember that in this work the cambium layer is everything. To properly contact the cambiums of the scion and stock, to hold them there and keep air excluded spells success. There is some after care, of course, the chief of which is rewaxing as vulnerable parts are exposed."

When space is available a section of the garden may be set aside for the permanent vegetables and the small fruits. The location of these permanent crops, however, should be such that they will not interfere with the plowing of the garden or the cultivation of the annual vegetables. In no case should the small fruits be crowded, it being best to plant a limited number, selecting those best adapted to the region.

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1,000	24	6	6	4	11	655	35.25
1,500	36	7	1	5	11	830	45.00
2,000	48	8	1½	5	11	975	52.50
2,500	60	8	4	6	11	1,145	60.75
3,000	71	9	1½	6	11	1,270	69.00
3,000	71	8	5	7	11	1,290	69.00
4,000	95	9	10½	7	11	1,555	87.00
4,000	95	9	2½	8	11	1,580	87.00
5,000	119	10	11	7	11	1,745	98.25
5,000	119	10	3½	8	11	1,790	98.25
6,000	143	11	4	8	11	2,010	111.00
7,000	166	12	1½	8	11	2,160	118.50
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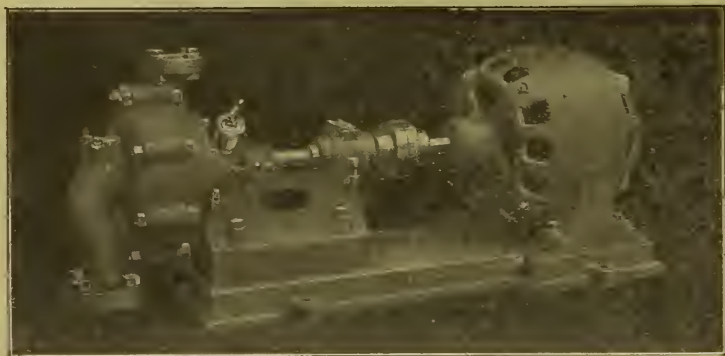
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Questions and Answers

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Sugar Beets Go to Seed

Appreciating the difficulties of answering your questions so that all conditions may be covered, I nevertheless wish to call attention to your answer concerning the development of seed stalks on sugar beets if planted in September and left in the ground over the winter, or rainy season. (See Cultivator, February 25, 1922, p. 210.) The Beaumont subscriber had good grounds for his query, and while your answer may be correct according to general theory, or in ideal climatic conditions, it is contrary to the facts as I have observed them for interior valley conditions. In the Salt River Valley of Arizona, in southern Nevada, in the San Joaquin Valley and in the Sacramento Valley, sugar beets display a marked tendency to develop seed stalks if planted in the fall or winter months — even February planted beets, if they encounter a cold spell sufficient to induce a semi-dormant condition, frequently show a marked tendency along this line. Perhaps your answer is correct for conditions where the weather never gets cold enough to induce a semi-dormant condition, but for 12 years I have noticed that beets in their growing habits are governed by conditions favoring continuous growth (when they behave as true biennials should) or if cold of winter or heat and scarcity of water in summer check their growth and a new growing period is induced by later and more favorable conditions they ignore the "date book" and proceed to behave as though they thought their temporary sleep had made them a year older. When these seed stalks are permitted to grow unchecked the value of the beet for stock feed or for sugar manufacturing purposes is greatly impaired as the stored sugar of the root is replaced largely by crude fibre. But if the seed stalks are persistently removed the beet retains more value for the purpose for which it has been grown.—O. W. Jarvis, Farm Adviser for the Sacramento-San Joaquin Bank, Sacramento.

Cutting Trees to Kill

I would like to know when is the best time to cut trees and keep the stump from sprouting.—Subscriber, Templeton.

That depends upon the variety. There was at one time an impression that if one should cut evergreen trees in the fall when they could form no more green leaves until spring and cut the deciduous trees just as they were coming into full leaf in the spring the shock would kill them. This was generally true "back east," but here in perpetual summerland and with the eucalyptus tree one may cut any time of the year and still find that the stumps are sending up sprouts and before the first year rolls around have made sufficient growth for another sizable tree. The best way to eradicate tree and stump is to grub out. However, ordinarily if one cuts the tree at any convenient season then watches for suckers around the stump and grubs these out with mattock—if taken early enough they may be rubbed off with the fingers—and if this is continued persistently the stump will soon die.

Care of Rabbits

Do you have literature on raising and care of rabbits for markets?—Subscriber, Orange.

W. D. White, one of the most successful rabbit producers in California, is now preparing an article for the Cultivator on rabbits, varieties, housing, and general care. In addition there is published the "Rabbit Book," which may be had for \$2 net by writing J. B. Lippincott Company, Philadelphia, Pennsylvania.

Walnut Grafting—Seed Planting

I saw in recent issue of the Cultivator how to graft old walnut trees, but that didn't quite touch what I wished to know. I have a quantity of black walnuts, nice large ones from

the northern part of the state. I want to plant one lot to these for nursery stock. I planted three rows a month ago. The soil being sandy it stays moist but not wet, and not a one has sprouted. I planted about six inches deep. Do you think they will sprout in time. I had one sack that was out in the rains and stayed wet all the time and I discovered these were sprouting so I planted them about four or six inches deep. Is that too deep? How wet should they be kept? Now I would like to know something about grafting young trees. Is there a government bulletin on grafting? If so, where can I secure one?—Subscriber, Pasadena.

Apparently you planted the seed rather deep, and it may be a long time before the ground will warm up so they will start. The usual method would be more as you treated those in the sacks, keeping wet and warm, or better, stratify in sand which is kept moist. Then as the little sprouts start they are carefully placed in nursery row. As to grafting, there have been complete directions given in former Cultivators by Mr. Roeding and others. See California Cultivator, pages 289 and 291, Vol. XLII, also page 121 of Vol. XVIII, the present one, article by Mr. Neff. "The California Walnut," published by the California Walnut Growers' Association, contains a fund of information, as does Bulletin 332, "Walnut Culture in California," by L. D. Batchelor. This may be had by writing College of Agriculture, Berkeley.

Planting Eucalyptus Trees

What is the best month to transplant eucalyptus trees?—Subscriber, Holtville.

Method often followed in planting eucalyptus trees is to sow seed in flat in a soil consisting of leaf mould and coarse sand. After soil is leveled sow the seed and give light covering of sand over the top and keep moist. This may be done in August and then in March or April the little trees are taken out and put in pots for later planting in the open. If they are where they can be given a little attention when the hot days of June come they may be planted in their permanent location. Write State Board of Forestry, Sacramento, and ask for "Handbook for Eucalyptus Planters," also to the University of California, Berkeley, and ask for "Eucalyptus in California," Bulletin 196.

Eradicating Weevil

How do the bulk grain farmers combat the grain weevil? We have a concrete granary, 4,000 sack, and the weevils get very thick each spring. We have done nothing to kill them as we feed to steers and the barley does not seem to be injured.—Subscriber, Chico.

The best treatment is thorough fumigation of the warehouse or storage bin with hydrocyanic acid gas. Work with this gas, however, should be in the hands of those who understand it, or if handled by a novice thorough attention should be given to the details of the operation. Full information is given in the pest fighting number of the California Cultivator of September 24, 1921. In a word, it consists of stopping up cracks and making warehouse as nearly airtight as possible, after which it is fumigated with cyanide of sodium, 1 ounce; sulphuric acid, 1½ ounces; water, 2 fluid ounces, for every 100 cubic feet of space.

Grafting Pecans

We have two seedling pecan trees that are eight years old and have never borne. Would you advise grafting budded nuts to these trees, and if so where could one get the scions for grafting and what time of the year should the work be done?—Subscriber, San Gabriel.

The pecan is very easily grafted and another month will perhaps be the right time for grafting. The scions should, however, be secured at once and kept in moist sand until needed. We know of no large commercial plantings in California yet but practically every nursery, especially those

which are advertising in the columns of the Cultivator, can supply the scions.

Chrysanthemums

Your paper has been a help to me in my garden many times. I noted article on chrysanthemums some time ago but cannot determine why mine did not do well last season. The year before they were extremely nice so last year I gave them double care, hoping for even better results. Some of the blossoms matured in the center and the outer petals were small and shriveled, while some others only matured on one side. I transplanted them very carefully, put plenty of fertilizer on them, watered well once a week. Can you tell me why they were not right?—Subscriber.

While this trouble may be due to three or four causes it is most marked in plants infested with red spider. This is, however, an inexcusable condition, if known, for water sprayed with considerable force on the parts of the plants affected will quickly reduce their numbers and chrysanthemums will stand all the water you wish to apply. The pest should be eradicated before buds begin to open or the flowers may be seriously affected and it is most difficult to eliminate the spider after flowers are open.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department. Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Learning Sale Price

How can I ascertain the correct data as to the price obtained on a sale of land by parties acting under powers of attorney?—Subscriber, Lathrop.

About the only way to obtain this is to learn it from the parties who were concerned in the sale as the deeds usually are made for ten dollar consideration. The agent should, of course, return the correct price, but there is no method other than a suit to learn it from a legal standpoint.

Selling Uncalled for Stock

In case of sale of uncalled for pasture stock must an attorney be employed to give the advertisement in any particular form? How many times must the advertisement be published? Who conducts the sale? Is it recorded?—Subscriber, Ben Hur.

Only one notice of sale need be given, ten days previous to date of sale. The owner of the pasture or any other person may conduct it. No record is required. As to drawing notice there is no particular form required, but it would be well to have someone advise you with regard to sale, as if there is any fault in connection with it you might be held liable for the value of the stock, for the reason that if the sale is not properly conducted it is void.

Survey of Boundary Line

Can my neighbor proceed to move his fence when at his own request he has employed a surveyor to run the line and the surveyor makes a new line some 40 feet on my property? The old line has generally been recognized for 20 years, and buildings have been erected which will be affected by the change. The surveyor referred me to a recent case authorizing his mode of survey.—Subscriber.

The mere fact that a private surveyor claims that by a new method which he has adopted the line runs elsewhere than heretofore by no means makes it so. In order to enable your neighbor to move his fence against your will it would be necessary for him to have this new survey backed up by the judgment of the court. The case referred to is one concerning township surveys wherein fractional sections appear. It was there held in effect that where in a survey of public land there has been no return of a line run in the field dividing a fractional quarter section into halves and no corner common to the east and west halves fixed at any point along the boundary line of such

quarter and the field notes show that a continuous unbroken line was run from the southeast to the southwest corners of the quarter sections, it is the duty of the surveyor general in drawing a line on the plat dividing such quarter section into east and west halves to run the line through the quarter section north and south from a point on the boundary line equidistant from the southeast and southwest corners of the quarter section. A deed to the east half of a fractional quarter section of land which makes no mention of acreage conveys the east half in quantity or the division of a quarter section under the rule as to government surveyors divides the quarter into halves of equal quantity or acreage.

Sale of Estate

Three heirs have equal shares in house and lot. Two desire to buy the third party's share but are unwilling to pay the third party's price. Can they force a sale by court at the appraised price of the property?—Subscriber, Fresno.

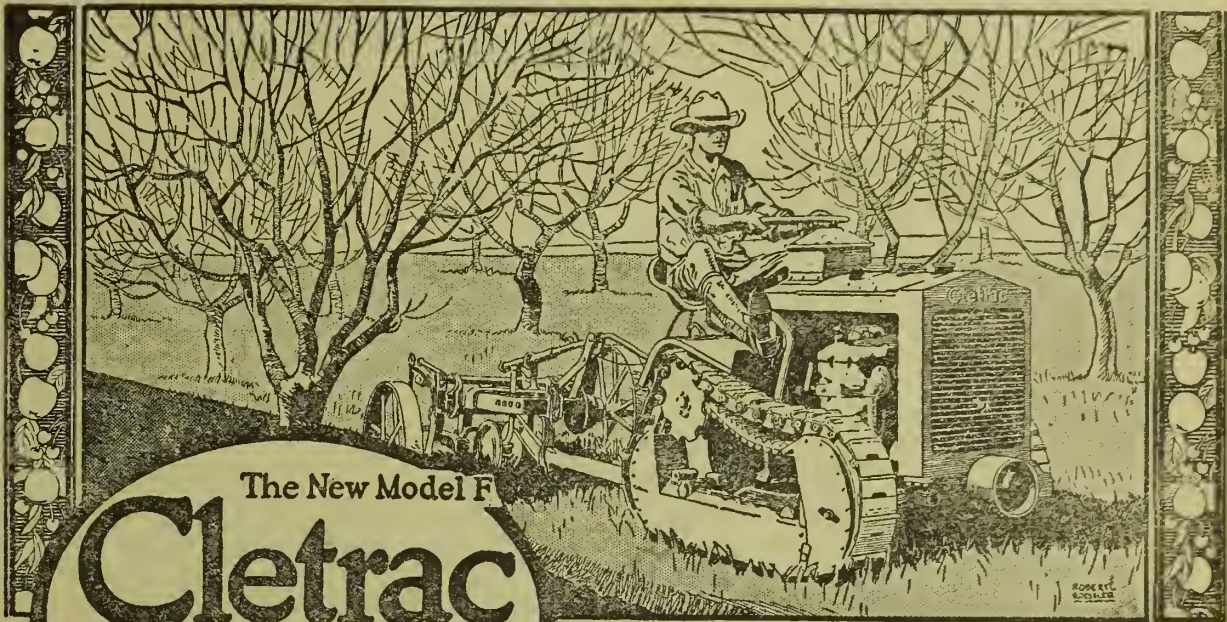
The parties in this case are tenants in common and as such any one of them may make a petition to the court for partition of the property. In this case referees are appointed and when it is found that the land can not be allotted among the respective parties an order may be made for the sale of the property. This sale is made by the referees at either public or private sale as the court may determine best. The referees after the sale make a report to the court, and the court may thereupon confirm the same. The valuation at which the property was appraised in probate proceedings is of course not binding because it may have either risen or sunk in value since that time.

Life Estate

Under a will the wife is made the sole legatee during her lifetime. No provision is made, however, for a sale of the real estate. If such real estate becomes burdensome to manage could the legatee sell? There are minor children.—Subscriber, Hughson.

If in the probate of the estate dis-

tribution has not been made the executor of the will could make a petition to the court, showing that it is for the advantage, benefit and best interest of the estate that the real estate, or some part thereof, be sold, in which instance the matter would come up for hearing and any objections which there might be would be considered and the court would make its decree. If the estate has been distributed the sale might also be effected by a petition to the court in the matter of the estate of the minor children. In such instance a guardian would necessarily be appointed and it would probably be necessary to appoint someone other than the mother. This is assuming that the widow has a life estate and the fee title to the property is vested in the minor children. A similar proceeding as before stated could be taken and the court would determine then whether or no it is for the best interest of the estate to make a sale of the property and would make its order in accordance therewith.



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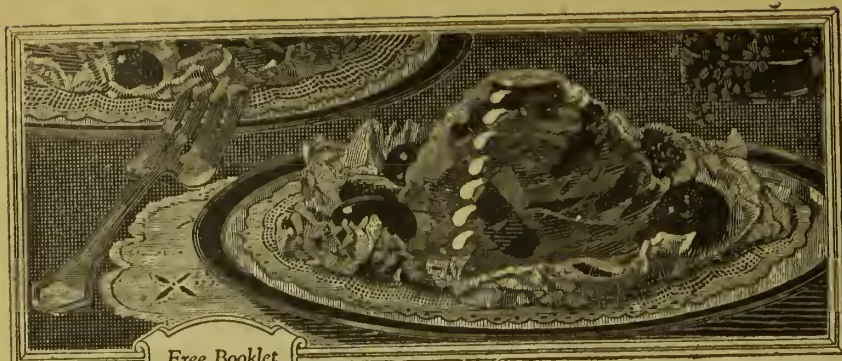
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If you are giving a party and you want to use a particular color scheme, plan on Jell-O for the dessert.

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and has brought contentment and happiness to thousands of home seekers and their families who have settled on her FREE homesteads or bought land at attractive prices. They have established their own homes and secured prosperity and independence.

In the great grain-growing sections of the prairie provinces there is still to be had on easy terms **Fertile Land at \$15 to \$30 an Acre**—land similar to that which through many years has yielded from 20 to 45 bushels of wheat to the acre—oats, barley and flax also in great abundance, while raising horses, cattle, sheep and hogs is equally profitable. Hundreds of farmers in Western Canada have raised crops in a single season worth more than the whole cost of their land. Healthful climate, good neighbors, churches, schools, rural telephone, excellent markets and shipping facilities. The climate and soil offer inducements for almost every branch of agriculture. The advantages for

Dairying, Mixed Farming and Stock Raising

make a tremendous appeal to industrious settlers looking to improve their circumstances. For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, Alberta and British Columbia, reduced railway rates, etc., write

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Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

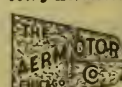
Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

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Are Carried in Los Angeles Stock. Write for Catalogues and Prices
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A year's supply of
oil is sent with
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Aermotor
Towers are
Towers of
Strength

Household Department

SONGS IN THE NIGHT

Last night I waked to some unwonted voice—
'Twas liquid melody I heard;
The night was dark, the midnight hour
was past
When came the carol of a bird.

From out the covert of a clinging vine
Not far below my window seat,
The softest, sweetest, rippling serenade
Arose my wakened ears to greet.

'Twas sung to cheer the heart of sitting mate,
The mocking bird upon her nest,
And while the waning moon was over-
head
These notes with love were manifest.

The silence of the early morning hours
Gave deeper impress to the song;
'Twas like a tender voice of sympathy
An exhortation to be strong!

I sometimes wonder if the song to which
I listened with such keen delight
Was sent to show me that my waiting
soul
Should sing its praises in the night!—
Frederick M. Steele in L. A. Times.

A TRUE BIRD STORY

NOT long ago a friend told me of an experience he once had with a mother Humming bird and her nest. How many of you have ever seen a Humming bird's nest in its natural place? It is one of the rare things to find.

The mother Humming bird in the story built her nest in a low apple tree, just outside my friend's window. He could look right into it. It was such a tiny nest of plant down, cobwebs, and lichens, and so nearly the color of the branch on which it rested that it was hard to see, even when one knew just where to look. Soon there were two small white eggs in the nest. They hatched into tiny, helpless baby birds, that at once began to eat and grow. The mother had a very curious way of feeding her little ones. She would fly away in search of food—sweet nectar from her favorite flowers in garden and orchard, and a host of tiny insects. These she swallowed. Back she would come to the nest, and, putting her bill into that of one young bird, would raise some of the food from her own crop and so give the baby its meal. Then it would be the other's turn.

As time went on the little birds grew to be as large as bumblebees, and were covered with a fine black down. One day the mother bird did not come back after she left in the morning. She did not come at noon. At night she was still away. The little ones were very hungry. My friend did not know what to do, but finally he cut the branch off some distance below the nest and took the whole thing over to a nearby store, where he was working. He carefully hung in up out of reach of cats, or rats, or mice. Next he opened a jar of extracted honey. He put a little of the honey into his mouth to mix it with saliva. Then he took a toothpick and drop by drop let the honey fall into the open mouths. So the baby Humming birds had their supper. The next morning they had breakfast in the same way.

About noon the second day my friend learned that the mother bird was back again and nearly wild because she could not find her nest or her babies. What could he do now? The branch was cut off and was hanging over in the store. Could he give the bird her nest again? He decided to try, anyway. So he went and got the nest and a piece of stout twine. It needed great care not to spill out the little birds, who all this time had lived safely in the nest, and had not been touched. He lapped the cut ends of the branch together and bound them tightly. Then he went inside to watch.

The mother bird was troubled. There was her nest and in it were her babies. But something was different. What was that strange bump? She would hop along the branch to within a few inches of the cut place, but she would not cross it to the nest. All that long afternoon she took to gain courage enough to cross the binding. But at evening she fed her babies once more. After that she raised them without any more trouble until they left the nest themselves.

Is not that an interesting story? I

think it is the most interesting bird story I have ever heard. I know that it is true, because I know my friend would not lie, even to make a good story. Where could the mother Humming bird have been that day when she stayed away from her nest? I think we may be sure that she did not stay away of her own accord. Something must have kept her. Once I knew of a boy who caught a Humming bird and kept it in a fruit jar all of one day. He did not hurt it, nor did he mean to hurt it. At night he let it go again. But perhaps that bird had a nest, too. Perhaps something like that happened to the bird in our story. At any rate, it makes us think that we may be breaking up homes when we capture the wild things and hold them, even for a few hours. Most times it is better to leave them free, and to study them that way all we can.—Rural New Yorker.

A CAT WHO WORKS IN A RESTAURANT

While his name does not appear on the payroll, he takes his job seriously and Mr. Fuller, the owner of the restaurant, treats him as one worthy of his hire.

Tom has unusual accomplishments and Mr. Fuller estimates that up to the time of his arrival in the restaurant, he lost not less than \$200 from the destruction of foodstuffs by rats, mice and cockroaches. In addition to that, he spent not less than \$100 a year on rat traps, roach powders and the constant expense of trying to construct something which would guard the foodstuffs from these pests. Tom had been on the job only a few days when there was not a rat, mouse or cockroach to be found on the premises. At this rate Tom has already been worth to his owner \$2,700. He also performs the same service at the Fuller home.

Tom is also the only known cat that has been trained to deliver messages. Mr. Fuller frequently writes a note to his wife, ties it around the cat's neck and in due time it is delivered at the Fuller home. There is no question about Tom reaching his destination, for he is king of the alley and dogs as well as neighboring cats have long since learned to give him a wide berth. His wildcat instinct asserts itself the instant a combat is in progress. In fact, in one of his brothers the wild nature predominated to such an extent that he left for the woods.

Tom has regular habits and selects what he will eat. No matter how much fish or meat may be left on the butcher's block, he never touches it. Ordinarily he will walk to what is termed the board man, the one who fixes up the lunches, and rub against his legs until noticed. This is the signal that Tom is hungry. When in want of fresh meat he looks up the chef. There may be half a dozen cooks in the kitchen, but they are passed up unnoticed. Tom seems to know that the chef is the man, and when found, rubs against his legs until noticed. He is offered meat until the desired variety is reached, usually liver, and then he goes about his business.

Tom is very sociable, likes automobile rides and will sit up in his seat like a dog. He frequently takes strolls and will follow the night policeman up and down his beat like a watchdog. Tom can be found at Fuller's almost any time, but he cannot be bought.

HOUSEHOLD QUERIES

Beans With Spanish Herbs

Will you please tell me where I can get the Spanish herbs? How much do you put in of each to a quart of beans? If it is not too much trouble, would you give me the recipe?—Subscriber, Fallbrook.

Addresses of grocers carrying Spanish herbs have been mailed to inquirer. Recipe for using with beans follows:

One quart beans (dry); cook till half done or more; 1 large onion, 1 red pepper, 1 slice bacon, ½ cup salad oil or olive oil, pinch black pepper, salt, ½ can tomatoes, 1 large pinch Spanish herbs (use a little more of

the leafy herb than of the seed). Tie these two herbs together in cloth and add everything named except salt when beans are beginning to soften. Salt when about done.

Italian Salami

I see that you are asking for a good recipe for Italian salami. This is the real recipe for good salami (will keep for a year): 25 pounds pork with some of its own fat, medium grind and leave it stand over night on table in a warm place to drain. The next day add 10 ounces salt, 1 teaspoon nutmeg, 1 teaspoon cloves, 1 teaspoon cinnamon, 3 tablespoons ground black pepper, 2 grains saltpeter dissolved in ½ glass lukewarm water and sprinkled over meat. Work meat well with hands so it will stick together. Some use garlic and some don't. Then stuff in casings well tied. Leave hanging 40 to 60 days. This will keep well for over a year.—V. Luchetti, Reno, Nevada.

HINTS FROM HOUSEKEEPERS

Crumb Pie

Dissolve 1 teaspoon soda in 1 cup boiling water. Add 1 cup dark Karo syrup. Mix 4 cups flour, 1 cup light brown sugar, 1 cup lard until thoroughly blended. Save a large cup of this dry mixture, put rest with syrup, water and soda and divide in four pans that have been lined with a rich crust. Sprinkle the cupful of dry ingredients over top.

Antidote for Strychnine

I will give you a good antidote for strychnine poison. Just pry open the mouth of the animal and fill it full of dry table salt. It seems to kill the poison and the animal will not be stiff afterwards. We have saved dogs and cats both after they seemed almost gone. I have never seen it fail on either.—Mrs. D. Douglass, Fallbrook.

HOMINY GRITS

The first step in preparing grits for the table is to boil them, like any other cereal. Of course boiled hominy in the form of grits is frequently used for a breakfast food, or as a lunch or supper dish with a sweet sauce; its possibilities for dinner seem to be less familiar except in the south. For each cup of hominy grits four to five cups of water is allowed. This should be seasoned with two teaspoons of salt. The grits should be added slowly to the salted boiling water and cooked for ten minutes over the fire. Then the cooking should be continued for two hours in a double boiler or finished overnight in the fireless cooker.

The favorite combination of meat and grits in the south is "hog and hominy," which may be roast pork, fried pork chops or tenderloin, baked leg of pork, or fresh pork sausage, served with a generous helping of plain boiled hominy grits. Some of the fat from the meat is mixed with the grits in place of butter. Sometimes the idea of "hog and hominy" may be stretched to include ham or bacon, and there is no reason why those who enjoy salt pork should not eat it with hominy grits as a starchy vegetable.

The uses for leftover boiled hominy grits are innumerable. Grits are particularly good if cut in slices, dipped in flour and fried to a delicate brown. This can be served for breakfast or in place of a dinner vegetable. When planned for use in this way the warm boiled hominy should be poured into a bread tin or baking powder can to mould it into a form from which attractive rectangular or round slices can be cut. Fried hominy grits with maple sirup, honey or preserves is a uncheon dish or dessert that may be compared with waffles in satisfaction to the palate.

To vary ordinary muffins a small quantity of cold boiled hominy grits can be used instead of part of the flour. In making gems with any cooked starchy cereal it is necessary to have the batter stiffer than in all-wheat flour mixtures, since the cooked cereals contain a considerable proportion of water.

Hominy Muffins

1½ cups cooked grits, 1½ cups wheat flour, 1 teaspoon salt, 3 teaspoons baking powder, 2 tablespoons syrup or sugar, 1 or 2 eggs, 2 table-

spoons fat; liquid sufficient to make a stiff batter (about ½ cup). Sift together flour, salt and baking powder twice. Beat the eggs until light and add to the cold boiled hominy grits. Add the syrup or sugar, the melted shortening and flour mixture alternately with the liquid (milk or water) until a stiff batter is formed. Drop into greased muffin pans until half filled and bake 25 to 30 minutes in a moderately hot oven.

Hominy for Escalloped Dishes

A "one piece" dish for which boiled hominy grits forms the basis can be made in the same way as those scalloped dishes often prepared with bread. Arrange alternate layers of cooked grits with the food to be combined with it. Minced cooked beef or lamb, slices of pork or veal, fish picked from the bones, sharp cheese, grated, tomatoes, peppers, onions, celery, cabbage, vegetable mixtures. Any of these foods may be made into attractive dishes when scalloped with cooked grits. After the baking dish is filled, a cupful of white sauce should be poured over the combination and the whole may be covered with buttered crumbs and baked 30 minutes. Left over chicken may also be creamed and scalloped with hominy grits.

Hominy Turnover

1 pint cooked hominy grits, 1 cup milk, 1 teaspoon salt, 2 well beaten eggs. Mix all together. Turn into frying pan in which a tablespoon of

fat has been melted. Stir until hot throughout. When golden brown on the bottom fold like an omelet and serve on a hot platter.

LINCOLN CORN CRIB

Out in Nebraska where they have more corn than they know what to do with the Lincoln Crib proposes to store away some of the surplus which corn growers are finding so burdensome. This crib, started by the Lincoln Chamber of Commerce, was so successful that other cornbelt organizations are considering similar cribs.

Instead of being a huge storage house for corn this is an organization of about half a thousand men and women who call themselves the Corn Eaters of America. The purpose of the organization which is making rapid growth is to direct attention to the value and economy of corn and its products as food and to help reduce the surplus of this grain. The only failure in connection with the organization of the Lincoln Crib, according to the chamber of commerce, was that there was no banquet room in the city large enough to accommodate the hundreds who wanted to join as charter members.

With the help of the United States department of agriculture food bulletins and circulars an exclusive corn menu was planned. The first course consisted of cream of corn au gratin. Corn silk tobacco smoked in corn-cob pipes substituted for Havanas at the end of the dinner and in between

were courses of cornfed Nebraska pork loins, corn saute (hominy) with green pepper, corn on cob, corn bread, corn salad with pimentos, cornstarch pudding, corn cookies, and corn candy.

THE SCHOOL LUNCH

Mary Ann Gray, South Dakota State College

As important as knowing what to put in the lunch for school children is knowing how to pack the lunch so that it will keep fresh and tasty. Metal boxes or pails are the best because they can easily be cleaned and scalded to keep them in a safe condition. There should be no part of the container which cannot be cleaned thoroughly. Small air holes may be punched in metal containers making them more suitable for carrying moist foods which are likely to spoil.

Things least likely to crush should be packed on the bottom. Sandwiches, etc., should be wrapped in separate packages instead of all in one.

If no provision is made in the school room for serving lunches an extra napkin should be included in the lunch box for the child to spread over the school desk while eating. Napkins may be of paper or may be made out of cotton crepe, purchased for a small sum per yard. The edges of the napkin may be fringed and the napkin need not be ironed after washing.

Fruit and Nut Confection

This confection is a good one to be



Judging a Dentifrice

At the Poultry Shows you like to watch how carefully the judges examine each entry. You note how each individual point is thoughtfully weighed before the awards are made.

Just so in the selection of a tooth paste, you, like dentists, can judge each point with utmost care. Common sense tells you that you want a safe DENTAL CREAM which washes and polishes the teeth thoroughly, that has no harsh grit to "scratch" or "scour" the precious, protective enamel. And you want one without strong drugs, one which does not harm the delicate tissues of your mouth.

COLGATE'S Cleans Teeth the Right Way

"Washes" and Polishes—Doesn't Scratch or Scour

Impartial tests made by dentists "gave the Blue Ribbon" to Colgate's Ribbon Dental Cream—more dentists recommend Colgate's than any other. It not only cleans thoroughly but has a delicious flavor that encourages the habit of regular tooth brushing. You can get a LARGE tube of Colgate's Ribbon Dental Cream for 25c.

Ask also to see the other Colgate articles listed below. If your store doesn't have them all we will mail you samples as called for in the Coupon.



COLGATE & CO.

Farm Household, Dept. 204

199 Fulton Street, New York, N.Y.

Please send me samples of the following articles. I enclose the amount of stamps shown for each one checked.

- ☐ Face Powder 6c
- ☐ Baby Talk 4c
- ☐ Shaving Cream 4c
- ☐ Ribbon Dental Cream, Free

Name

R. D. Town State

Dealer's Name

Address

included in the school lunch box. It is also good to have in the house as an emergency novelty. Use 1 pound figs, 1 pound dried prunes or seedless raisins, 1 pound nut meats, confectioner's sugar. Wash, pick over and stem the fruits and put them with the nut meats through a meat chopper and mix thoroughly. Roll out to a thickness of about one-half inch on a board covered with confectioner's sugar. Cut into small pieces. If the candy is to be kept for some time the pieces should be separated by means of paraffin paper. This recipe makes about 24 two-ounce portions.

THINK OF YOUR GARDEN AS—

A Doctor: It can keep you in good health and sends no annoying bills.

Picnic Grounds: You can have a lot of fun in it if you approach it in the right spirit.

A Beauty Spot: To cover bare earth with green growing things is truly a work of art.

A Thrift Proposition: It gives you the opportunity to save the money you would otherwise have to spend for food.

A Sanctuary: Some one has said, "One is nearer God's heart in a garden than anywhere else on earth."

An Opportunity: Not only to add to your larder, but to broaden your intellect and sympathies as well.

Battle Ground: Never doubt for a moment that weeds and pests will rise up without number to engage your ceaseless efforts.

A Storehouse: If rightly planned it will supply a surplus of food to be stored away for bleak winter.

Recreational Proposition: It is just as enjoyable and far more profitable to play the game of gardening than golf or tennis.

An Old Friend: Enter lovingly into its moods and confidences and when you are deprived of its presence for a few bleak months look eagerly forward to its return—Farm Life.

NEIGHBORLINESS

A good neighbor is one who has tact enough to overlook the faults that your friends chide you with and has sense enough to expect nothing in return for his own graciousness. If it can be written on a man's tombstone that he was a good neighbor he will have a sweeter epitaph than can be earned by most of the kings of earth. The art of neighborliness is one we are slothful in acquiring in its community sense.

California has grown so fast and is still growing so fast that the business of being neighborly is being neglected. Families have settled down in busy and bustling districts and in a few months have pulled up stakes and moved from sheer loneliness. No one has shown interest in their welfare or being. They have been held as total strangers by those surrounding them. They were received with acclaim by the real estate agent who

sold them a lot or a home, but when it came to making that home they were as strangers in a strange land. Neighbors were neighbors in name only. As the boy in the street might say: They didn't even take time to give them the once-over. The art of neighborliness is something that can and should be cultivated and that community will thrive most and indicate the most substantial progress in which this art is best extended.—L. A. Times.

AIRPLANE RAID AT SEA

An airplane used in enforcement of U. S. prohibition laws raided the ship Anabelle off the coast of Florida. The ship was bringing in a cargo of 11,500 cases of whisky. Preparations have been quietly in the making for some time to bring to bear simultaneously airplanes, submarine chasers and reinforced land forces in Florida upon the illegal liquor craft said to be infesting southern waters. With airplanes as swift raiders to swoop down on run-runners stealing toward the coast, the prohibition authorities were understood to plan a patrol of submarine chasers from Maine to Key West which could spot the blockade runners and either relay reports of their location to the planes or make seizures themselves.

A LA CARTE

The Yank buddy was revisiting battle scenes and was amazed to see a group of men, all under the direc-

tion of a man in the uniform of a discharged French corporal, busily digging in the field.

"Queska vous diggy La, Pierre?" he asked in his best French.

"Ze sheil 'oie, M'sieu'," answered Pierre. "Ze las' parr-tie of lady and zhentlemen tourists from Amerique, zey are a leetle deesappointed wiz ze field of bataille."

CHANCE FOR MISCONSTRUCTION

"I don't know whether to accept this testimonial or not," mused the hair restorer man.

"What's the matter with it?" demanded the advertising manager.

"Well," explained the boss, "the man writes: 'I used to have three bald spots on the top of my head, but since using one bottle of your hair restorer I have only one!'"

ELUCIDATION BY DEMONSTRATION

Two sailors at a dog show were gazing at a valuable Skye terrier which had so much hair that it looked more like a woolen mat than a dog.

"Which end is 'is 'ead, Tom?" asked one.

"Blowed if I know," was the reply, "but 'ere, I'll stick a pin in 'm, and you look which end barks!"

SCARCELY ACCOUNTED FOR

One never loses anything by politeness, but a lot of people seem afraid to risk it.—Boston Transcript.

You just know
she's a clever hostess

She's never "fussed"—never at a loss—no matter how many "drop in" of an afternoon. For she knows that Ghirardelli's—back there in the pantry—can measure up to any occasion. She knows, too, that nothing puts people at ease, nothing makes them feel quite so "homey" as a piping hot cup of this delicious chocolate.

Since 1852 D. GHIRARDELLI CO. San Francisco

Say
"Gear-ar-delly"
and send for
recipe booklet



CALUMET BAKING POWDER

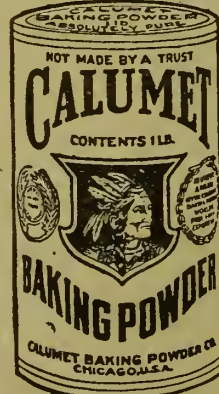
Is economical
in cost and use

CALUMET

Makes the sweetest
and most whole-
some foods

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Is the largest
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it never fails



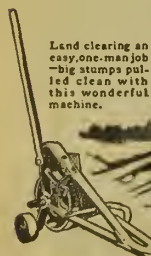
A pound can of Calumet contains full 16 oz. Some baking powders come in 12 oz. cans instead of 16 oz. cans. Be sure you get a pound when you want it



HAND POWER Stump Puller

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Works on any land. Operated by hand! No horses; no digging. Made of the finest steel—guaranteed. Adopted and used by U.S. Government officials and many states. Send for FREE illustrated book on Land Clearing and special offer



KRESKY'S BLUE WONDER BURNERS FOR KEROSENE

Safer, cleaner than city gas, wood or coal. } Agents Wanted
No roar, no soot. Big saving over wood. }
WONDERFUL, steady baking heat. Fits any cook stove, parlor heater, etc. No cleaning; no stopping up; built to last. It's new; it's different; it's better. Free literature. Address Department C.

J. E. KRESKY, Box 756, Petaluma, California

Dairy Cow Contest Awards

The awards in the state dairy cow competition described by Prof. Woll in the last issue were as follows:

I. Herd Prizes: Highest production of butter fat by ten cows in a herd during ten consecutive months.

Class 1. Jerseys or Guernseys—1, \$200, H. G. Gross, Eureka (J.), 472.15 lbs. actual butter fat; credit, 523.87. 2, \$150; J. W. Coppini, Ferndale (J.), 456.78; 502.79.

Class 2. Holsteins—1, \$200, Fred Hartsook, Lankershim, 589.07 lbs. actual butter fat; credit, 634.89. 2, \$150, Burr Farm, Los Angeles, 527.96; 599.88.

Class 4. Grades or Cows of Unknown Breeding—1, \$300, Earl Graham, Compton, 555.39 lbs. actual butter fat; credit, 642.01. 2, \$200, J. A. Genzoli, Loleta, 568.50; 595.22. 3, \$100, Nate Hauck, Alton, 513.27; 563.53.

II. Individual Prizes: Highest production of butter fat by cow during ten consecutive months.

Class 5. Jerseys or Guernseys—1, \$100, H. G. Gross, Eureka (Lydia's Valentine, J.), 575.84 lbs. actual butter fat; credit, 679.49. 2, \$75, A. B. Humphrey, Escalon (Calla Grove Itchen May, G.), 587.73; 675.89. 3, \$50, J. W. Coppini, Ferndale (Noble's Sayda Polo, J.), 652.27; 652.27. 4, \$25, H. G. Gross, Eureka (Raleigh's Echo Girl, J.), 505.05; 626.26.

Class 6. Holsteins—1, \$100, Fred Hartsook, Lankershim (Bessie Snowball DeK.), 777.62 lbs. actual butter fat; credit, 839.83. 2, \$75, Fred Hartsook, Lankershim (Miss Aaggie Ormsby Segis), 644.86; 799.63. 3, \$50, Palo Alto Stock Farm (Alta Papoose), 720.99; 778.67. 4, \$25, Anita M. Baldwin, Santa Anita (Anoakia Walker Pontiac), 620.94; 769.97.

Class 7. Ayrshires or Dairy Shorthorns—1, \$100, J. Henry Meyer Est., Watsonville (Finlayson's Annie L., Ay.), 487.05 lbs. actual butter fat; credit, 487.05. 2, \$75, J. D. Rowe & Sons, Davis (Alma, Sh.), 416.62; 449.95. 3, \$50, J. Henry Meyer Est., Watsonville (Bright Eyes of Highl., Ay.), 442.60; 442.60. 4, \$25, J. Henry Meyer Est., Watsonville (Substantial's Patricia, Ay.), 396.25; 396.25.

Class 8. Grades or Cows of Unknown Breeding—1, \$100, L. A. Co. Farm, Hondo (Princess, gr. H.), 644.57 lbs. actual butter fat; credit, 799.27. 2, \$75, H. L. Wakeham, Santa Ana (Jim's Wonder, gr. J.), 795.53; 795.53. 3, \$50, Earl Graham, Compton (Tomie, gr. H.), 650.88; 748.51. 4, \$25, Earl Graham, Compton (Alice, gr. H.), 567.94; 738.32.

III. Special Prizes Registered Bulls and Dairy Apparatus.

Class 9. Registered dairy bull calves. Highest average production of butter fat during ten consecutive months by a grade or common dairy herd of less than 25 cows:

Choice of a Jersey bull calf donated by Dr. H. G. Gross, Eureka, a Guernsey bull calf donated by A. B. Humphrey Co., Escalon, and a Holstein bull calf donated by Bridgeford Holstein Co., Patterson.

N. Hauck, Alton, 513.27 lbs. actual butter fat; credit, 563.53. P. Iversen, Grizzly Bluff, 475.85; 535.53. S. J. Damon, Ferndale, 377.56; 432.10.

Class 10. For the pure bred dairy herd having the largest proportion of completed records over 300 lbs. butter fat for ten consecutive months.

One Babcock 24 bottle hand tester, donated by Creamery Packing Manufacturing Co., San Francisco. Fred Hartsook, Lankershim, 17 records.

IV. Special Cash Prizes.

Class 11. California Cultivator Monthly Prize of \$25 (or silver trophy of equal value) for highest average production of butter fat by pure bred sires in herd headed by pure bred sire. September, 1920, to January, 1922:

September, 1920, Chas. F. Holman, Stockton, average production butter at, lbs., 69.38. October and December, 1920, and February and October, 1921, Earl Graham, Compton, 83.26, 5.96, 62.03. November, 1920, and January, 1921, L. A. County Farm, Hondo, 9.81, 78.45. March, 1921, F. F. Pelssier, Whittier, 75.70. April, 1921, A. Genzoli, Loleta, 83.04. May and August, 1920, Eug. Blondini, Ferndale, 2.26, 71.26. June and September,

1921, Nate Hauck, Alton, 74.93, 59.16. July, 1921, W. Terkelsen, Ferndale, 66.16. November, 1921, W. F. Early, Grizzly Bluff, 48.72. December, 1921, Peter Iversen, Grizzly Bluff, 48.62. January, 1922, M. L. Pontoni, Arcata, 43.56.

Class 12. Largest three numbers of complete ten month record in herds tested by a contesting association tester, three prizes—1, \$100, C. A. Casanova, Ferndale, Ferndale Cow Testing Association, 107 records. 2, \$75, L. J. Birgo, Los Angeles, L. A. County Cow Testing Association, 83 records. 3, \$50, Sam H. Moore, Los Angeles County Cow Testing Association, 59 records.

V. Trophies and Medals.

Class 13. Highest average production butter fat for one year by herds belonging to cow testing association, three silver cups, offered by the County Life Department, Sacramento Bee: (a) Herd less than 25 cows, J. W. Coppini, Ferndale, 11 cows; average production butter fat, lbs., 494.39. (b) Herd 26-50 cows, J. A. Genzoli, Loleta, 45; 444.57. (c) Herd 50 cows or over, J. D. Early, Grizzly Bluff, 72; 397.12.

Class 14. Highest production of milk during ten consecutive months by a cow, irrespective of breeding, silver trophy donated by A. W. Scott Co., San Francisco: Earl Graham, Compton (Princess Maida Veeman, 467.343, H.), 26,119 lbs. milk; 798.15 lbs. butter fat.

Class 15. Highest records of registered Jersey and by ten cows in a grade herd sired by Jersey bull, two cups offered by the American Jersey Cattle Club, New York City: (a) Highest record by registered Jersey cow, Bonnikson Bros., Ferndale (Financial C's Loretta D.), 689.97 lbs. actual butter fat; credit, 689.97. (b) Highest

average record by ten grade Jerseys—Nate Hauck, Alton, 513.27; 563.53.

Class 16. Highest record by registered Guernsey cow and ten cows in a grade herd sired by a Guernsey bull, two trophies, offered by the American Guernsey Cattle Club, Peterboro, New Hampshire—(a) Highest record by registered Guernsey cow, A. B. Humphrey Co., Escalon (Calla Grove Itchen May), 587.73 lbs. actual butter fat; credit, 675.89. (b) Highest average record by ten grade Guernseys, Adohr Stock Farms, Van Nuys, 464.34; 495.53.

Class 17. Highest record by registered Holstein cow and ten cows in grade herd sired by registered Holstein bull, two silver cups, offered by the Holstein Friesian Association of America, Brattleboro, Vermont.—(a) Highest record by registered Holstein cow—Earl Graham (Princess Maida Veeman), 798.15 lbs. actual butter fat; credit, 941.82. (b) Highest average record by ten grade Holsteins—Earl Graham, 561.82; 648.02.

Class 18. Highest record made by a registered Ayrshire cow, cup offered by the Ayrshire Breeders' Association, Brandon, Vermont—J. Henry Meyer Estate, Watsonville (Finlayson's Annie Laurie, 36968), 487.05 lbs. actual butter fat; credit, 487.05.

Class 19. Highest record by registered Shorthorn cow, a silver trophy offered by Alexander & Kellogg, Suisun—John D. Rowe & Sons, Lessees, Davis (Alma, 577635), 416.62 lbs. actual butter fat; credit, 449.95.

Class 20. Two herds having largest and next to largest number cows producing over 300 lbs. butter fat in ten consecutive months; two silver trophies offered by California Dairy Council, San Francisco, and De Laval Separator Co., San Francisco—(a) De Laval Separator Co. trophy—Adohr Stock Farms, Van Nuys, 47 records. (b) California Dairy Council trophy—Arden Certified Dairy, El Monte, 40 records.

Class 21. Highest average produc-

tion butter fat by grade herd (not less than four cows) all daughters of single pure bred sire, silver trophy offered by the Pacific Dairy Review, San Francisco—Nate Hauck, Alton, eight daughters of Chief Alton, 123772, 479.20 lbs. actual butter fat; credit, 508.26.

Class 22. Highest production butter fat by Humboldt County cow (all cows winning other individual prizes in the contest to be barred), three cash prizes offered by the Humboldt County Dairy Farmers' Association, Ferndale—1, \$25, J. A. Genzoli, Loleta (Jill, "Common"), 660.49 lbs. actual butter fat; credit, 660.49. 2, \$15, L. M. Pontoni, Arcata Klamath (gr. J.), 659.12; 659.12. 3, \$10, Nate Hauck, Alton (Red, "Common"), 549.29; 631.68.

GOATS COMBINE

The Goat World, published in Los Angeles, devoted to the upbuilding of the milk goat industry, has purchased the milk goat section of the Angora and Milk Goat Journal published at Portland, Oregon. Editor Heintz says in making announcement of the change: "With the purchase of the milk goat department of the Angora Journal we become the publishers of the only magazine in the world devoted to milk goats. The Angora Journal occupies a like relation to the mohair industry."

PROFIT IN GUINEA PIGS

"Profit in Guinea Pigs, Breeding, Management, Varieties and Practical Knowledge of Cavies," by J. A. Roberts, D. V. M., published by the author, Hollywood.

This is a 100 page book filled with halftones and other illustrations. There is a bit of history and description of various kinds of cavies. Following this comes the commercial use of cavies, housing, feeding, breeding, preparing for exhibition, ailments, with a series of special articles on meat and fur production.



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Miss California Gibson



WHEN Miss California Gibson was elected by the supervisors of Glenn County in January to serve as one of the three directors of the \$15,000,000 Glenn-Colusa irrigation district, a California woman took a position in the agricultural life of the state that is attracting nation wide attention.

It is not as a novice, however, that Miss Gibson assumes her duties on the directing board of this irrigation district, which is the third largest in the United States. Since the death of her father in 1906 she had shared with her brother the management of the J. S. Gibson Company Ranch, three miles northwest of Williams. Since the death of her brother, Gion Gibson,



California Gibson

in January Miss Gibson, or "Miss California," as her neighbors know her, has been in full charge of this half million dollar property.

As a girl California Gibson had been given broad social and educational opportunities. "What I liked best when I was a girl," Miss Gibson says, "was to help my father in the management of the ranch, and particularly to ride the range." The Gibson Ranch in those days was a stock ranch with thousands of acres of range land in the foothills. Gibson had bought his first acres from the government in 1854, he had prospered, and throughout Northern California his hospitality and generosity were known far and wide. Gion Gibson, her brother, was a graduate of Stanford University, with a degree in engineering. It was under his supervision that the machinery equipment of the ranch was installed and operated. Miss Gibson's more particular interest was with the stock. She can mend a trac-

tor and drive it when necessary, but the building up of a dairy herd with the aristocratic Alcartra and DeKol stock, and the management of flocks of prize turkeys, has been her greatest interest.

The University of California has a representative on the Gibson Ranch checking up the records of several cows in the herd that are under test for prize milk production, the sort of cows that are milked four times a day, and eight of which are producing 85 gallons of milk a day.

To succeed to the management of the Gibson ranch on the death of her brother was a natural opportunity for California Gibson, but as it happened the people of the two counties gave a stronger testimonial to her ability to succeed to the full work of her brother. Gion Gibson had been one of the three directors of the Glenn-Colusa irrigation district, with 103,000 acres of the best lands in the two counties and upon its successful management depends the welfare of the towns of Colusa, Williams, Maxwell, Willows, Hamilton and numerous smaller settlements. The supervisors sought a successor to Gion Gibson. The women of the two counties proposed California Gibson. The shrewdest and most influential politician in the district remarked that "California Gibson is fitted in every way to be a member of the board, but she is a woman." The women said: "Appoint the best fitted, whether man or woman." And to back up their advice the women held a mass meeting on January 26, after which they organized an automobile parade, visiting each supervisor and demanding "Miss California's" election to succeed her brother on the board. The supervisors had an all day meeting on the 27th, without result. On the one hand were the evident qualifications of California Gibson for the important position. On the other hand was the repeated objection of the politicians—"But she is a woman." However, on the morning of the following day another meeting was held, which resulted in the appointment of Miss Gibson.

"In a way it is nothing new to me," Miss Gibson says. "I know what it is to live 'at the end of the ditch,' and the problems of the district have been my problems for years. I would rather take this place in the management of the ranch and in the management of the district than to spend my time in any social position in the state."

A Great Guernsey

Sylvia of Frankland 64380, a Guernsey cow bred by J. Howard Leman, Boston, Massachusetts, and owned and tested by Brant Rancho, Owensmouth, is the new state champion in her division in California and the tenth cow in Class B. Her record completed in November, 1921, has been verified by the American Guernsey Cattle Club and the production credited to her is 16,976.7 pounds milk and 776.66 pounds butter fat.

At the 1921 California State Fair Sylvia of Frankland 64380 won first prize in the aged cow class and was

also made senior and grand champion female, first prize advanced register cow, and first prize over all breeds in the cow testing association class. She was a member of the first prize exhibitor's herd and dairy herd, which honors she duplicated at the San Fernando Valley Fair.

Sylvia of Frankland 64380 dropped her first calf in March, 1918, and was put on test during the war, but owing to labor conditions at that time no attempt was made to make anything more than just herd records and the cows were all milked with a machine.



Sylvia of Frankland

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She was bred early, finished in class GG with 344.73 pounds butter fat, dropped another calf in 1919, and milked well but was not tested. She dropped her third calf in November,

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Cows are pretty hardy animals. Practically the only diseases they suffer from are those which result from weakened vitality of genital or digestive organs. These, of course, are serious because they immediately reduce the milk-flow—and milk is money. We get scores of letters weekly like this one from W. H. Lawson, Petrolia, Ont., a dealer who sells Kow-Kare:

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As a sample of the endorsements we get from cow owners themselves, read this letter from C. E. Dodge, De Wittville, N. Y.:

"Since I have been on the County Farm, I have been using Kow-Kare in the dairy for the last ten years. I have 52 cows. My experience is that a few dollars worth of Kow-Kare saves us a great many dollars worth of veterinary bills, and also every cow in the dairy that I feed it to produces more all the year thru because of the Kow-Kare. I have no sick cows or trouble, when I begin feeding Kow-Kare, from the first of January until I turn them out in the Spring."

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1920, and started her test five days later. Sylvia was a very heavy milker averaging 54 pounds a day in her fourth month when she made 69.81 pounds butter fat. She was very persistent, producing over 60 pounds butter fat in every month of the year except one, during the show season, when she produced 58.3 pounds. She produced from 1,200 to 1,600 pounds milk every month except when on the show circuit, making her a very valuable cow as her milk sells with that of the rest of the herd at 28 cents per quart.

ARIZONA CATTLE SHIPMENTS DECLINE

Cattle shipments from Arizona have been on the decline since 1919, according to the report of the state livestock sanitary board. The shipments in 1919 were 262,788 head; in 1920, 194,357, and in 1921, 191,203. Arizona slaughtering figures in 1919 were 104,606 head; in 1920, 87,275, and in 1921, 66,075. More than half of last year's shipments went to California points, with Texas second. California took more cattle than in 1920.

CALIFORNIA'S CATTLE INDUSTRY

A conservative estimate of the number of stock cattle grazing annually in California is 1,250,000 and the number of cattle taken from the ranges of the state annually for immediate slaughter is approximately 327,330 steers, 242,168 cows, 21,673 calves, 7,717 bulls and stags.

The estimated value of range herds can reasonably be placed at \$151,000,000. The estimated value of lands for grazing is \$250,000,000. The estimated amount of capital invested in the cattle raising industry is approximately \$400,000,000. J. B. N.

HG RANCH MAKES BIG AYRSHIRE DEAL

One of the largest deals in Ayrshire cattle for the year was recently made when Mr. and Mrs. Harry Gantz, Santa Ynez, purchased three carloads from Washington breeders to be shipped to their ranch near Santa Barbara. One carload was secured near Montesano and the other two were taken from Whatcom County. The HG Ranch operates a large dairy, which caters to an exclusive trade in cream. About two years ago Ayrshires were tried for the first time with so satisfactory results that plans were soon made to replace the entire herd with the Red and White breed as fast as possible.

Such a purchase will go far to open the eyes of the dairymen of the Pacific Coast to the commercial advantages of the Ayrshire cow and should lead to similar deals in the near future. Western breeders are confident that no more valuable friends to the Ayrshire breed could be found anywhere than Mr. and Mrs. Gantz.—Ayrshire Digest.

PURCHASE FINE STOCK

Purchase of a few registered Guernsey heifers as a foundation for a small high class Guernsey herd at the agricultural college of the state college of Washington was authorized by the regents at their last meeting.

Purchase of the Holstein bull Segis Pontiac De Kol II for the Western Washington experiment station was consummated and a report made as to cattle and sheep exhibited in the coast district this winter by the animal husbandry department.

Chinook Segis Pontiac Ike, prize winning Holstein bull which won ribbons as senior calf last year on the show circuit, has been sold to a group of farmers near Colton.

Maxwell's Landseer Lad, head of the college Jersey herd, has been loaned to farmers near Dayton for two years as a part of the county agricultural agent's campaign for better sires to improve herds.

BULLETIN ON CATTLE DISEASE

Dr. J. W. Kalkus, veterinarian of the Washington experiment station, is author of the new bulletin on Abortion Disease of Cattle, just published by the extension service of the state college. In it he discusses the nature of the disease, method of its spread, symptoms and diagnosis, prevention and immunity, and treatment.

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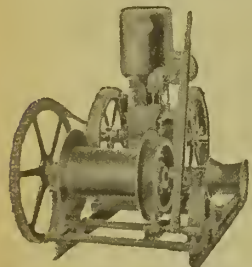
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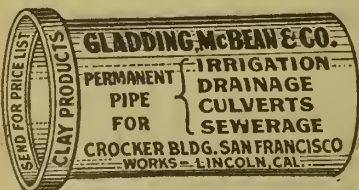
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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Los Angeles County Farm, Hondo, has recently added two more noteworthy official records in its herd of registered Holsteins. Hollywood Lilith Palmyra Abbekerk as a senior four year old made 30.44 pounds butter from 685.7 pounds milk in seven days, and 125.05 pounds butter from 2,902.7 pounds milk in 30 days. She has now been on semi-official for 145 days and has to her credit 541.2 pounds butter and 12,774.0 pounds milk. She completes three direct generations of 30 pound cows, her dam Hollywood Abbekerk Korndyke having a record of 30.01 pounds butter in seven days, and her second dam, Pietertje Korndyke Abbekerk, having a record of 35.38 pounds butter in seven days. She and her three nearest dams also have yearly records, the four, including her own three year old record, averaging over 915 pounds of butter. She is sired by Hollywood Lilith Palmyra, one of the great sires bred and developed at Hollywood Farm, Hollywood, Washington. The other record lately made is that of the junior three year old Lilith De Kol Tritomia, that made 27.35 pounds butter from 578.7 pounds milk in seven days. She is sired by Sir Bessie Fobes Tritomia and out of a daughter of Hollywood Lilith Palmyra. The first mentioned heifer above was purchased for the farm by Wm. R. Harriman in the 1921 guaranty sale at Sacramento, from Carnation Stock Farms, Seattle, and the latter heifer from Toyon Farm Association, Los Altos, in their dispersal sale in April, 1921.

J. L. Sebastian, Wasco, is making some excellent records in his small but select herd of registered Holsteins in the first season of testing. Following the 30 pound record recently reported in the herd several other members of the herd have gone on test. Twilight Shadow of Packwood, a daughter of Segis Pontiac Crane De Kol, made 26.39 pounds butter from 651.1 pounds milk, milking from three quarters of an udder. Alpha Aaggie De Kol Wasco, at two years nine months, made 22.77 pounds butter from 485.3 pounds milk. Centella Victoria Walker, at one year 11 months made 18.09 pounds butter from 407.1 pounds milk.

H. G. Ball, Tulare, is starting off official testing with most satisfactory results. Belle Pontiac Maid made 31.24 pounds butter from 472.3 pounds milk in seven days, while her half sister, Lady Pontiac Zenobia, as a senior four year old, made 27.39 pounds butter from 441.2 pounds milk in seven days. Both of these are sired by Segis Pontiac Crane De Kol, the son of Segis Pontiac De Kol Burke that formerly headed Walter Mitchell's herd at Visalia. The third record made in Mr. Ball's herd recently is that of the mature cow Jennie Wren Edith Pride, with 25.47 pounds butter from 433.4 pounds milk in seven days.

W. J. Higdon, Tulare, continues to add substantial records to his choice young herd as the heifers freshen. Johanna Gelsche Walker, a senior three year old daughter of Prince Gelsche Walker, after making 31.40 pounds butter from 504.9 pounds milk in seven days, made 125.8 pounds butter from 2,415.1 pounds milk in 30 days and is going strong on the beginning of a yearly test. Rosina Creamcup Mead, a senior two year old daughter of King Ignaro Mead, made 19.68 pounds butter from 432.5 pounds milk in seven days. Korndyke Creamcup, the beautiful junior two year old daughter of King Korndyke Pontiac 20th, which Mr. Higdon purchased in the 1921 guaranty sale from A. W. Morris & Sons Corporation, finished her 305 day record with 700.3 pounds butter from 13,549.1 pounds milk, carrying a calf 206 days. Two other first calf daughters of King Korndyke Pontiac 20th now on test are both over the 20 pound mark and increasing.

Frank M. Helm, Fresno, is securing most gratifying results in the first season of official testing in his big herd at Corcoran. The latest records reported by herdsman Harry L. Redd include Jessie Segis It, with 32.49 pounds but-

ter from 586.7 pounds milk in seven days, and she later milked as high as 103 pounds in one day. She is a daughter of It Findaella, a son of It. Helm Burke Lyons Segis, a junior four year old daughter of Crown Prince Segis, made 28.51 pounds butter from 510.1 pounds milk in seven days, while Helm Bessie Walker, a junior four year old daughter of Prince Juliana De Kol Walker, made 27.44 pounds butter from 601.9 pounds milk in seven days.

The most remarkable records yet made by the daughters of one sire in California are those now being made by the daughters of the six times grand champion show bull, King Segis Alcartra Prilly, owned by Bridgford Holstein Co., Patterson. About the time the sensational junior three year old Louise Alcartra Prilly was completing her world's record of 40.19 pounds butter in seven days, her half sister, Miss Ormsby Alcartra Prilly, increased her previously reported state senior two year old record to 29.35 pounds butter in seven days and has made 117.71 pounds butter from 2,465.2 pounds milk in 30 days, all California records for age. Maid Pontiac Prilly, freshening at two years and two months, made 26.75 pounds butter from 540 pounds milk, the butter production being the California record in class. Since January 1, 1922, the daughters of King Segis Alcartra Prilly have broken eight California records and two world's records. Another daughter of the same sire, Miss Alcartra Pontiac Prilly, as a senior three year old, made 28.63 pounds butter from 669.1 pounds milk in seven days without being dry at the end of her first lactation period.

The 1922 guarantee sale which will be held at Rhoades & Rhoades Sale Pavilion, Hynes, on April 5, will have the largest list of consignors yet represented in the annual California Holstein classic. More than 20 herds will be represented with a total of over 60 head of choice Holsteins including cows with records up to over 38 pounds butter in seven days. Approximately 40 per cent of the cattle are from southern California herds and 60 per cent from north of Tehachapi. The committee of selection after making the rounds reports this to be one of the choicest lots ever presented for sale in California, a class of cattle entirely suitable for the best foundation material.

California Holstein-Friesian Association starts the year 1922 with the largest paid in advance membership in its history, and the month of January broke all previous records in number of voluntary applications for membership from new members. With its treasury in splendid condition and with no occasion for drives of any sort the association is planning an active year in promotion work through established channels.

In January, 1917, California Breeders Sales and Pedigree Company promoted a sale of registered Holstein bulls which were sold at public auction at Gonzales, and as far as we know it was an original idea and the pioneer Holstein bull sale in America. The performance was repeated in 1918, 1919, and 1920, about 20 bulls being sold each year. No sale was held in 1921, but on February 25, 1922, the company held its fifth bull sale at Gonzales, selling 21 head of yearlings and calves for Fred W. Kiesel, Jane Garden Farm, Sacramento, for an average of \$164 and a top of \$485. Practically all of the dairymen in the rich Gonzales section are Swiss-Italians and the fact that in these five sales within five years they have bought about 110 registered bulls, besides a large number bought at private treaty from individual breeders, indicates something of their appreciation of better blood. In this last sale 13 buyers absorbed the offering, eight head going to A. J. Molera, Monterey, one of the largest land owners of Monterey County, who has part of a 4,000 acre ranch subdivided and leased to dairymen, besides owning many cattle himself. Following is list of catalog numbers of bulls sold with name of buyers and price paid: No. 1, P. Scattini, \$135; No. 2, L. Buzzani, \$145; No. 3, A. J. Molera, \$195; No. 4, A. J. Molera, \$145;



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If you are using a worn-out, inferior cream separator, or skimming cream by hand, you are surely wasting enough cream to pay for a De Laval in a short time.

The selection of a cream separator is more important than that of any other machine on the farm, for none other can either save or waste so much, twice a day, 365 days a year.

A De Laval Separator will:

—Skim cleaner for many more years than any other;

—Skim milk clean at lower temperature than any other separator;

—Deliver a higher testing cream, which is more acceptable to the creamery, and easier and less costly to ship,

—And deliver a cream which will make better butter.

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—It lasts longer than any other separator, many giving good service for 15 to 20 years.

—It is easier to turn.

—It is easier to clean.

—It is so simple that one tool will set it up or take it down.

—It has the most perfect lubricating system.

Do not be deceived by separators which are claimed to be "just as good and cost less." When you consider its greater savings, greater reliability, longer life, the extra time it saves, and the greater satisfaction it gives, the De Laval is, in the end, by far the most economical cream separator made.

Even if you have only two cows it will pay you to have a De Laval. One can be bought on such easy terms that it will pay for itself in less than a year. Why not see your De Laval agent at once or write us for full information?

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Cream Separator and Milker

No. 5, A. M. Allean, \$120; No. 6, A. J. Molera, \$190; No. 7, Frank Gouthier, \$485; No. 9, Mrs. Chas. Bedolla, \$140; No. 10, Carr & Co., \$155; No. 11, A. J. Molera, \$105; No. 12, A. J. Molera, \$175; No. 13, A. J. Molera, \$130; No. 14, S. A. Gnesa, \$155; No. 16, Sam Rianda, \$105; No. 17, Mrs. Chas. Bedolla, \$150; No. 18, A. J. Molera, \$165; No. 19, Joe Tommassini, \$110; No. 20, Anderson Bros., \$110; No. 21, Gerry Pura, \$175; No. 22, R. Del Porte, \$140; No. 23, A. J. Molera, \$220.

A. W. Morris & Sons Corporation, Woodland, has recently completed a number of short time records. Flossie De Kol of Nevada, who is developing into one of the great producers of the herd, made 36.65 pounds butter from 631.2 pounds milk in seven days, and 146.10 pounds butter from 2,891.1 pounds milk in 30 days. Betsy Lamb Prilly, the grand champion show cow, has freshened again and in seven days made 29.73 pounds butter from 632.2 pounds milk. Cornucopia Johanna Mead, a junior four year old daughter of King Mead of Riverside, made 24.82 pounds butter from 476.1 pounds milk in seven days. Ignaro Creamcup Pontiac Burke, a daughter of Segis Pontiac De Kol Burke, made 23.06 pounds butter from 517.4 pounds milk in seven days.

W. A. Walker, Ripon, has a string of cows on long time test that promise a remarkable average for a herd of modest size. He had one keen disappointment recently, however, when Belle Faskie Hengerveld De Kol 2d, grand champion at Sacramento in 1918, had to be taken off test at the end of 233 days owing to a slight injury to one of her teats that nevertheless seriously interfered with her production. In that time she had made over 800 pounds butter and over 23,000 pounds milk and was headed for a 1,000 pound record.

When T. J. Gist & Sons, Tulare, make their semi-dispersal of 60 registered Holsteins on April 12 it will mark the first time in California that a large number of females will be sold bred to a grandson of May Echo Sylvia. No less than 35 females in the offering are bred, many to calve this spring, to King Segis Sylvia Colantha, the Gist junior herd sire, who is by the \$106,000 bull, Carnation King Sylvia, and out of a good record daughter of Dutchland Governor Sir Colantha.

The American Shorthorn Breeders' Association announces that the classification in the get of sire will remain the same for this year as has been in effect. It was planned to change the classification so that ownership was required, the entry to include two bulls and two females bred and owned by the exhibitor. As this change did not reach the association of fair managers until after its annual meeting it was decided to continue the classification as formerly, four animals, any age, either sex, ownership not required, for the current year.

A quota of ten head has been apportioned to California for entries in the national sale to be held at Kansas City, Missouri, in June. An effort is being made to fill the quota but so far the owners of Holsteins of national sale quality have proved disinclined to part with them.

WINNINGS AT THE AMERICAN BERKSHIRE CONGRESS SHOW AT RIVERSIDE

Aged boars—1, Model Leader 3rd, Italian Vineyard Co., Guasti. 2, Champion's Type 2nd, Italian Vineyard. 3, Real Type Symboler, Italian Vineyard. Senior yearling boars—1, Rose Crest Rival 10th, F. L. Hall, Perris. 2, Royal Type 3rd, Italian Vineyard. Junior yearling boars—1, Master Type, C. T. Johns, Cucamonga. 2, Matchless Type, Italian Vineyard, Guasti. Senior boar pigs—1, Riverby Rival 2nd, Johns. 2, Laurel Achievement, Hall. 3, Cy Rookwood, Italian Vineyard. 4, Guasti's Artful Kling 33rd, Italian Vineyard. Junior boar pigs—1, Guasti's Rival, Italian Vineyard. 2, Belle's Winona Leader, Johns. 3, Belle's Winona Leader 2nd, Johns. 4, Etiwanda Duke, Stella Mae Dillard, Etiwanda. 5, Rose Crest Emblem, Hall. Aged sows—1, Grape Wild Rose 6th, Italian Vineyard. 2, Emblem's Lady Goods 7th, Italian Vineyard. 3, Successor's Pride, Hall. 4, Escalon Belle 4th, Johns. 5, Emblem's Lady Goods 11th, Chaffey Farm. Senior yearling sows—1, Sadie Ideal, Arthur W. Meyer, Norwalk. 2, Successor's Duchess 45th, D. J. Bastanchury, La Habra. 3, Superb Queen 10th, Chaffey. 4, Natomas Duchess 15th, R. S. Jones, Etiwanda. 5, Lassie Rose 9th, Hall. Junior yearling sows—1, Real Type Las-

sie, Johns. 2, Peerless Royal Lady 3rd, Italian Vineyard. 3, Matchless Lady Type, Italian Vineyard. 4, Real Type Lassie 2nd, Johns. 5, Rose Crest Premier Belle, Hall.

Senior sow pigs—1, Grape Wild Bernice 14th, Johns. 2, Festline Rival 3rd, Italian Vineyard. 3, Guasti's Emblem Lady, Italian Vineyard. 4, Riverby Duchess 48th, A. B. Humphrey, Escalon. 5, Lady Laurel E., Hall.

Junior sow pigs—1, Winona's Lady Pride, Italian Vineyard. 2, Lady Goods Rookwood, Italian Vineyard. 3, Iowa Lenore 88th, Hall. 4, Winona's Belle 6th, Johns. 5, Iowa Gypsy 60th, Oregon Agricultural College, Corvallis.

Champions—Senior champion boar, Model Leader 3rd, Italian Vineyard. Reserve senior champion boar, Riverby Rival 2nd, Johns. Junior champion boar, Riverby Rival 2nd, Johns. Reserve junior champion boar, Guasti's Rival, Italian Vineyard. Senior champion sow, Grape Wild Rose 6th, Italian Vineyard. Reserve champion sow, Real Type Lassie, Johns. Junior champion sow, Grape Wild Bernice 14th, Johns. Reserve junior champion sow, Winona Lady Pride, Italian Vineyard.

Grand champions—Grand champion boar, Model Leader 3rd, Italian Vineyard. Reserve grand champion boar, Master Type, Johns. Grand champion sow, Grape Wild Rose 6th, Italian Vineyard. Reserve grand champion sow, Real Type Lassie, Johns.

Herds

Aged herd—1, Italian Vineyard. 2, Johns. 3, Hall.

Young herd—1, Johns. 2, Italian Vineyard. 3, Hall. 4, Chaffey.

Breeder's herd—1, Italian Vineyard. 2, Hall. 3, Johns.

Get of sire—1, Johns. 2, Italian Vineyard. 3, Chaffey. 4, Johns.

Produce of dam—1, Johns. 2, Chaffey. 3, Johns.

Boar farrowed after September 1, 1921—1, Hall. 2, Italian Vineyard. 3, Italian Vineyard.

Sow farrowed after September 1, 1921—1, Hall. 2, Hall. 3, Johns.

Boar and three sows farrowed September 1, 1921—1, Hall. 2, Johns.

Barrow farrowed between September 1, 1920 and March 1, 1921—1, 2, 3, University of California.

Barrow farrowed between March 1, 1921 and September 1, 1921—1, Italian Vineyard. 2, Johns. 3, Johns. 4, San Bernardino High School. 5, Italian Vineyard.

Pen of three barrows farrowed between September 1, 1920 and March 1, 1921—1, University of California.

Pen of three barrows farrowed between March 1, 1921 and September 1, 1921—1, Italian Vineyard.

Champion barrow, University of California. Reserve champion barrow, Italian Vineyard. Champion pen of barrows, University of California. Reserve champion pen of barrows, Italian Vineyard. Champion herd of barrows, Italian Vine-

yard. Special premiums offered to high school students by the Italian Vineyard Co. for pigs of Guasti breeding—1, Stella Mae

Dillard. 2, Hugh Solter. 3, Wm. Beard. 4, Hazel Cornelius. 5, Oscar Solter. 6, Mary Beard. 7, Homer Barrillas. 8, Van Fleet.

SEMI-DISPERSAL 65 REGISTERED HOLSTEINS

T. J. GIST & SONS HERD

Tulare, Calif.

Wednesday, April 12, at 10 A.M.

In order to rearrange their farming operations, T. J. Gist & Sons will sell at public auction their entire herd of registered Holstein females of milking age, a choice lot of bred heifers, and a good lot of young bulls, retaining their unbred heifers and heifer calves as the nucleus for their future herd.

Considerable official testing has been done in the herd and the sale offers a substantial number of young cows and heifers with official records up to over 26 lbs. butter in 7 days.

A FEATURE OF THIS OFFERING IS THE FACT THAT IT INCLUDES 35 ATTRACTIVE COWS AND HEIFERS BRED TO KING SYLVIA SEGIS COLANTHA, WHO IS A SON OF THE \$106,000.00 BULL CARNATION KING SYLVIA AND OUT OF A GOOD RECORD DAUGHTER OF DUTCHLAND GOVERNOR SIR COLANTHA, ONE OF THE BEST PROVEN SONS OF COLANTHA JOHANNA LAD.

The breeding represented in this herd is that of some of the most desirable producing families and the cattle will be offered in excellent physical condition.

Every animal guaranteed to be a breeder; no tuberculin test certificates.

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Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneer: C. L. BEN A. RHOADES, Los Angeles

The 1922 Guaranty Sale

"THE PACIFIC COAST HOLSTEIN CLASSIC"

65 TOP REGISTERED HOLSTEINS

Rhoades & Rhoades Sale Pavilion

HYNES, CALIFORNIA

Wednesday, April 5, 1922

CONTRIBUTORS TO SALE:

AGEE BROTHERS, Rivera, Calif.
C. W. ANDERSON, Burbank, Calif.
MANUEL AZAVEDO, Patterson, Calif.
H. G. BALL, Tulare, Calif.
E. D. BARRY, JR., Covina, Calif.
DEAN BEEMAN, Woodland, Calif.
BLENKIRON, PHILLIPS & DONDERS, Fresno, Calif.
BRIDGFORD HOLSTEIN CO., Patterson, Calif.
BURR FARM, Los Angeles, Calif.
MRS. ANNIE DONDERS, Fresno, Calif.
FRED HARTSOOK, Lankershim, Calif.
FRANK M. HELM, Fresno, Calif.
W. J. HIGDON, Tulare, Calif.
THE MCCLLOUD RIVER LUMBER COMPANY, McCloud, Calif.
A. W. MORRIS & SONS CORPORATION, Woodland, Calif.
CARL RAY, Lankershim, Calif.
HARRY L. REDD, Corcoran, Calif.
J. L. SEBASTIAN, Wasco, Calif.
TOYON FARM ASSOCIATION, Los Altos, Calif.
E. J. WELDON, Sacramento, Calif.

The upward swing in business is certainly under way, and to the Holstein breeder that means that within a few short years there will be present the greatest market for registered Holsteins that the world has ever known at prices as high or higher than in any previous cycle.

For years past the breeder of registered Holsteins has not been compelled to depend upon the prices of a boom market to make a profit. Between the peaks of high prices there has always been present a steady demand for breeding stock at profitable prices.

Breeding herds good enough to command the top prices in a top market are not built in a day nor a year, and the breeder who is keeping his feet on the ground and his eyes on the future will lose no time in founding his herd upon the best animals obtainable or in strengthening his already established herd by the addition of such animals.

This sale provides one of the outstanding opportunities for the purchase of high class registered Holsteins, including

THE HIGHEST RECORD COW EVER SOLD IN A PACIFIC COAST PUBLIC SALE

DAUGHTERS AND SONS OF SOME OF CALIFORNIA'S GREATEST Sires

AN ENTIRE OFFERING OF ANIMALS SELECTED BY AN IMPARTIAL COMMITTEE FOR THIS SALE

Every animal positively guaranteed to be a breeder; every animal tuberculin tested and sold subject to 60 day retest by the buyer.

Catalog of sale free on request.

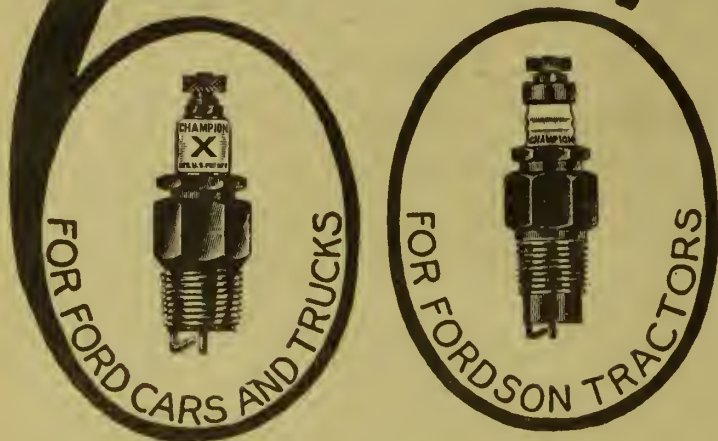
Auctioneers:

COL. BEN A. RHOADES and HAROLD B. RHOADES Los Angeles

Management

California Breeders Sales and Pedigree Co. C. L. Hughes, Sales Manager, Sacramento, Calif.

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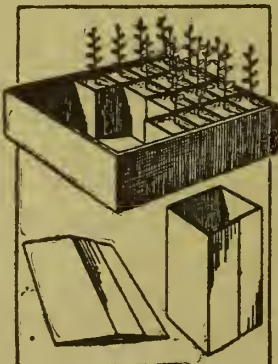
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San Francisco

Cooperation's Victory

By Charles W. Holman



AMERICAN farmers have won their biggest legislative fight. After nearly four years a bill to legalize cooperative marketing has passed both houses of the congress. The senate on February 8 by a vote of 58 to 1 passed the Capper-Volstead bill in substantially the form it passed the house.

The big fight in the senate was over the question of adopting the substitute bill reported from the committee on the judiciary. This bill, written by Senator Walsh of Montana, proposed to strike out all of Section 2 of the house bill and amend Section 1 in two important respects: Providing that nothing contained in Section 1 of the house bill should in any way affect Section 2 of the Sherman Anti-Trust Act, the section forbidding the creation of or attempt to create a monopoly in any part of the supply of a product. Providing that cooperatives shall not handle the products of non-members in an amount exceeding in value the products of members.

To the second amendment attached to Section 1 of the bill farm leaders made no objection and it was adopted by the senate. To the monopoly restriction and to the attempt to take the jurisdiction away from the secretary of agriculture as provided in Section 2 of the house bill, strenuous objection was made. This resulted in the defeat of the senate substitute by the vote of 56 to 5.

Some differences of opinion arose among the senators in the debate as to the exact meaning of Section 2 of the bill on the point whether a price fixing power was conferred on the secretary of agriculture. The leaders for the house bill called the farm organization representatives into conference, and it was agreed that the order is-

sued against a cooperative association found guilty of monopolizing and restraining trade to such an extent as to unduly enhance a price of a product should be directed against the monopolization and restraint of trade and not against the price of a product. This amendment was introduced by Senator Lenroot and thus saved a long drawn out squabble over the possibility of conferring price fixing powers upon an executive officer of the government.

As the bill passed the senate it authorizes:

That persons engaged in the production of agricultural products as farmers, planters, ranchmen, dairymen, nut or fruit growers may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing, preparing for market, handling and marketing in interstate and foreign commerce such products of persons so engaged. Such associations may have marketing agencies in common; and such associations and their members may make the necessary contracts and agreements to effect such purposes, provided that such associations are operated for the mutual benefit of the members thereof, as such producers, and conform to one or both of the following requirements:

First—That no member of the association is allowed more than one vote because of the amount of stock or membership capital he may own therein, or,

Second—That the association does not pay dividends on stock membership capital in excess of 8 per centum per annum; and in any case that the association shall not deal in the products of non-members to an amount greater in value than such as are handled by it for members.

What Makes a Desert?

By Dr. Ford A. Carpenter, Consulting Meteorologist



THE answer, of course, is scanty rainfall. But why is rainfall light on the southern portion of the Pacific coast of the United States, while it is very heavy on the northern section of the same coast? The difference in rainfall of 100 inches on the Washington coast and less than ten inches on the Southern California coast is mainly a matter of being within the track of the northern storm belt of the northwest coast, as both districts have equal proximity to the Pacific ocean. Then again, the very heavy rainfall of Washington and Oregon coast districts is intensified by the mountain ranges which compel the warm, moisture laden air from the Pacific to rise into a colder stratum of air. In studying the meteorology of the west coast of the United States one must always remember that the atmospheric drift is from the west to the east. Atlantic coast weather can never affect the Pacific coast unless the great atmospheric eddies which comprise storms move entirely around the earth. Weather always moves from west to east; never from east to west. To change this procedure it would be necessary to make the earth change its direction of rotation.

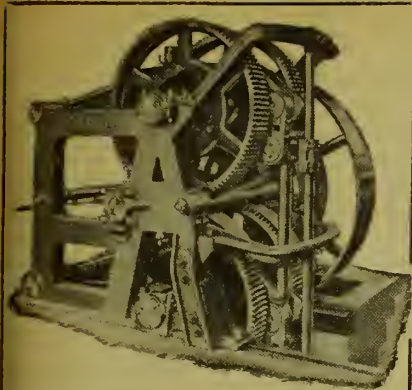
If the Pacific coast presented a flat surface to the prevailing westerly winds, the rainfall would steadily decrease with the latitude much the same as is the case in other regions of the world having the same latitude but without altitude. A contour map of the Pacific coast, especially one of the state of California, will immediately make plain to the average reader the reason for the diversified climates. The mountain ranges which parallel the California coast cause the upward flowing of the air currents from the Pacific to deposit their moisture and then continue their progress as drying winds. Thus deserts are made.

Arid portions of other localities of the world have mainly the same causes. The unwatered plains or steppes of Siberia, the Sahara, and

the great interior deserts of Australia, as well as the dry country on the west coast of South America—all are situated similarly in regard to the prevailing wind direction and the mountain ranges. Generous rains are characteristics of the north and south temperate regions of the earth. The regions about the equator have, extraordinarily heavy rainfall, caused by the moist air which is impelled upward by the great heat. The same strong upward air currents which cause the terrible thunderstorms over the equator are likewise responsible for what little rain there is on the desert. In the instance of the equator the air is moist and the condensation is very rapid, producing heavy and continued rains; whereas on the desert it takes a much higher degree of heat to carry upward sufficiently high into the cooler region of the atmosphere the relatively dry air. Only once or twice a year is an eastward moving storm sufficiently powerful to cause rain on a desert. Nothing that man can do will ever affect the climate of a desert, for the causes are earth wide. Man may "make the desert blossom like the rose" and render it otherwise fit for human habitation, but the desert climate is caused by such gigantic forces of nature that it is safe to predict that the same glorious sunrise and sunset colors, the dry, dessicating air, the brilliant sunshine and the regular ebb and flow of the aerial tide will remain the same ten thousand years from now as existed that many years ago.

FEDERAL ROAD FUNDS

Fifteen million dollars has been apportioned by the secretary of agriculture among 27 states, Alaska, and Porto Rico for the construction of national forest roads and trails. Of this sum \$9,500,000, known as the "National Forest Highway Fund," is set aside for roads of primary importance to states, counties, and national forest communities; \$5,500,000 constituting the "National Forest Development Fund" will be used for the construc-



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are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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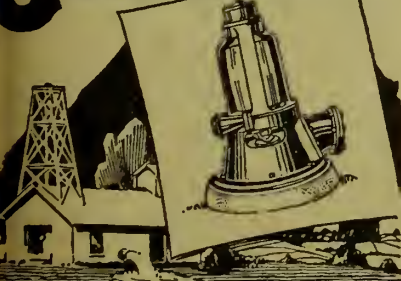
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tion of roads and trails needed for the administration and utilization of the forests themselves.

These appropriations will give a new impetus to the work of opening up vast tracts of valuable timber and areas of scenic beauty for the use and enjoyment of the American people.

The development of roads and trails throughout the forests will aid materially in fire protection. At present there are large areas of trackless wilderness within the national forests that can not be reached by trails. When lightning storms sweep over these inaccessible areas, heavy fire losses of public timber often occur.

California's portion of the national forest highway fund is \$1,460,871 while her portion of the national forest development fund aggregates \$703,822, making a total of \$2,164,693. The only state which equals California is Idaho which receives from the highway fund \$1,097,894 or a total in the two funds of \$2,186,550. Oregon is the only other state which receives more than a million dollars in the highway fund.

The total for the U. S. highway fund is \$9,500,000, while the development fund aggregates \$5,500,000.

SOME TRACTOR EXPERIENCE	
In December, 1918, we bought a tractor for use in our citrus groves and used it until June, 1921. A careful account of all the expenses incurred has been kept and also a record of every hour the machine worked. The results of these figures are summarized as follows:	
1919—Hours worked.....	1,150
1920—Hours worked.....	755
1921—Hours worked.....	192
Total hours.....	2,097
1919—Expense.....	\$1,268.20
1920—Expense.....	1,180.56
1921—Expense.....	194.14

Total expense.....\$2,642.90

The machine was used in working other groves in the neighborhood besides our own, and only actual working hours in the groves charged. In June we exchanged it for a new one of the same make, so we are able to figure the amount of depreciation, which was \$670.93. This item added to the expense bill of \$2,642.90 gives us a total operating expense of \$3,313.83. This includes the driver's wages of 50 cents per hour, and all other items except interest on capital invested, and gives us a per hour operating expense of \$1.58. We usually cultivated or disked between 20 and 25 acres of grove in nine hours.—E. L. Pollard, La Verne.

TRACTOR BELT WORK

The government has just completed an investigation among tractor owners in Ohio, Indiana and Illinois, showing the uses which 300 tractor owners found profitable for their tractors.

100 per cent use their tractors for plowing.

94 per cent use their tractors for fitting ground after plowing.

45 per cent use their tractors for cutting grain.

13 per cent use their tractors for loading hay.

5 per cent use their tractors for cultivating grain.

4 per cent use their tractors for seeding grain.

4 per cent use their tractors for drawing corn binder.

Less than 4 per cent use their tractors for any other operation.

Many tractor owners will have their threshing done by custom threshermen when they could be profitably utilizing the power of their own tractor if they owned a small thresher.

The same is true with their corn shelling. They do not use their tractor to operate an ensilage cutter because they have no silo as yet. They do not use their tractor to operate a wood saw because they have no wood saw. The same is true with many other belt driven machines.

Many of these tractor owners might purchase belt driven machines, thus making their tractor investment work more days per year, and saving time and labor.



"This Will Make 'em Grow"

"There's nothing like Hercules Farm Dynamite for blasting between the rows, George. We should have done this a couple of years ago. These trees would have been twice the size by now.

"We'll get the moisture around the roots this trip, though. This dynamite will make 'em grow."



Send for this book—It is free.

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The Hercules Powder Co. has published a 75-page book, "Land Development", that tells you all you could possibly want to know about dynamite on the farm. You should send for it today.

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A WELL-FED plant resists disease.

Potatoes, Truck Crops, Tobacco, and Sugar Beets are often attacked by diseases that thrive on ill-fed plants.

The effects produced on these crops by Potash hunger have often been mistaken for a new disease.

Fertilizers for these crops should be well balanced and should contain from 7 to 10 per cent. of Potash.

You can get plenty of Potash if you insist on having it.



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H. A. Huston, Manager
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Suburban to Los Angeles, higher than and adjoining Famous Whittier-La Habra districts.

The recent frost makes this the time for investigation. We invite inspection of hillside plantings showing tender one-year-old avocados undamaged by one of the most severe frosts ever experienced in California.

Our section is one of the warmest and best protected from wind of any in Southern California. Let us show you now.

Ideal conditions for avocado, citrus and winter vegetables. Beautiful homesites.

BUY NOW FOR SPRING PLANTING, OR WE WILL PLANT AND CARE FOR ORCHARDS. SPECIAL TERMS TO THOSE WHO IMPROVE.

Any acreage desired. Low prices. Reasonable terms.

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POULTRY

Profitable Poultry News Just Received— Capacity 200,000 chicks, hence prices surprisingly low for quality. One recent order of County Farm Adviser's was 5,000 White Leghorn, 2,500 Brown Leghorn, 850 Red chicks. His orders are coming after two years' extensive trial of our chicks throughout his county. "Had the pleasure of seeing some your Anconas, White Leghorn pullets. They are grand." "Your Barred Rock chicks bought May, 1919, proved great winter layers. Had such good success with your chicks last year, am ordering again." These strains, 180-290 egg Leghorns, Rocks, Reds, Anconas, Wyandottes, Minorcas, Andalusians, ducks, turkeys, yearly lead many egg laying contests, supply foundation stock, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guarantee. Booking for immediate future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 No. Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Have you had satisfaction with your

BABY CHICKS?

If not, give us a trial. Our chicks give satisfaction.

DAY OLD DUCKS on orders.

STEELE'S EGG RANCH. Phone Gardena Exchange 692. Moneta, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

White Leghorns: Eggs for hatching our specialty, produced right, selected right, shipped right; 100 per cent fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, Cal.

BABY CHIX.

LAYERS ARE PAYERS.

Ours pay. Chix and hatching eggs from hens tested and mated for egg production. R. I. Reds, Barred Rocks, Black Minorcas \$16 per 100. White Leghorns \$14. Denton Poultry Yards, Campbell, California.

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each, Bronze Turkey eggs 50 cents, and Pekin Duck eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address Braemar Ranch, Santa Barbara, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 315a, Lodi, California.

Baby Chicks from my pure-bred flock of S. C. White Leghorns carefully selected for laying and Standard qualities. Strong, vigorous chicks at a reasonable price. Write for particulars now. J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Calif.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Barred Plymouth Rocks, "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2.

POULTRY

Filling Orders for White Muscovy Quack-less Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pairs: S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

For Sale: White Leghorn Baby Chicks from free range selected hens mated with pedigreed cockerels from 200-287 egg trapnest records. May and June prices \$3.50 per 25, \$6.50 per 50, \$12 per 100. Special prices 500 and 1000 lots. Safe arrival guaranteed; you pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Order now. Established 1898. Must Hatch Incubator Co., 438 Seventh St., Petaluma, Calif.

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Baby Chicks. Barred Rocks and Rhode Island Reds from carefully selected stock. You want the best, we have it. All chicks shipped by parcel post. We pay all charges. Prices for April and May: 25 chicks \$5; 50, \$9.50; 100, \$18. Order early as we are heavily booked. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

Baby Chicks hatched in Petaluma Incubators are a superior class. Strong, vigorous, sturdy, grow rapidly, lay early. Buy chicks from hatcheries using Petaluma Incubators. You will find one near you, if not, write us. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

White Leghorns, 287 egg strain, vigorous Hoganized two and three year old hens on green range insure strong chicks. Full count live chicks \$15 per hundred. Hatch each Monday. Mrs. Robert Goddard, Los Gatos, California, Route A, Box 122.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Baby Chicks: From carefully selected two year old hens. Hogan Strain White Leghorns \$14.00 per hundred; R. I. Reds, Larin Strain \$13.00 per hundred. 25% with order, balance C.O.D. Also hatching eggs from above stock. Oroville Hatchery, Oroville, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grimes Ave., RR 2, Box 130, Burbank, Calif.

Baby Chicks, Barred Rocks, R. I. Reds, White Rocks, Leghorns, Purebred heavy laying strains. Delivered free by parcel post. J. V. Tracy, RD 1, Glen Lily Ranch, Santa Barbara.

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from Winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. Lyon Hatchery, Gardena, California.

White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. **BLUE ANDALUSIANS** high class stock \$3.50 setting. **GOLDEN CAMPINES** and **LAKENVELDEKS** from best yards in America. Mature early, heavy layers of white eggs, \$6.00 setting. Anconas—\$2.50 setting. Postpaid. J. B. Crawford, Route 2, Compton, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3950 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chix: White Leghorns (Tancred), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. Enoch Crews, Seabright, California.

Bred to Lay Barred Plymouth Rocks, direct from official contest champions. Mature early. Lay well three and four years. Vigor, size, standard quality. Eggs \$3.50 and \$5.00. Stanley Foote, 1177 East 53rd Street, Los Angeles.

Ancona Hatching Eggs from selected laying stock. Mated for beauty and heavy egg production. By the setting or hundred. Write for Mating List. R. G. Baugh, 3534 Allendale Ave., Oakland, California.

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. Bonnie Brae Farm, Burbank, California.

Baby Chicks—Hatched from our standard bred S. C. White Leghorns, a result of many years' selection and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. S. H. Evans, Chowchilla, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

Yearling Light Brahma Cockerels—Cheap. Prize and Utility \$5.00 up. Reds, prize stock, eggs both kind \$3.00 for 15. Parcel Post prepaid. \$15 per hundred. Mrs. I. H. Vail, 754 Del Monte Street, Pasadena.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Thoroughbred Barred Rock Hatching Eggs. \$2.00 per 15 postpaid. Orders booked for Ringneck pheasant eggs. W. Leland Smith, Fair Oaks, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Hoganized Rhode Island Red Eggs for hatching. \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

White Wyandotte Eggs from Pure Bred Stock, \$2.00 per setting of 15. P. M. Moore, Campo, California.

Light Brahmas—A few young cocks. Setting eggs \$5.00 per 15. Keys Ranch, El Monte.

Pit Games—Old and young trios R. H. Crane Santa Rosa

WANTED

Wanted—1000 Zinfandels, 150 Eureka Walnuts, 1000 Guaranteed Gold Medal Persimmons. **SWEET POTATO PLANTS** NOW READY. Bargains in Sims, Philip, Tuscan Cling, Valencia Oranges, Rose Bushes, etc. Bishops Nursery, Highland.

Experienced Married Dairyman and Hog Raiser wishes to rent, equipped ranch on shares, or position as foreman. Stockman, 1715 O Street, Sacramento, Calif.

We Want a Few Thousand first class navel one and two year old trees not damaged by frost. Southwest Nurseries, Head Office, Harlingen, Texas.

I Want Farms for cash buyers. Will deal with owners only. R. A. McNow, 370 Wilkinson Bldg., Omaha, Nebr.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

SEEDS AND PLANTS

SUDAN GRASS SEED (The Great New Hay Crop) First introduced in the United States 1909 from Sudan, Africa. Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre. It grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings. Pasturage. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.

Price—5 lbs. \$1. 10 lbs. \$1.50; 50 lbs. \$3. 100 lbs. \$5; 500 lbs. \$35; 1000 lbs. \$50.

BOWMAN'S HDWE & IMP. CO.

721 J St. Sacramento, Calif.

FOR SALE: GENUINE CERTIFIED HAIRY PERUVIAN ALFALFA SEED. DULY CERTIFIED AS COMING FROM INSPECTED FIELDS. EACH LOT NUMBERED AND IDENTIFIED WITH FIELD ON WHICH GROWN. IF YOU DEALER DOES NOT HANDLE MY SEED, WRITE OR WIRE TO ME FOR PRICES, SAMPLES AND STATISTICS. E. F. SANGUINETTI ESTABLISHED 38 YEARS YUMA, ARIZONA

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. M. J. MONIZ, Berry Specialist, Sebastopol, California.

For Sale: Onion Seed, Genuine Sweet Spanish. They yield 8 to 15 tons per acre. Easy to grow and very profitable, and are highest priced onion on the market. Now is the time to plant seed. Packages 15c, 25c, 50c. Send orders to E. Middleton, 333 W. 2nd St., Pomona, California.

For Sale: 500 pounds Klondyke Watermelon seed, best brown varieties, at \$2.00 per lb. 100 pounds black seed Chicanos \$1.00 per lb. All seed guaranteed to grow if planted at proper time. Sam Orkey, 2005 Audrey Street, Los Angeles, California.

Strawberries—21,600 boxes per acre, from July to November 1921, from Hewitt's Improved Mountain Grown Everbearers. Profits sooner and greater than any other crop. Descriptive folder. Carl N. Hewitt, Summit, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

100,000 Grape Rooting. Phylloxera free. Thompson, Muscat, Malaga, Emperor, Zinfandel, Zante Currant, Red Malaga, 10 kinds of cutting. Fruit trees, farm garden seeds and plants. Write for circulars. Box 501. Fowler, California.

For Sale: Strawberry Plants—Klondyke, Brandywine, Gibson and Senator Dunlap, \$5.00 per 1,000. Cumberland Black raspberries, \$3.50 per 100. \$35.00 per 1,000. S. R. Moore, R. F. D. 3, Box 19, Inglewood, California.

Cory Thornless Blackberry—Large vigorous, well rooted plants from experienced grower. Satisfaction guaranteed. Illustrated price list. Write Chas E. Mortensen, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00. 2 year old, per hundred \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower Wm. Mortenson, Route 1, Lodi, California.

San Fernando Mission Grape Cuttings—\$10.00 per thousand at my ranch about ½ mile Southeast Old Mission. P. F. Carton, Box 237, San Fernando, California.

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.

\$1.00 Will Deliver You 6 Assorted small roses, or 3 large ones, or six berry vines, or one pomegranate and one seedless fig. Bishops Nursery, Highland, California.

For Sale—Rooted Grape Vines, Pierce or California Concord, also Eastern Concord. Navel and Valencia orange trees. Address Box 936, R. 2, San Gabriel.

For Sale—Large Gladioli Bulbs; Panama (beautiful rose), America (flesh pink), fifty cents dozen, postpaid. E. D. Bayer, Santa Cruz, California. Route 2.

Alfalfa Seed—Certified Hairy Peruvian. Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Try Our Fine Black Raspberry—Grapes all kinds; berries, thornless, everbearing; fruit trees, etc. J. L. Lawson, San Jose.

Mason's Everbearing Strawberry Plants. New Variety, Hundred \$1.50. Klondike \$5 thousand. Postpaid. L. Specht, Galt, California.

Strawberry Plants—"Caroline" Extra choice. Bears first year. \$8.00 per thousand. S. T. Stuver, El Cajon, California.

Pure Pollock 10-25 Cantaloupe Seed. Write for prices on this high grade seed. G. A. Price, Miranda, California.

Thompson Seedless Cuttings. Carefully selected. 10,000 at \$10 per M. W. F. Ripley, Live Oak, California.

Sour Orange Seed, fresh from Florida immediate delivery. Milo Hunt, Whittier, California. Phone 250.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT Savings and Loan Bldg., Stockton, California. Established 60 years. Send for free book on patents.

TREES

Notice to Planters—Having checked our orders we offer 3000 Tuscan Cling and Royal Apricot—4 to 6 feet—\$350.00 per thousand. 1000 Satsuma plum, 35c up. 2000 Placencia and Eureka Walnuts, 60c up according to height. All home grown. Himalaya Blackberry, \$5.00 per hundred. Commercial orchard trees—home garden and citrus trees, grapes, palms, evergreens, etc., reasonable. Snyder Nurseries, opposite the High School, Burbank. Telephone 122-J.

FOR SALE

NAVEL AND VALENCIA

NURSERY STOCK

NOT FROSTED

W. B. Ames, 9th floor, Merritt Bldg., 8th & Broadway, Phone 1156, Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Garter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Hachiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Persimmons—I am taking orders for 1923 deliveries of Japanese Persimmons; Hachiya, Tanenashi, Hyakume, Tamopan at prices that will surprise you. Many leading Los Angeles houses are my customers. SPECIAL ATTENTION TO THE TRADE. It will pay you to order now. Fred W. Kelsey, 2 miles West, El Monte, California. Phone Alhambra 919-J-3.

Avocado Trees—I have 300 field grown, thoroughly hardened Fuertes, one and one-half and two years from bud. Large balls of dirt. No better stock to be seen anywhere. \$4 each in quantities, \$5 each for single tree. \$1 extra per tree for crating and shipping. W. A. Spinks, Duarte, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f.o.b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVAL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Wonderful Pomegranate Trees. Strong, two-year old stock, well rooted. Ranging in price from 30c to 50c. Sample mailed on request. The supply is limited; place your order NOW. L. E. Ingoldsbys Nurseries, Box 244, Lindsay, California.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Seedlings—Apple, pear, plum, peach. 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 100 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Avocados:—We have a nice bunch of Puebla, Fuerte, a few Spinks, Knight, Queen and Blake. Well grown trees in line condition. Coolidge Rare Plant Gardens, Pasadena, California.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 53, Chico, Cal.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mothers' Avocado Nursery, Pasadena. P. O. Box 585, Phone Colorado 6044.

For Sale: Valencia Late, Washington Navels, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Avocado Seedlings For Sale, a few thousand, established in paper containers. W. P. Sherlock, R. D. 2 Puente, California.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Atheol or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonardt Swingle, Indio, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

For the Cheapest and Best nursery stock call or write the Home Nursery, Los Angeles, Box 1335, Maywood.

Citrus Nurseries, Murphy Oil Company, East Whittier California. Selected stock for sale; inspection invited.

TREES

For Sale—Sacks and burlap for baling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

MISCELLANEOUS

Attention Property Owners—Don't guess at it. Have your Septic Tanks built by an expert. Satisfaction guaranteed. Write for price to August Nelson, 215 East Main Street, Santa Maria, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Homespun Smoking or Chewing, 5 lbs., \$1.50, 10 lbs. \$2.50. Valuable formula. Smoking 5 lbs. \$1.00. Pigeon Roost, Sedalia, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Free Smoking Tobacco—Smoke on us. Write for free sample. Hawesville Tobacco Co., Hawesville, Ky.

Posts—Lumber Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

MACHINERY

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GOLDBANK VIII, grand champion 40 lb. yearling cock 1921.

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COPPER KING'S BOY, third prize cockerel 1922; and COPPER KING JR., being grandson and son respectively of famous COPPER KING V, grand champion of 1913, that weighed 38 lbs. as a yearling. All mated to choice 20 lb. hens. Eggs in season; prices reasonable. Bronze King Farm, Route 2, Box 88A, Merced, California.

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Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

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Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

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For Sale—Ten Horses, suitable for Farm, ranch or grading work. American Railway Express Company, Stables—551 Banning Street, Los Angeles, California.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St. Los Angeles

The germ that causes swell head usually lodges in one that has empty parking space.—Oklahoma City Times.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal

Hogs Have "Flu"

We have some sows and gilts that seem all right when fed, but at the next feeding some of them refuse to get up and come to the feed with the rest. They reel when they walk and seem to be weak in the back across the kidneys. They shake at times as though they have a chill. They have lost their pigs. The one that has been sick longest still does not eat but seems to be improving. We feed only cooked feed. We get the bones and vegetables from the butcher shop and the garbage from one restaurant, but cook it all and always add salt to it. The green vegetables, such as cabbage, cauliflower and celery, are fed raw. What would you advise doing for them?—Subscriber, Taft.

When we get a report that hogs are sick and that they have been eating garbage our first thought is cholera, but the symptoms that you have noticed lead us to believe that in this case it is influenza. They should be kept dry and warm. Very little medicine is needed. You might put half a teaspoon of saltpeter in the feed once a day for each hog. Give very little feed but plenty of water to drink. Warm slop with little feed in it will flush out the system and relieve them quickest. Do not urge them to move about; they will recover quicker if kept quiet. Be sure they are in dry quarters and let in as much sunshine as possible but do not let the wind blow on them.

Now regarding the garbage. We would advise leaving that out for a time and bring them back to it gradually. Do not let the garbage get stale.

Warts

Would like to know what will take warts off a cow's teats. We have some that are so warty that we can hardly milk them.—Subscriber, Kern.

If the warts are long and have small necks where attached to the teats clip them off with a scissors and touch the spot with the end of a red hot wire. If the warts are flat and scaly wet them on the surface with nitric acid. Be careful in handling the acid as it is very caustic. Make a small swab about the size of a match; dip it in the acid and touch it to the wart. You may have to repeat this in a few days but often one application is enough. A strong solution of salicylate of soda applied once a day for a while to warts is said to prevent more coming and will usually cure them when they are not too large.

DEMERIT CARDS FOR FOOL DRIVERS

Chronic violators of the highway rules are to be rated by the Pennsylvania state police by means of punch marks on the registration card. Thus every motorist will carry his record with him. To the prosecuting attorney the card will be a ready exhibit. When punched full of demerits it would demote the motorist to the criminal class. As evidence it would rank with finger prints, and confound ten character witnesses. Speed hounds convicted by their own racing cards are not expected to applaud the innovation. Perhaps the police do not welcome the conductor's punch to their tool chests. Yet the plan may remove hazard from highways and spleen from the traffic. For the traffic officer may now make a little hole in a card with a gentle smile, instead of hurling forth epigrams that crack like whips. The public, probably, will prefer to have its villainy punched in than to have its ignorance bawled out.

"This setting down and folding our arms and waiting for something to turn up, is just about as rich a spekulashun as going into a four hundred acre lot, setting, down on a sharp stone, with a pail between our knees, and waiting for a cow to back up and be milked."—Josh Billings.

"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination Copyrighted guaranteed.

We also carry a complete stock of pullets, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

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"World's Largest Chick Dealers"

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Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Our customers contest which closed September 20, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.99 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production. Incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new **AIR WASHER SYSTEM**, bathing like it anywhere. Perfect ventilation. We are exclusive hatchers for spring of 1922, for F. B. Richardson, George J. Richardson, Charles O. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being this product of 25,000 selected breeding hens.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circulars.

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Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

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Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of pullets, chickens, birds, pullets, pigeons, rabbits and pet stock.

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Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

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Our free book "Chickens from Shell to Market" gives full particulars. Coulson Co., Petaluma, Cal.

Free-Conkey's Poultry Book

80 pages check full of information about the feeding and rearing of chicks, culling of hens, etc. Tells how to keep chickens healthy and how to make them pay. Whether a beginner or a professional, Conkey's Book is worth dollars to you. Sent for 6 cents in stamps to pay postage.

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Kills lice, mites, bed bugs, etc., affecting poultry. Spray or paint on roosts, etc. Gets body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or bandaging. Saves lot of unpleasant work. At most towns, at stores handling Lee Poultry Supplies. Write for information and FREE Book. **GEO. H. LEE CO., Dept. F-30. OMAHA, NEB.**

When Writing Advertisers Please Mention Cultivator.

A Four Dollar Flock

By Jean A. Koethen



TIME was when a dollar a year was all the average hen was expected to bring her owner over and above feed costs. There are still hens that do no better but the average hen has doubled her value, and if she does not bring in two dollars with a year's work there is something wrong. The exceptional hen, however, or perhaps I should say the hen with exceptional care, can double this average and not overwork, and this is the case in the flock of A. W. Horswill of Pasadena, who last year netted \$1981.13 from 440 pullets. Still more remarkable is the record of Mr. Horswill's flock for the previous year. Six hundred and fifty-seven pullets hatched in the spring of 1919 began their pullet laying year, August 1, 1919, and between that date and October 1, 1920, cleared \$4.46 apiece.



A Satisfactory Laying House

Figure 1 (top photo) shows front of Horswill laying house. The front of the feed trough is seen through the wire. Figure 2 (bottom photo) shows end view of Horswill laying house. The upper roof is three feet above the lower roof.

This was in spite of a partial molt in the fall of 1919. In two years these 657 hens cleared \$4194.76 and then sold for \$156 more than it cost to raise them.

When the winners in the Holly Hatchery egg laying contest were announced last December Mr. Horswill was named as having cleared over \$4000 in one year with 540 pullets on two town lots. This looked too good to be true and brought letters of inquiry and protest from more than one Cultivator subscriber. "Is not this a misprint, and is it not \$400 instead of \$4000?" wrote one poultryman. "This report has created quite a little comment among poultrymen and outsiders in this section," wrote another, "and they, like myself, cannot quite understand how Mr. Horswill did it." As I had no particulars save the bare announcement which was made at the banquet I went to Mr. Horswill himself to learn just what had been done and how, and this is what I learned: The \$4000 was made with 1100 hens instead of only the 540 entered in the contest and on four lots instead of two. Mr. Horswill's residence and poultry houses pretty well fill the two lots he owns, and two adjoining lots are rented and fenced in for raising green feed and furnishing a run for the baby chicks. Even at that the record of his flock is a remarkable one, and his methods are worthy of careful study.

The 540 pullets in the contest averaged 176.86 eggs for the year ending September 30, 1921, and cleared \$4.02 apiece. But for the fact that the lot contained a number of pullets which had been sick in their infancy and should have been culled out the average would have been considerably higher. On the first of October, 1921,

lights were put on this flock, which had now been reduced to 440, and production jumped from 44 at the beginning of the month to 170 at its end. Average production in November was 9.70 per cent, in December 31.51 per cent, and in January 39.5 per cent. From this flock Mr. Horswill cleared in October \$85.25, in November \$192.83, in December \$120.04, and in January, \$107.76, or an average of slightly over \$100 a month.

How He Does It

It is a pleasure to talk to a poultryman who keeps as careful accounts as Mr. Horswill has kept. He knows at the end of every month just what his feed costs have been, what his profits are over feed costs, how many hens have been laying and their average production. He does not guess, he knows. When I asked him his secret he replied: "I live with my hens, I guess that's about all there is to it." No hen is kept over two years, and there is not a rooster on the place. He raises 600 pullets each year and keeps 300 of them through their second year. This gives him an average flock of 900, though occasionally it runs over, as it did last year, because the old hens were too valuable to part with. During the contest the flock contained 600 hens and the 540 pullets in the contest, and it was these 1140 hens and pullets that netted over \$4000 during the year.

No-Yard House

Mr. Horswill's houses are built after a plan of his own devising and are quite "different." Figure 1 shows a portion of the front of one. The plan is similar to that known as the "semi-monitor" as is shown by the end view in Figure 2. The space between the upper and the lower roof is covered with canvas in order to provide more complete ventilation than is permitted by the open front. The covered portion at the extreme right in Figure 1 contains the drinking fountain. The house is 20 by 40 and accommodates 400 hens. Mr. Horswill believes that hens which are always confined have more fresh air and better protection from the weather in this house than in the common shed roofed structure.

Nests and feed trough are built along the center of the house, the nests being about two feet from the floor on the inner side of the supporting timbers, and the feed trough one foot from the floor on the other side. The slats through which the hens eat are horizontal instead of vertical to prevent crowding. Wire stretched through the middle of the house above the nests keeps the hens from crossing back and forth above the feed trough. The house is 9 feet high at its highest point, 5 feet high in front and rear and 6 feet from floor to canvas ventilator.

Feeding the Layers

The mash which is kept before the layers constantly consists of 700 pounds bran, 240 pounds shorts, 300 pounds feed meal, 300 pounds hulled barley meal, 300 pounds Croley's high protein beef scrap, 100 pounds ground bone, 100 pounds medium charcoal and 25 pounds salt. The scratch feed until recently consisted of hulled barley, milo and Kafir. Now cracked corn and wheat have taken their place and are fed half and half. The mash trough is refilled each morning on the theory that what is left from the day before has been picked over so thoroughly that it is no longer well balanced. At 10 A. M. sprouted barley is given, 10 to 12 pounds of the barley before sprouting being allowed to 400 hens. At 4 P. M. the scratch is given, 30 pounds being allowed 400 hens. This makes each hen's allowance of mash a little more than of scratch and barley combined. If the hens are laying heavily their allowance is a little greater. When they do not eat up their mash their allowance of scratch grain is reduced. Green feed is fed shortly before roosting time and after the greens when a little encouragement is needed, a moist mash made of cooked vegetable parings and onions thickened with the mash feed is given. Biddy eats the scratch first, then the greens, then the moist

mash, and goes to roost with her crop bulging.

Mr. Horswill does not believe in the moist mash as a steady diet but finds it of great value when production be-

The Cause of White Diarrhea

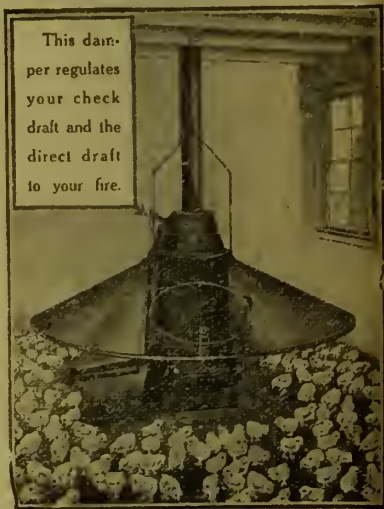
White Diarrhea is caused by the bacillus Bacterium Pullorum transmitted through the yolk. There is scarcely a hatch without some infected chicks. The germs multiply very rapidly and one infected chick may infect the entire brood. The germs can be killed by the use of preventives. Intestinal Antiseptics to kill the germs should be given as soon as the chicks are out of the shell. It is much easier to prevent than it is to cure.

How to Prevent White Diarrhea

Dear Sir: I have raised poultry for years and have lost my share of little chicks from White Diarrhea. Finally I learned of Walker's Walko Remedy for this disease, so sent for two 50c packages to the Walker Remedy Co., Dept. 596, Waterloo, Iowa. I raised over 500 chicks and never lost a single one from White Diarrhea. Walko not only prevents White Diarrhea, but it gives the chicks strength and vigor—they develop quicker and feather earlier. I have found this company thoroughly reliable and always get the remedy by return mail. Mrs. L. L. Tam, Burnetts Creek, Ind.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send 50c for box on our guarantee—money back if not satisfied. Walker Remedy Co., Dept. 596, Waterloo, Ia.



This damper regulates your check draft and the direct draft to your fire.

Queen Brooder Stoves

will burn coal, coke, wood, or briquets. The only safe and reliable method of brooding chicks. Queen stove has patent draft that controls heat perfectly. Write for catalogue, also ask for general catalogue of full line poultry supplies.

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Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post. Mfg. by Z. A. MACABEE, Los Gatos, Cal.

Mt. Lowe

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Pacific Electric Railway

gins to lag toward molting time or when he wishes to force the layers to their utmost. Promptness at feeding time is a rule which is never broken.

Electric Lighting Important

The high records of the past two years have been made under lights. On the first of October the clock which turns on the lights is started and the lights go on at 4 A. M. After about a month the clock is adjusted so that it gains a minute a day. When the short days of December come the hens find themselves getting up at 3 o'clock. After Christmas the clock is adjusted to lose instead of gain, and the hens are worked back to their normal hour of getting off the roosts. No lights are used at night unless the weather is very dark, when they are turned on to keep the hens off the roosts till their regular roosting time.

Weeds for Greens

No special crop is planted for greens. The two lots which supply green feed are watered frequently and copiously, and the natural wild growth, which in Pasadena is mainly alfalfa and malva, is cut for the chickens. Mr. Horswill says his hens prefer alfalfa to alfalfa, and judging by results it does just as well.

Raising the Chicks

In February or early March 1500 chicks are purchased and brooded around a Kresky stove in a house 16 by 24. Last year the brooder house contained only a single room from which the chicks had access directly to their run. This year a playroom 16 by 14 with cement floor has been added. The floor of the brooder room is covered at first with sand and later a layer of straw is added. The first feed is rolled oats. Chick feed is given the second day, and after a couple of days more a mash of bran, shorts, corn meal, bone meal and beef scrap is placed before the chicks. The mash is similar to the regular laying mash with the exception that it contains more bone meal than beef scrap. At first the chicks are allowed only in the small run adjoining the brooder house, but as soon as they have learned to take care of themselves they are given the run of the two vacant lots. At the age of 3½ months they are moved to the laying house.

Poultry Queries

Conducted by Jean A. Koethen

10,000 Dozen Eggs

In the issue of the California Cultivator of December 31 on page 673 Mrs. Koethen wrote an article which carried the heading "10,000 Dozen Eggs from 600 Hens." That article referred to Mr. Horswill's record made on two town lots where 540 hens "cleared the neat little sum of \$4,000 in one year." Mrs. Koethen's report brought in many inquiries as to just how it was done. Mrs. Koethen has investigated more fully and has written an article giving details and making correction as to number of hens and size of the plot of ground. That article appears in this department this week.

Successful Turkey Venture

"I am very much interested in your articles on turkeys," writes a Fallbrook subscriber. "A neighbor had to sell her day old turks last year on account of sickness and I bought them for 50 cents each. I raised 53 of the 60, then three were accidentally killed when ready for market. I kept the ten best hens and a tom and sold the remaining 39 at 35 and 40 cents a pound, clearing \$213.45 above all expenses. I had no conveniences at all and must build a brooder house as soon as I can. I have 50 young turks now ready to go on range, hatched November 30 to December 15, and have surely had a busy time caring for them through these long rainy spells."

A woman who can raise 88 per cent of her turkeys without any equipment is doing wonderfully well. I have asked this subscriber, Mrs. Fleming, to tell us how she fed them and shall hope to publish this interesting bit of information before long.

Tail Feathers Gone

About 30 of my 50 young White Leg-

horn hens have lost nearly all their tail feathers. Their tails are quite bare and sometimes bloody, as if they had been picked. The hens seem to be in good condition otherwise. Is this a disease?—Subscriber, Julian.

Tail picking is a vice, not a disease. In some cases lack of sufficient meat in the ration seems to be the cause; in others, the hens get a taste of blood through some injury to one of their number and take to picking tails to satisfy this craving. If you are feeding a good laying mash there is presumably no lack of animal food, but you might give them green cut bone once a week if it is available or add a little high grade beef scrap and bone meal to the mash. Remove from the flock every hen whose tail is bloody just as soon as you notice it.

How Soon Fertile?

A goose which has been laying was never mated till now. How soon will the eggs be fertile?—Subscriber, San Gabriel.

Fertility may be expected in from one to two weeks after mating. Eggs have been found to be fertile as early as four days after mating, but fertility cannot be counted on much under two weeks.

Covering Cracks

I am making a barn into a hen-house. Can you suggest some way of covering the cracks in the floor?—Subscriber, Napa.

Ordinary batten strips would cover the cracks nicely if they are not too wide. If you do not care about looks you might try tacking strips of beaver board over them. Lath would do very well for small cracks. What you use must depend on the width and evenness of the cracks.

Charles Weeks House

Please tell me if there are any Charles Weeks poultry houses in Gardena or vicinity. How do these houses compare in cost with other houses where birds are kept in large flocks?—Subscriber, Lomita.

The first Charles Weeks house I ever saw was at Gardena. I presume you will find quite a number there by this time. The house costs a little more per bird, I believe, than the large flock houses, but not a great deal. It is hard to compare costs exactly because there are so many types of large flock house and more than one of the small flock house.

Hens Roosting in Trees

In your issue of March 4, on page 253, was a query by a Napa subscriber regarding hens roosting in trees. For the benefit of that subscriber and any others interested I would like to give my experience with hens that slept out all winter. We have 120 hens which were hatched at Petaluma on June 15. As we were in our first year of farming we had not sufficient housing accommodations for them, and from the time they were able to fly up to the trees about half of them roosted out. Later, when we had prepared a house for them, we were unable to drive them in at night. All through this winter they have roosted in the trees, even during our heavy frosts, hailstorms and snow. Despite this they began to lay before they were six months old, and we noticed from our egg record that they laid more heavily in wet weather than in dry. The day following the snowstorm these 120 pullets, only seven months old, laid 82 eggs. During February they laid a total of 184 dozen eggs and are now laying eight dozen a day. Yet our feed bills are a great deal lower per hen than those of friends who keep theirs housed. And we have had absolutely no sickness in the flock.—Mrs. N. M. Perry, Lincoln.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, February 28, 1922.

Report for seventeenth week ending February 27: The hens in the contest are holding the stride they struck more than a month ago. Last week they picked up another 200 eggs over the average for the same period for the last seven years. This means that at the end of the four winter months, the period of high priced eggs that are hard to get, these hens have exceeded

(Continued on Page 311.)

DR. J. A. ROBERTS, PRESIDENT

ESTABLISHED 15 YEARS

M. G. GAUSSEN, Sec'y & Treas.

Dr. J. A. Roberts Laboratories

LARGEST BREEDERS AND DISTRIBUTORS OF GUINEA PIGS FOR LABORATORY PURPOSES

LABORATORIES AT HOLLYWOOD, CAL.

ADDRESS ALL WESTERN CORRESPONDENCE TO 6634 SUNSET BLVD. HOLLYWOOD, CAL.

There are more who have missed opportunities than there are who have lacked them.

MEMBERS: NATIONAL BREEDERS AND FANCIERS ASSOCIATION, MILWAUKEE PET STOCK ASSOCIATION, UNITED CAVY BREEDERS ASSOCIATION, THE WESTERN CAVY BREEDERS ASSOCIATION

The Government promotes the raising of Guinea Pigs to protect the people from Diseases.

Raise Guinea Pigs for Us

if you are seeking a clean, profitable, pleasant business of your own

Let them lift that Mortgage or fatten the Bank Roll

Satisfy yourself that a small investment will bring marvelous returns.

BIG PROFITS

Every sow should net you from \$7.50 to \$8.00 a year. They are doing it for hundreds of our raisers and should do it for you.

BECOME INDEPENDENT

Cavies are easy to raise, no trouble, little expense. Require very little room and your investment need not be large. A few will pay you well. Cavies (guinea pigs) pay better than any other live stock.

We supply foundation stock and buy cavies at two months old or older, raised from our stock.

YOUR MARKET ASSURED—Our contract guarantees you a steady market. In a short time you could be delivering young cavies to us or marking your express shipment—

What Counts Most When You Make a Purchase?

To

DR. J. A. ROBERTS LABORATORIES, Inc.

6634 Sunset Blvd., Hollywood, Cal.

LIVE GUINEA PIGS

HANDLE WITH CARE

It is the integrity and character of the persons with whom you deal. We have been established for over 15 years; in all that time our service has been consistent and our dealings fair. This means much to our raisers.

We can safely say that with our book of instructions as a guide you can enter the cavy business assured of success.

Enclose this adv. and 25c for booklet on "How You Can Make \$2000 a Year."



Weeks Poultry Ranch

Offers for Sale

2,000 SECOND YEAR BREEDING HENS at \$3.00 each. 17 years' breeding for vigor and egg production behind them. Now trapnesting 8,000 pullets.

HATCHING EGGS—\$10.00 per 100.

CHICKS—\$25.00 per 100. \$200.00 per 1,000.

WEEKS AUTOMATIC ELECTRIC BROODER for 100 chicks, \$15.00.

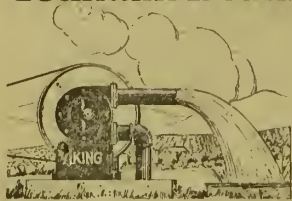
Write

CHAS. WEEKS

Palo Alto Calif.

VIKING

Save at the
Fountain Head



10 to 1050 Gals. per Min.

CATALOG
MAILED UPON REQUEST

What is your pumping problem?
Perhaps your pumping conditions are ideal for this simple, high-efficiency pump.

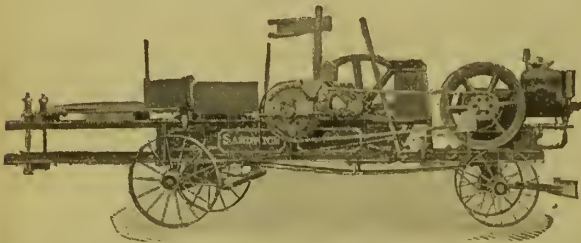
If so, you can make a substantial saving in your power or fuel costs.

Our engineering department will carefully study your pumping problem (if you will let us know what it is) and faithfully recommend the right size and type of pump for your work. Absolutely no charge for this service.

De Laval Pacific Co.
San Francisco

PUMPS

SANDWICH SPECIAL HAY PRESS FOR BALING THROUGH THE FIELD



The BEST known
and BEST selling
Press. Over 500
already in use in
California.

A Sandwich Press for Every Purpose

Five different sizes and styles for immediate delivery, from the large capacity presses for commercial baling to the small size, needed by the rancher who only bales his own crop. We furnish these with or without an engine. We also carry the large capacity Horse Power Presses. Write for Free Catalog, stating your requirements. See these Presses in our Salesroom. Terms, if desired.

DIXON & GRISWOLD

New Location 142 No. Los Angeles Street Los Angeles, Calif.

Price doesn't interest a horse
when it needs a new harness
---but comfort does!

REQUEST OUR CATALOG

Lichtenberger-Ferguson Company

Los Angeles Street at Third Los Angeles

MAKERS OF FINE HARNESS SINCE 1900



Protected by U. S. Patents

are light, strong, durable. Easily primed. Easily moved. Shipped ready for use. No cost of installation.

A simple, practical, economical invention. New descriptive book of information and prices on request. Read what old customers say. When writing give full address and location for our field man.

IRRIGATING SIPHON CO. WOODLAND, CALIFORNIA
P.O. Box 654

Do You Irrigate?

The "Siphon System" saves water, saves money. The water goes over the ditch bank. Eliminates the need of gates or other obstructions.

Irrigating Siphons

SURFACE IRRIGATION PIPE

PROMPT DELIVERY
Write for Catalog
and Prices
Manufactured by

Woolwine Metal Products Co.

2419 East 8th Street Los Angeles



Los Angeles Markets

Los Angeles, March 15, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 38 cents.

CHEESE

Brokers' prices:
California firsts, 20@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 25; case count, 24; pullets, 22½.

POULTRY

Price to producers: Hens, 29@31; colored, 30; broilers, 40@45; roasters, 38; old roosters, 14; fryers, 45; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 47; old, live, 36; dr., 43; hens, live, 40; dr., 47; small hen and tom, 16; squabs, 60@70. Belgian hares, 12@15; old, 8.

LIVESTOCK

Los Angeles, March 14.—Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00. Cattle (on foot, gross weight): Steers, good, 7.50; medium, 7.00; cows, good, 6.50; medium, 6.00; calves, 125 to 150 lbs., 8.00; 150 to 225 lbs., 8.50. Sheep: Ewes, 4.00@4.50; lambs, 12.00@13.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market slightly weaker. Lugs, 80@1.00. Stocktons: Burbanks, per cwt., best, mostly 2.40@2.60; poorer, 2.00@2.25; ungraded, 1.50@1.75 per sack. Idahos: Russets, best, mostly 2.25@2.35; bakers, 3.25; furals, best, 2.00@2.25. Sweet Potatoes: One unbroken car on team track. Movement light, market dull. Locals, No. 1, best, per lug, 85@90; poorer, 75. Arkansas: Nancy Hails, 4½@5 per lb.; per bu., 2.00@2.25.

Onions: Demand light, market weak. Stocktons: 1st cwt., White Globes, best, mostly 8.50@9.00; browns, best, mostly 7.25@7.50; lugs, whites, best, 2.75@3.00; browns, 2.25@2.50. Garlic: 1@8 lb.; poorer, 5@6.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, March 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Doz., 1.00@1.75. Brussels sprouts: Mostly 16@18 per lb. Bunched vegetables: Per doz. bunches. Turnips, 35@40; carrots and beets, 75@90; radishes, 20; parsley, 20; spinach, 45; mustard, 20@25.

Cabbage: 1st field crate, 1.75@2.00; best, 2.25.

Cauliflower: Market firm. Per field crate, mostly 2.75@3.00; poorer, low as 2.00.

Celery: Market stronger. Locals: Best, 5.00@6.00; poorer, 3.00@4.00; San Diego cold storage, 7.00@8.50.

Cucumbers: Market steady. Hothouse, mostly 1.50@2.50.

Celery: Market firm. Locals: Best, 6.25@6.50; poorer, 5.00@5.50.

Chicory: 75@1.00 crate.

Lettuce: Demand moderate, market weaker. Locals: Quality poor; best mostly 1.75@2.00; poorer, 1.40@1.50 per field crate, according to quality. Imperial Valley, packed crates, 3.25@4.00.

Parsnips: 1.25@1.50.

Onions: Green, 15@20 bunch.

Peppers: Mexican chili, mostly 10@12; Bell, mostly 20@25.

Rhubarb: Box, 1.60@1.80.

Tomatoes: Market steady. Mexicans, per repacked lug, 3.00@3.25 for fancy shipping stock; repacked crates fancy shipping stock, 2.50@2.75; loose, per lb., best, 10@12; poorer, 9.

CITRUS FRUITS

Grapefruit: Market firm. Californians: Northern, packed box, 3.00@3.25; few 3.50; market pack, 2.75@3.00; small, 2.00@2.50. Imperial Valley, 3.00@4.50, according to size and quality. Arizonas, 3.75@4.75; few 5.00 in small lots.

Lemons: Demand and movement moderate. Market firm. Locals: Loose boxes, best, 2.25@2.50; poorer, 1.75@2.00.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 4.50@6.00; few 6.25; market pack, 3.00@5.00.

Tangerines: Demand and movement light, market weak. Best, 7@8; poorer, 5@6.

San Francisco Markets

San Francisco, March 14, 1922.

BUTTER

Extras 40

CHEESE

Dairy Exchange quotations:
California Young America, fancy 22½
Oregon Trips 25
Oregon Young America 25

EGGS

Dairy Exchange Quotations:
Extra 25½
Extra Pullets 23

POULTRY

Prices furnished by state department of agriculture division of markets:
Broilers: 1 to 1½ lbs., 43@45 per lb.; 1½ to 2 lbs., 43@45. Colored Young Roosters: 35@42 lb. Colored Fryers: 2½ to 3 lbs., 43@45. Colored Old Roosters: 18@29 lb. Leghorn Old Roosters: 15@18 lb. Leghorn Hens: 2½ to 3 lbs., 25@26 per lb.; 3 lbs. and over, 27@28 per lb. Large Colored Hens: 27@29 lb. Ducks: Young, 26@28 per lb.; old, 22@25 per lb. Geese: Young, 28@30 per lb. Live Turkeys: 32@35 lb. Dressed Turkeys: Young, 42@44 per

lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@24 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Gulnears: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7@7½ per lb. second quality, 6@6½; cows and heifers No. 1, 5½@6¼; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb. heavy, 7@8 per lb.

Sheep: Wethers, 7@8 per lb.; ewes 4@5.

Lambs: 11½@12½.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 12½ lb.; do, 200 to 250 lbs., 11½ lb.; do, 250 to 400 lbs., 10½ lb.; light sows, 10½ lb.; heavy, 9½ lb.

California Farm Bureau Marketing Association reports:

No. Hogs	Av. Wt.	Dock	Price
Corcoran, March 6			
85	155		11.75
87	177		11.50
4	225		10.75
3	517		7.25

179 hogs

2 cars, 8 consignors, \$3,527.03.

Tulare, March 7

88	157		11.80
97	162		11.70
78	197		11.60
50	218		10.80
45	218		10.70
1	180		10.00
11	284		9.80
18	314		8.20

388 hogs

5 cars, 8 consignors, \$8,242.48.

Visalia, March 8

106	166	10	11.95
107	143	20	11.80
68	198	80	11.55
49	199	100	11.15
6	267		10.15
10	250	120	8.65

346 hogs

4 cars, 19 consignors, \$6,895.68.

Hanford, March 9

19 feeders	95		12.10
106	158		12.05
97	171		11.90
50	159		11.70
36	197		11.45
5	150		11.25
4	225		11.20
5	264		10.70
2	125		10.05
9	319	140	8.00

333 hogs

3½ cars, 32 consignors, \$6,528.26.

Totals for week: 1,246 hogs, 14½ cars

99 consignors, \$25,193.45.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 18.00 per crate; poorer, 15.00@17.00.

Asparagus: 40@70.

Bunched Vegetables: Carrots 50@60 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20; radishes, 30.

Cabbage: 2.00@2.25 per crate, 2 per lb.

75@1.00 per doz.

Carrots: 1.00@1.25 per sack.

Cauliflower: 1.25@1.50 per doz.

Celery: River, fancy, 2.00@4.00 crate poorer, 2.00@3.00 crate; San Diego, 6.00@6.50.

Eggplant: Florida and Mex., 10@25.

Endive: 4v@55 per lb.

Garlic: 4@6 per lb. for medium grades poorer quality, less.

Lettuce: Imperial Valley, 4.00@4.50 cr. poorer, 2.50@3.00 crate.

Onions: Cold storage, browns, firm mostly 6.50@7.00; White Globe, mostly 8.00@9.00; green onions, 2.00@2.50 per bu.

Peas: So., 40 per lb.



ARE
"ROUND
WORMS"

TAKING
YOUR PROFITS
FROM
POULTRY

YOUR UNIVERSITY
EXPERIMENT STATION SAYS SO, AND PRE-
SCRIBES ROUND TOBACCO DUST
SUCH AS WE MANUFACTURE

IMPCO
BRAND

SPECIALLY PREPARED

For Sale by All Dealers

1 lb. package 25c
2½ lb. package 55c
5 lb. package 1.00
75 lb. sack - 5.25

If your dealer cannot
supply you write us.

International Milling Co.
814 Montgomery St., S. F.



UNIVERSITY FARM AT DAVIS - CALIFORNIA

WILLIAM C. HAYES - ARCH. TEST

Peppers: Florida and Mex., 15@25 per lb.; chilis, 5@15.
Potatoes: Rivers, fancy, 2.15@2.30; Oregon Burbanks, 2.15@2.40 cwt.; Idaho Netted Gems, 2.50@2.75; Salinas, 3.00@3.75 cwt.
Pumpkins: Per sack, 75@1.00.
Rhubarb: So., 2.75@3.00 per 30 lb. box; and banana, 6@8 lb.
Squash: Cream, 1.25 per lug; Hubbard, 1.25@1.50 per 90 lb. sack; So., 3.00@3.50 per cwt.
Sprouts: 14@18 lb.
Sweet Potatoes: Per cwt., 3.50@3.90.
Yams: Arkansas yams, 2.00@2.15 per 40 to 50 lb. basket; New Mexico, 2.00@2.15.
Tomatoes: Mexican, repacked, 3.00@3.50 per Los Angeles lug; off grades, 2.50@2.75; do., per crate, 1.75@2.25.
Turnips: 1.25@1.50 sack.

RICE

Rice Association prices:
Bag, 2.40@2.55 f. o. b. points.

BEANS

Below California Bean Growers Association shippers' prices choice re-cleaned:

Small Whites	5.75
Pinks	5.75
Mexican Reds	5.00
Red Kidney	7.50
Henderson Bush	8.25
Cranberries	7.75
Bayos	6.10
Blackeyes	5.50

Citrus Markets

Shipments
Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 7,569 cars; lemons, 2,262; total, 9,831. To same date last season: Oranges, 9,715; lemons, 2,162; total, 11,877. From Central California to date this season: Oranges, 4,223; lemons, 99; total, 4,322. To same date last season: Oranges, 4,290; lemons, 104; total, 4,394. From Northern California to date this season: Oranges, 372; lemons, 8; total, 380. To same date last season: Oranges, 305; lemons, 5; total, 310.

AT THE AUCTIONS

March 10
Philadelphia: 1 or., 1 lem. Nav. 5.45@6.50, lem. 3.65@4.10.
St. Louis: 11 or., 1 lem. Nav. 3.50@6.00.
Pittsburg: 5 Nav. 4.40@5.85.
March 13
New York: 23 or., 2 lem. Nav. 4.70@7.20, lem. 4.25@5.00.
Boston: 15 or., 4 lem. Nav. 4.90@7.45, lem. 2.10@5.60.
Cleveland: 8 or., 2 lem. Nav. 4.35@5.90, lem. 3.45@4.15.
St. Louis: 6 or., 1 lem. Nav. 3.05@5.65, lem. 1.15@4.63.
March 14
New York: 11 or., 1 lem. Nav. 5.30@7.00, Tange. halves 3.45, lem. 3.20@4.15.
Boston: 8 or., 1 lem. Nav. 6.15@7.80, em. 2.70@4.25.
Philadelphia: 6 or., 1 lem. Nav. 5.30@5.55, lem. 3.75.

STORRS EGG LAYING CONTEST

(Continued from Page 309.)

their expected lay by a margin of 3,000 eggs. It seems fair to assume that the average yield of 35 eggs per hen for the first four months constitutes satisfactory winter production. At any rate as hens go it is much better than the performance of the average farm hen. On this basis the following table shows the number of birds in each breed in the contest, the number of eggs they have laid in the four winter months and their index number of relative rating during this period:

Birds	Eggs	Rating
Leghorns	400	13,039 93
Locks	260	8,544 94
Teds	240	8,739 104
Vyandottes	100	4,664 133

Total.....1,000 34,986 100
The pen of Barred Rocks owned by E. Dennison, from East Lansing, Michigan, that won first place last week, was again at the head of the

list with a score of 57 eggs in the seventeenth week.
The four leading pens in each of the principal breeds are as follows:

Plymouth Rocks

Seven Hills Farm (Barred), 579; S. Bradford Allyn (White), 564; Harry G. Culver (Barred), 518; H. E. Denison, 478.

White Wyandottes

Frank P. Matteson, 696; Woodbridge Orchards, 679; Walter Bradbury, 604; Clemens J. Diemand, 596.

Rhode Island Reds

The Orchards, 588; Applecrest Farm, 562; F. S. Chapin, 551; Charles H. Lane, 524.

White Leghorns

Goshen Poultry Club, 561; Hollywood Farm, 485; L. E. Ingoldsby, 483; Small's Poultry Farm, 475.

WEATHER REPORT

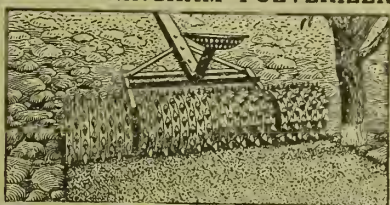
Stations	San Francisco, Cal., March 11, 1922.		Temp.	
	Week	Season	Max.	Min.
Eureka	08	15.18	10.03	64
Red Bluff	09	12.62	15.06	62
Sacramento	55	12.62	15.06	62
San Francisco	96	17.56	17.77	61
San Jose	78	13.08	12.97	64
Fresno	42	9.05	7.09	66
San Luis Obispo	102	19.92	15.44	66
Los Angeles	112	18.39	12.16	70
San Diego	56	17.28	7.83	70

WEATHER REPORT

Stations	San Francisco, March 4, 1922.		Temp.	
	Week	Season	Max.	Min.
Eureka	63	25.22	22.54	60
Red Bluff	20	15.10	18.10	62
Sacramento	14	12.07	14.32	58
San Francisco	35	16.60	16.85	63
San Jose	10	12.17	12.12	66
Fresno	01	8.69	6.82	62
San Luis Obispo	06	18.90	14.60	64
Los Angeles	0	17.22	11.39	64
San Diego	0	16.71	7.41	62

Turn Your Clods into Dollars

The CUNNINGHAM PULVERIZER



Smashes clods, breaks crust, knocks down ridges, closes cracks, makes perfect seedbed, saves 1/3 seed, forms a mulch, stops evaporation, preserves moisture, saves irrigation. Works close to trees, increases crops 30%, makes it easy to procure prune pickers—every farmer, orchardist, vineyardist, nurseryman and seedman should own one. Hundreds in use. Write for circular.

California Plow Co. 140 Polhemus Street
SAN JOSE, CALIF.

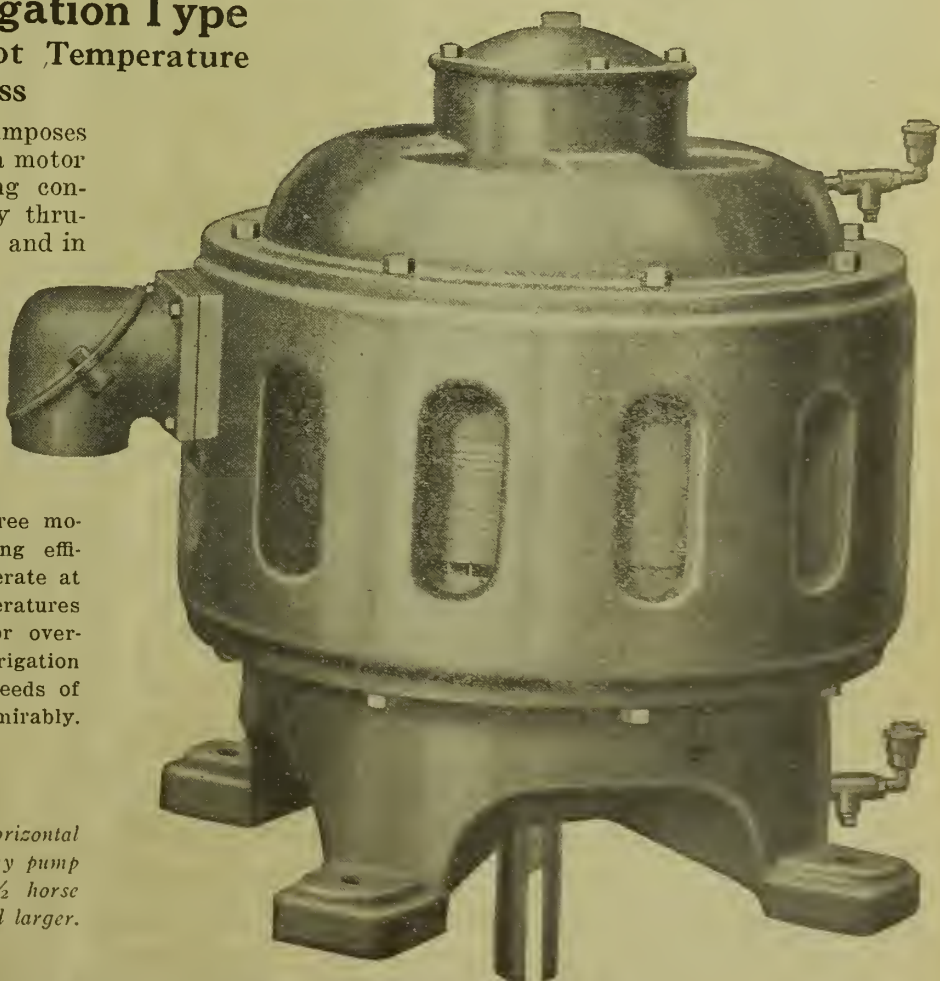
U. S. MOTORS

California Irrigation Type
To Operate in Hot Temperature
Without Power Loss

No kind of service imposes such a severe test upon a motor as irrigation. Operating continuously night and day throughout the irrigation season and in high temperatures necessitates the selection of a motor with rugged stamina.

U. S. Motors are 40 degree motors and their super-cooling efficiency enables them to operate at full load in high temperatures without strain or stress or overheating. We produce an irrigation type that is meeting the needs of California irrigators admirably. Request literature.

U. S. Motors are built in horizontal and vertical types to meet any pump power needs. Sizes from 1/2 horse power to 125 horse power and larger.



U. S. ELECTRICAL MFG. CO.

Largest motor builders in the west since 1906



Our Electrical Engineers
are at Your Service

LOS ANGELES

Branch Office and Warehouse
at Stockton

Coast Tires

WEAR DEFIERS

COAST TIRES are making good on their **SERVICE**

Every day we receive enthusiastic letters from users who find that Coast Tires are money-savers because they give more mileage.

As one dealer expressed it: "They are made right; the quality is there, and they stand up better than any tire I know of. Every Coast Tire I sell makes a friend for my business."

You may be interested in reading what some of our customers say about them:

A Record Made on the Lava Roads of Hawaii

ROYAL HAWAIIAN SALES CO.
Limited

AUTOMOBILES, TRACTORS AND
ACCESSORIES

Honolulu, T. H., Sept. 13, 1921.

Coast Tire & Rubber Company,
Syndicate Building,
Oakland, Calif.

Gentlemen:

The information given below may be of interest to you, and it may possibly help your advertising campaign:

"Up to the morning of September 10th, a 34x4½ Coast Cord had traveled exactly 7,319 miles, on the rear wheel of a Hudson Super-Six Rent Car, which travels daily between Lahaina and Wailuku on the Island of Maui, T. H., a distance of some 22 miles each way, over one of the roughest roads on the Island. (When we say 'roughest' we mean that the tire had to travel over seven miles of mountainous road, which is nothing better than loose rock.)

"Two weeks before this tire was applied to said Hudson car, another brand of Cord tire was put on the opposite wheel, and blew out at 5,177 miles. The tire was completely worn out. From the latest reports the Coast Cords should see better than 9,000 miles, as the tread and carcass are in perfect condition. No stone cuts appear on tread."

One might say that this is an official test made under the auspices of the Royal Hawaiian Sales Co., Ltd., Territorial Agents for Coast Cords.

Very truly yours,
ROYAL HAWAIIAN SALES CO., LTD.
By E. W. Burgess, Tire Department.

Stand Mountain Roads

Oakland, California, Oct. 14, 1921.

Coast Tire & Rubber Company,
Oakland, California.

Gentlemen:

I have used Coast Tires on my Chalmers car for more than a year and have found them the most satisfactory tires that I have ever used in every respect.

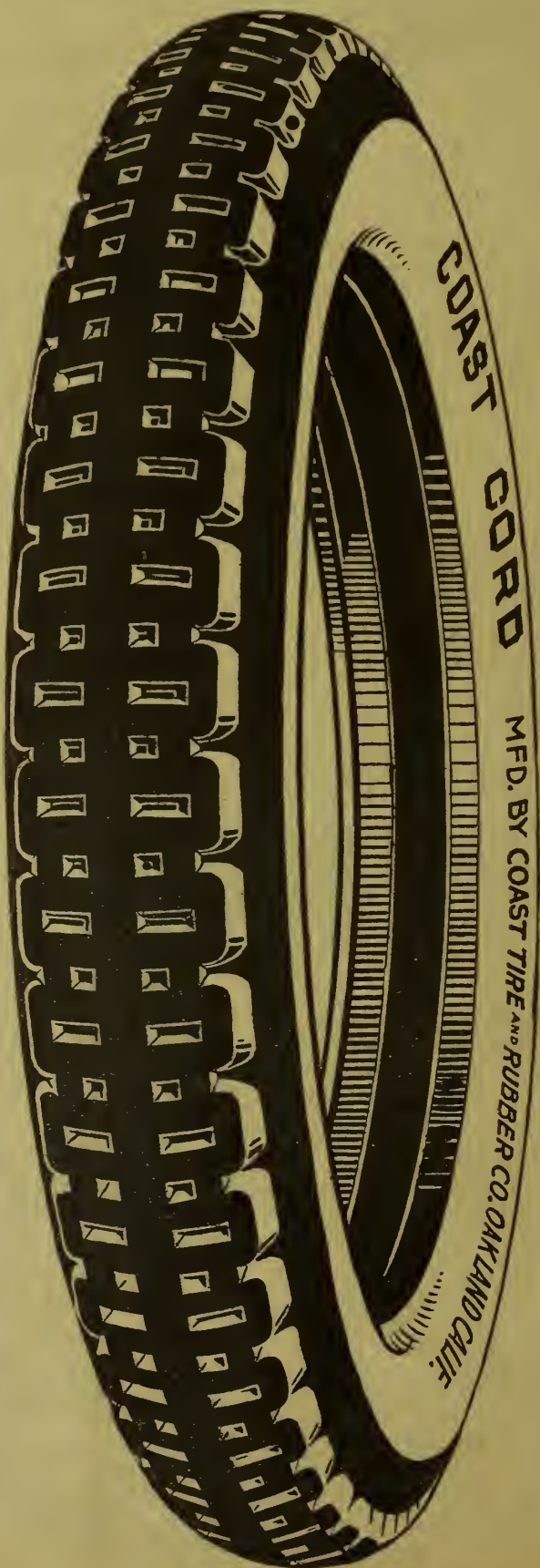
Last March I placed two "Coast Cord" tires on the rear wheels which have gone over 5,000 miles, and which includes two trips across the Sierra Nevada Mountains as well as over some of the worst roads in the State, yet they show very little wear and have never been off the car.

For long wear and service I do not think there is a better tire made than your product.

Very truly yours,

NBC:MN

N. B. CAMPBELL.



Non-Skid Qualities

City of Portland, Oregon
Department of Public Safety
Geo. L. Baker, Commissioner
Bureau of Police

May 24, 1921.

Coast Tire and Rubber Company,
Oakland, California.

Gentlemen:

In response to your inquiry regarding the service we are getting from the Coast Tires which are being used on my official car, I am glad to say that I think this tire has wonderful non-skid qualities, and is therefore of special value to us.

We have had an opportunity to give these tires a good trial during the recent bad weather conditions when the streets were very wet much of the time, and I feel that I can conscientiously recommend the Coast Tire.

Yours very truly,

L. V. JENKINS,
Chief of Police.

Mayor of Oakland Likes Them

CITY OF OAKLAND
California
JOHN L. DAVIE
Mayor

September 8, 1921.

Mr. Holmes Ives, President,
Coast Tire and Rubber Company,
52nd Avenue and E. 12th Street,
Oakland, California.

Dear Sir:

I am sending you these few lines in appreciation of the splendid service which I am receiving from the Coast Tires.

Early in this year my official car was equipped all round with your tires. They have given and are giving splendid service. My car is subjected to difficult strain and covers territory of every description—highways and mountain roads.

I am highly pleased with the record of performance made by your tires and wish to congratulate you on the fact that a home industry produces a product of such excellence.

With my best wishes for the development of a very successful business, I am

Very truly yours,

JOHN L. DAVIE,
Mayor of the City of Oakland.

It will pay you to give Coast Tires a trial. There are hundreds of Coast Tire dealers on the Pacific Coast, but if there should be no dealer in your vicinity, we will be pleased to send you prices and complete description of our tires. Write to

The Coast Tire and Rubber Company
Oakland, Calif.

MAR 28 1922

CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

March 25, 1922

No. 12

In the Orchards and Hay Fields of San Diego County



Orchard and Field View in Red Mountain District Near Fallbrook

Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877.
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunter, Associate.
R. P. Royce, Livestock Editor.
Jack Klein, Associate.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard D. F. Reichard
J. W. Mills J. B. Neff
Fred M. Reed Louis B. Stanton
G. E. Gordon M. E. Bemis
A. R. Gould E. L. Koethen

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Saturday, March 25, 1922

OUR ADVERTISERS RELIABLE

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If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTE

Orchard and meadow, hillside and big oaks as they are in San Diego County are shown on the cover. Thousands of such scenes are given to him who will drive by the inland route to San Diego. Nor is San Diego County alone in this possession of wonderful scenery for, drive where you will, in California, there is a beautiful valley or mountain or seashore, in fact, just California.

The University of California reports the enrollment of 204 in its agricultural correspondence courses.

It is estimated that the campaign to control citrus canker in Florida has cost over \$2,000,000 for control measures and over \$11,000,000 more in value of nursery and orchard trees destroyed.

The National Milk Producers Federation of Washington is making a campaign in favor of the Voigt bill (H. R. 8086). This bill prohibits the movement of imitation milk in interstate commerce. Imitation milk is, by the way, sometimes termed oiled milk.

It is composed principally of skim milk to which is added some measure of vegetable oils.

POWELL MEMORIAL

There was a great outpouring of citrus fruit growers, of Californians, and even of representatives of America, in the service in memory of G. Harold Powell. Highest tributes were paid by Herbert Hoover and many other speakers, who came and spoke of the efficient and willing service rendered by Mr. Powell.

W. H. HEILEMAN

The California Farm Bureau Federation has lost its staunchest worker. Since its organization its secretary-treasurer has been W. H. Heileman. His sudden death occurred last week. The information comes to us in a personal letter from President W. H. Walker. Dr. Walker writes:

"It is with the deepest regret that I announce to you the death of our friend and secretary, W. H. Heileman. I feel that we have all suffered a distinct loss, which will be felt throughout the farm bureau movement of the state and nation. The only compensation that I see we can find is for each person with a little more zeal and with that loyalty and faithfulness exemplified by our friend to strive to carry on the work and bring to a success that which he has been instrumental and successful in beginning. I trust that some plan may be worked out whereby we may perpetuate his memory and show appreciation of his work, in, if possible, establishing a fellowship which would give an opportunity to develop and educate students to carry on this line of work which was so dear to Mr. Heileman."

NEW COLLEGE HEAD

The board of regents of the University of California has announced that Professor C. B. Hutchison of Cornell University has been selected to head the Northern branch of the College of Agriculture, University of California. The appointment is one of the steps inaugurated by the regents to develop at Davis a college of agriculture in keeping with the needs of this state.

Professor Hutchison was born and reared on a Missouri farm, and following his graduation from the College of Agriculture of the University of Missouri he accepted a place on the faculty of that institution and was a member of the staff of the agronomy department until 1916, when he became professor of plant breeding at Cornell.

He is regarded as a leader among the younger men in college work. Since his student days his work has been of a notable character, and he will bring to California an exceptional training, backed by a sound viewpoint that comes as a result of intimate contact with agricultural problems that is sure to enable him to become a constructive factor in the agricultural affairs of this state.

Hutchison succeeds H. E. Van Norman, who was dean of the university farm school and vice director of the experiment station and who is now president of the World Dairy Congress. It is expected that Hutchison will assume his new duties about April 10.

BUILD BOULDER DAM

The conference held in Phoenix failed of accomplishing all that was hoped for. Hoover presided and ap-

pealed for harmony and for fairness on the part of all. He also appealed for a disposition to give and take that the future of the Southwest might not be jeopardized because of selfish desires of delegates of any of the states. The upstream folks are still insistent that they own all the waters originating in their states. They ignore the fact that years before any of these Southwest states were states the federal government entered into treaty with Mexico, by which the American government recognized Mexico's rights to certain waters of the river. Regardless of this, Colorado and one or two other states are renewing the old state's rights question settled in the awful bloodshed of the Civil War. Of course, they can never make such claim stick in any American court. Of course, those delegates know that to be the case, but at the same time it appears that they are going to continue to press the claim in order to delay and embarrass the lower basin states which are demanding instant action because of the menace to Imperial Valley and other lands which are already partially developed.

However, the conference closed with positive assurance by Mr. Hoover that "Boulder Canyon Dam will be built, and that soon." When Secretary of the Interior Fall was here a few months ago he made a similar statement. So it is a reasonably safe conclusion that this dam will soon afford relief to the Imperial Valley. In addition to Boulder Canyon, other dams at Bull's Head, San Carlos and The Sentinel on the Gila River were urged.

In order of importance the three great steps to be taken on the Colorado are: First, flood control; second, irrigation; third, generation of hydroelectric power. The first and third of these steps will be taken in the building of Boulder Canyon dam. In addition, more effective irrigation will be possible. Speaking of the necessity for immediate action in flood control Wm. Mulholland of Los Angeles said:

"Down yonder in the corner of California is a great inland empire, over which hangs the danger of a calamity worse than that of the San Francisco earthquake or the Chicago fire, because if the river ever breaks through its levees down there and overflows Imperial the loss to posterity will be irreparable because the land can never be restored.

"Nothing can be lost by taking steps to prevent floods in Imperial Valley. That is a thing which demands speed. Facts can be made any time. In my time I have carried through some monumental projects the legal phases of which are not yet settled. We spent \$24,000,000 dollars to build the aqueduct, had one lawyer on the job and suffered no lawsuits, neither did we despoil anyone."

MORE HOPEFUL

John Perrin, chairman of the board and federal reserve agent of the reserve bank at San Francisco, takes a most hopeful view of agricultural market conditions. In his recent summary of the monthly report he says: "Prices for most of the principal farm products of this district have risen materially since the first of the year. Wheat, wool and all kinds of livestock benefited particularly, as did also the citrus fruits, but the latter at the expense of damage by killing frosts and winds estimated as high as 50 per cent of the anticipated crop. Commodities such as barley, rice and cotton which did not participate in the general rise

are nevertheless at prices comparing favorably with those of a year ago. Since a large part of last year's crops is already out of the farmers' hands the recent rise in prices will not operate primarily to increase returns to producers. It is significant, however, in its bearing upon returns to be received from crops now in the ground. That the increased prices have, however, resulted in considerable marketing of products would appear from the condition reports of the 66 reporting member banks in the principal cities of the district."

FRUIT INSPECTION

Quick and satisfactory action has been secured by the effort of the fruit shippers to secure release of fruits under inspection at the eastern end. H. H. Warner went to Washington as a representative of California citrus fruit shippers and called attention to the long delays which seemed necessary at the eastern end. The federal department has now ruled that fruits inspected and passed by the California state department of agriculture shall not be required to pass other inspection by federal inspectors at the eastern end. This will mean many days quicker delivery. It likewise means recognition of the efficient work of the California state department of agriculture. Of 2,000 cars of California oranges shipped this season only 23 have been held by the chemistry division of the federal department of agriculture on account of deterioration by frost.

SIGNING UP THE ALMONDS

The campaign of the Almond Growers is proceeding magnificently. The almond growers are of a class who can see the necessity of cooperation if the almond industry is to be preserved. The arguments required are few, and several communities are endeavoring to make it "100 per cent in the Exchange." It is to be hoped that 4,999 of the 5,000 almond growers of the state will be on the inside.

It is assumed by one of the biggest and most powerful banks of the United States that the campaign will be a success for the management of the Exchange announces it has a letter from the National City Bank of New York, in which it offers aid in plans to stabilize the almond growing industry of California and the extension of a line of credit. Manager Tucker writes: "Nothing better could be said in support of the new five year crop agency contract."

THE SALES TAX

There seems to be a willingness on the part of some members of congress to vote a soldiers' bonus and then saddle the cost quite largely upon the farmer. The sales tax plan has been heartily condemned by every farmer and heartily commended by those in other callings who are anxious to escape taxation made necessary. This government is rich enough to reward those who suffered from the hardships of war, and it should do it without putting an undue burden on any one class. But differences of opinion as to taxation should not prevent us from performing our duty to those dependent on one who gave up his life for his country or to those who were incapacitated because of their service. There has been a measure of help given along these lines but it should be more liberal.

Imperial Valley Grapefruit Problems

By Robert W. Hodgson

ACCOMPANIED by the newly appointed citrus extension specialist, W. R. Schoonover, and Farm Advisor E. L. Garthwaite, the writer recently had the pleasure of spending three days in Imperial County in a survey of the rapidly growing grapefruit industry of that part of the state. As is the usual experience in a new district, the growers are encountering many problems which to the majority are entirely new and perplexing to say the least. The present article is prepared in the hope that it may contain suggestions of value to those having orchards already planted and particularly to those expecting to set out grapefruit within the near future.

Contrary to first reports which indicated that the recent freeze had occasioned little or no injury to the grapefruit plantings of Imperial County, it was observed that in some of the new orchards there was considerable splitting and cracking of the bark and in the older orchards in a few isolated sections the outer fruit had suffered to a considerable extent. In one or two orchards it was apparent that 30 to 40 per cent of the crop had been frosted. On the whole, however, the orchards were found in very good condition and the amount of frost injury was much less than the average occurring in the main citrus districts of the state.

Soils

It is generally agreed that the best orchards are on what are known locally as the soft soils, ranging from fairly light sand to sandy loam. Considering the lack of rainfall and the large amount of silt carried in the irrigation water it seems advisable to limit plantings to lighter soils where ample drainage is provided and where adverse physical conditions may not

be expected at least for many years, and though occurring, may be satisfactorily met by proper tillage. For those orchards already planted on the heavier soils the growing of deep rooted leguminous cover crops, such as *Melilotus alba*, is recommended as a means of opening up the subsoils to deeper penetration of moisture. Care must be taken, however, not to injure the trees by the application of too much water and also to see that the cover crop and trees do not compete for water.

Some orchards were found where considerable quantities of alkali salts occur and others where the water table is within four feet of the surface. The grapefruit cannot be expected to grow successfully under such conditions.

Stock

Although a comparatively new district it was observed that in the older plantings there is a considerable percentage of off-type trees which emphasizes the great importance of planting only those known to be propagated from the best type of Marsh Seedless. The thought naturally occurs that it would be a good practice to select buds from the best yielding trees and orchards in the valley for purposes of propagation as trees grown from these buds would naturally be expected to do better than trees propagated from buds taken from districts dissimilar in climatic and soil conditions. Good orchards exist in the valley from which such bud wood might be taken.

Because of deposition of silt in irrigation it cannot be too strongly recommended that trees be budded high in order to prevent brown rot gum disease. Special care should also be

taken to set trees with bud unions well above the surface of the ground. A number of cases were observed where brown rot had seriously injured the trees. In every instance the trees were found to be planted too deeply and had the bud unions covered. The prevalence of gum disease seems also to be connected with the general practice of flooding. Furrow irrigation would seem more advisable.

Planting

On account of the extreme climatic conditions occurring during the growing season special precautions seem advisable in methods of planting. The balled tree seems to be in favor as against the loose rooted tree on account of reduced danger from drying out of roots in handling. Orchards were seen, however, where trees had been planted by the loose root method and where the percentage of loss had been less than five per cent. Many growers seem to favor the balled tree, however, even though more expensive, considering the extra expense to be good insurance. Where balled trees are used it is recommended that the balls be worked up well with the soil in which the trees are planted, several orchards having been seen where the soil composing the ball was of markedly different character from that in which the trees were planted with the result that the trees have failed entirely or done only indifferently.

Where the ball is composed of heavy soil and the trees are to be planted in a light soil the ball should be broken and mixed well with the soil. Where the balls are composed of light soils it seems advisable to remove the sacking. Natural rainfall being either lack-

ing or scanty, it is especially desirable that the soil be wet well before planting.

Early planting was stated to be almost a necessity, the favored month being March. It would seem, however, that where given extra care planting might well be done later. Several orchards planted as late as May, even with bare rooted trees, showed splendid results. A prevalent method of planting is filling holes with water and setting trees directly in the water, resulting in the heavier soils in a puddled condition. On the lighter soils this practice does not seem to occasion any unfavorable results, but in the heavier soils it is not recommended. Special care should be taken to firm the soil about the roots, after which irrigation should be given. On account of the high evaporation the young trees should receive water about every ten days for the first season.

In orchards where trees of good stock were secured, planted properly, and well cared for the trees were found to have made a remarkable growth. Indeed it was hard to believe that trees stated to be six and seven years of age were not in reality ten or twelve years old judging both from size of the trees and amount of crop. All doubt has been removed as to the bearing qualities of grapefruit in the Imperial Valley, eight year old trees the past season yielding from ten to 14 packed boxes of fruit.

Frost Protection

In the establishing of grapefruit orchards in the Imperial Valley, protecting the trees against frost injury for the first two or three years will undoubtedly prove insurance well worth while.

Strawberries in the Pajaro Valley

THE Central California Berry Growers' Association has proven a great help in saving at least a part of the small fruit production business for the white man. At the annual meeting of this association there were addresses touching upon various phases of strawberry culture, and one delivered by President Eaton of the association reviewed a bit of the history of strawberry growing in that great producing section, the Pajaro Valley. We are permitted to quote from President Eaton's address as follows:

By O. O. Eaton, President Central California Berry Growers

About the first strawberries in the Pajaro Valley were planted near the Gilky place, near Vega Station, in Monterey County, by Mr. Marchant in 1865.

Louis Martinelli planted on what is known as the Phelan place in 1867 and soon after planted berries on the Capelli & Dondero place. Berries were raised on a small scale and could hardly be sold, there being only the local market.

In 1875 Mr. Ceschi and Messrs. Capelli & Dondero, as partners, bored wells and used windmills as a means of obtaining water for irrigation.

In 1879 the Watsonville Water Company provided water for irrigation purposes as a means of disposing of their overflow, thus making it possible for the more extensive growth of the business and broadening the market to San Francisco and elsewhere.

However, James Waters started shipping the Cinderella berry grown on the Blackburn place in 1877 to the San Francisco market, Mr. Blackburn doing the same with a few that he planted the same year.

In 1878 Ira Thurber followed closely in the footsteps of Messrs Waters and Blackburn by also shipping to San Francisco, there being all told 14 acres planted to strawberries this year. The berries brought a splendid price, the lowest \$11 per chest, and nearly all bringing \$20 per chest of 100 pounds net.

In 1881 there were 42 acres; in 1882 45 acres; in 1883 118 acres. At this time Waters & Brewington and McNelly began to plant, and the increase in acreage was rapid. In 1884 there

were 185 acres. That year Stewart, Buckley & Thurber leased the Lake Farm, commenced grading and planted about 30 acres. My father, R. W. Eaton, also started in this year. In 1885 the acreage was 268, Stewart, Buckley & Thurber having planted 100 acres.

About 90 per cent up to this time were Cinderella, then the Parry began to be planted. In the season of 1886 there were shipped from all sources to the San Francisco market 1,500 chests daily, many selling for \$1 per chest.

In 1887 there was an acreage of 344; in 1888, 354; in 1889, 257; in 1890, 275.

During 1890 the Malinda began to be planted, and in a few years all or nearly all were of this variety. In 1891 the acreage was 289, in 1892, 272 acres. Up to this time, with the exception of the Lake Farm and the Menker places, there was no pumping for irrigation. Waters & Porter put the first pumping plant on the river. The planting increased until in 1895 there were 522 acres, and it remained about the same until 1900. In 1901 there were 700 acres; 1902, 840; 1903, 800; 1904, 700, and 1905, 670.

Up to 1894 the package used was

the chest of 20 slides, five pounds of berries in each slide, or 100 pounds of berries in each chest, and no baskets. In this year the need of a smaller container was seen, so a few of the slides were cut in half and the berries placed in the half slide without baskets.

In 1890 a two pound basket was placed on the market but, due to the prohibitive price of \$15 per thousand, did not come into universal usage until 1892, when the price was reduced to \$10. Two of these two pound baskets fitted the slide, allowing a net content of four pounds to the slide, thereby reducing the net content of the chest to 80 pounds. This two pound basket remained in favor until 1910, when a few growers placed a few early berries in small half pint baskets, six to the slide, again further reducing the net content to 50 pounds per chest. The growers found the reduction in net weight of berries per chest so profitable that by 1912 the half pint basket was being universally used.

In 1918 the state department of weights and measures began to take an active interest in the amount of berries placed in the baskets and is-

(Continued on Page 318.)

Agricultural News Notes of the Pacific Coast

Northern California

Colusa County holds a road bond election, March 25.

Tractor extension school will be held on the old fair grounds at Santa Rosa, April 24-29.

A snow white gopher was caught last week on the Zumwalt ranch near Chico, Butte County.

The California Rice Growers Association has made sale of 20,000 bags of rice at \$2.60 for No. 1 paddy.

Noel Negley, state dairy specialist, has taken charge of the Sonoma-Marin pure bred dairy bull campaign.

R. W. Myers, apiarist of Colusa County, shipped over 20 tons of honey last week to Los Angeles. He has about 500 stands of bees.

Colusa Indians are busy with the salmon run which has just commenced. Fishermen average 25 cents a pound at the express office.

Through the efforts of the county farm bureau several school grounds in the Sonoma Valley will at once be planted with trees and shrubs.

Horticultural Commissioner Flournoy of Tehama County says citrus trees in that county were not seriously injured during the recent cold snap.

Santa Rosa's Rose Carnival committee has plans well under way for the celebration in May. C. O. Dunbar is chairman of the general committee.

The Capay Valley, Yolo County, Almond Growers Exchange has approved the new five year contract of the California Almond Growers Exchange.

Northern California Elks will gather at Santa Rosa, May 25, for a special session at which Luther Burbank, the noted plantsman, will be initiated into the order.

Shasta County's old court house was sold by the supervisors to the McCloud parlor of Native Sons for \$1. The Native Sons will preserve it as an historical relic.

The Antelope Almond Growers Association of Sacramento has adopted new by-laws providing for the five year crop delivery contract now asked by the state association.

More than 40 farmers near Red Bluff, Tehama County, took a special farm management course given there by representatives of the state university, beginning March 16.

The farm school at Davis will hereafter be known as Northern Branch of the College of Agriculture of the University of California. It will now be in charge of a director instead of a dean.

Paving operations on the Red Bluff-Redding state highway discontinued for two winter months, have been resumed. The 14 mile stretch from Red Bluff to Cottonwood is completely paved.

Members of the California Bankers Association, representing 22 Northern California counties, in session at Sacramento, endorsed the proposed five year contract between the almond growers and the California Almond Growers' Exchange.

Establishment of a central agency to coordinate colonization moves in Northern California and to advertise the state's land and its program for helping men to own farms is advocated by Dr. Elwood Mead of the University of California.

Central California

Five thousand apricot trees are being planted in the McFarland district of Kern County.

More than 30 varieties of grapes are being grown and tested by Merced County farm adviser.

Delano, Kern County, is sending out carloads of lettuce. Prices received are \$3 to \$4 per crate.

May 25 is the date for signing up hogs for contest to be decided at the Turlock Pork Day October 4.

The Madera County branch of the California Cattlemen's Association met at Coarse Gold, March 11.

The Tulare River Citrus Association last season shipped 44,227 boxes of fruit. Average payment \$3.10 per box.

The farm center at Chowchilla, Fresno County, has decided to give wives of members the voting privilege.

The J. W. Guiberson Company of Corcoran, Kings County, reports sale of 50 bales of Durango cotton at 20 cents.

The railroad feeding the Don Pedro dam works was damaged by the storms so that work was suspended for a time.

The Tulare Cooperative Poultry Association marketed in February 1000 cases of eggs, paying members 23 cents for No. 1.

Fertilizer experiments are being carried on by the growers service department of the Sun Maid Growers on 172 separate plots.

More than 300 dairymen of Merced and Stanislaus Counties attended the dairy meeting held recently at the Noxem ranch near Newman in Stanislaus County.

The Magnolia Citrus Association has been formed by growers of the Porterville district of Tulare County. A packing house will be built in time for the Navel season.

President Walker of the state farm bureau says that the farm bureau marketing exchange has already contracted with farmers for nearly 100,000 tons of grain, mostly barley.

Stanislaus and Merced Counties will celebrate Pork Day at Turlock, October 4. Ten farm centers of the two counties will join in arrangements, committees meeting April 26 to form plans.

To prevent the possible spread of mealy bug and citrus white fly in Kern County the Tevis ranch at Stockdale has been placed under plant quarantine by the Kern County horticultural commission.

Miss Clark of the university extension service has been giving demonstration in food preservation in Fresno County. It is planned to form a home economics department in the farm bureau there.

Ten million grape vines and cuttings came into Tulare County from outside nurseries during the month ending February 24, according to monthly report of county horticultural commissioner.

"For the first time in years," says the Kerman News, the Kerman district of Fresno County is an importer instead of an exporter of alfalfa hay. Alfalfa fields have been replaced by Thompson Seedless vineyards.

Southern California

A 1500 acre vineyard is being planted at Perris by F. Weinberg.

El Centro, Imperial County, has opened a farmers public free market.

Perris poultry raisers report thousands of chicks and turks in electric brooders.

A meeting of the California Walnut Growers Association will be held in Hemet today, March 25.

State Market Director Maddox has been talking cooperative marketing to Ventura County farmers.

The Los Angeles farm bureau directors are asking members to post membership signs on their farms.

The Pure Bred Breeders of Southern California are planning a big pure bred sale for Imperial Valley.

Bruce Drummond of the U. S. date gardens at Indio gave date pruning demonstration at Meloland, March 7.

Several officials of Los Angeles and San Diego went to Phoenix to attend the session of the Colorado River commission.

Dr. Fawcett of the citrus experiment station will conduct several field demonstrations on treatment of walnut melaxuma.

The Santa Barbara County farm bureau has invited the Walnut Growers to hold its next field day in Santa Barbara County.

Experiments with the use of fertilizer on alfalfa are being tried out by Assistant Farm Adviser Ellis of Imperial County on the Cooke ranch west of Brawley.

Citrus growers of Pomona, San Dimas and La Verne districts have secured reductions in Los Angeles County tax assessments because of frost damage.

The Southern California Horse Show Association has been organized under direction of Marco H. Hellman of Los Angeles. A show will be staged at Los Angeles April 12-15.

At the recent annual citrus institute at San Bernardino during the National Orange Show it was decided to turn over this activity to the farm bureaus and agricultural extension service.

Farm bureau meetings in Los Angeles County: Burbank, March 27; Little Rock, 28; Downey, April 3; Glendora, 3; Alhambra, 4; Zelzah, 5; Lankershim, 6; Whittier, 7; San Fernando, 7.

A big land slide in the Cajon pass covered one-eighth mile of Santa Fe tracks. In some places the track was twisted and undermined. Trainmen say "the mountain simply slid down on the tracks."

Congressman Phil D. Swing has succeeded in putting through congress his bill to make a national monument of Palm Canyon near Palm Springs in Riverside County. The reserve will include 1,600 acres.

A California wide campaign to stamp out what is termed "medical bootlegging" will be launched at the convention of the California State Homeopathic Medical Society at Santa Barbara May 10-12.

More than 250,000 grape vines already rooted in the Rockwood section of Imperial Valley were taken out and burned because they had not been dipped in hot water as prescribed by the state department regulations.

The Coast and General

Range in southern Arizona is badly in need of rain.

International Livestock Show at Salt Lake City, April 3-6.

Over 20,000 bounties were paid last year by Idaho on predatory animals.

The Douglas County farm bureau is making a determined effort to obtain a state experiment station for the Umpqua valley of Oregon.

The premium list of the Oregon state fair shows cash awards totaling more than \$75,000. The fair will be held at Salem the week of September 25.

The Oregon Mint Growers Cooperative Marketing Association recently held its annual meeting at Corvallis. Directors meetings will be held at Albany.

Rice growers of southern Texas have been studying the California plan of marketing crops and are discussing forming a rice marketing branch of the farm bureau.

The increased yield of cows on association test in Oregon during January of this year over that of the same month a year ago averaged 2.35 pounds butterfat per cow.

"Better homes for Oregon" was the slogan of the homemakers' conference held at Oregon agricultural college, Corvallis, this week. Better homes were pictured in lecture, demonstration and exhibit.

The Columbia River Highway, Oregon's famous scenic route, traversed every year by thousands of tourists from all parts of the country, is again open for traffic after having been blockaded by a December storm.

Horace Porter of Riverside talked on the Colorado River project at Tucson, Arizona, March 7 on invitation of the Association of Engineers and Rotarians. This is the first of a series of meetings for discussion of the project.

By refusing to allow grazing privileges for sheep whose owners have failed to comply with dipping regulations, forest officials, cooperating with state and federal inspectors, hope to stamp out scabies among central Oregon sheep this year.

The Lane County, Oregon, Jersey Breeders Association is planning a tour of Jersey farms in the county. At its recent annual meeting at Eugene T. O. Green of Coburg was elected president; Frank Taylor of Thurston, secretary-treasurer.

Ranchers of Haines, Oregon, report hundreds of squirrels coming from their holes and making their way to the light through several inches of snow, thought to be a result of long continued winter weather which has caused their food supply to become exhausted.

The Washington state farm bureau federation has gone emphatically on record in favor of an absolute long and-short-haul clause to prohibit the railroads from charging more for a shorter haul to interior communities than they charge for the longer haul to the Coast cities.

U. S. weather bureau at Phoenix reports: "A deficiency in temperature for the past two weeks has prevented the warming of the soil necessary for the successful germination of seed and farmers as a rule are refraining from planting until there is a decided change to warmer; some are irrigating in anticipation of the desired change."



THE following brief outline covers the main points gleaned from the experience of our most successful growers:

Preparation of Seed Bed

The most important factor we consider, in making plantings of alfalfa, is the proper preparation of the seed bed. A very deep plowing followed by any irrigation, then thoroughly disking by disking, harrowing and raking, and in case where the soil is very heavy and would work up rather badly the use of a cultipacker would have it in nice, loamy condition. One should at all times keep in mind the importance of working the soil just as soon as possible after irrigation in order to retain the moisture as close to the surface as possible.

Time of Planting

The best time of year to plant alfalfa is during the latter part of September and up to the middle of October. At this time of year most of the weed seeds are lying dormant in the soil and the alfalfa will come up and cover the ground, and although not making much of a top growth, will establish a good root system so that when the warm weather comes on and

an irrigation is given the vitality of the plant is such that it will make a very rapid top growth. However, if it becomes necessary to follow up a crop that matures very late in the fall or winter with alfalfa, necessitating a spring seeding, we would advise planting during the first to the middle of February. This date, however, applies to Arizona conditions. In some parts of California where cold weather prevails longer in the spring, March or April will possibly be the best time.

Method of Seeding

One of the most important things to consider is the method of planting, and the one we consider the best requires the use of an alfalfa seeder or grain drill with an alfalfa seed attachment. By the use of this machine less amount of seed per acre can be used and can be placed in the soil at any depth required in order to reach moisture. Another thing is the depth of planting. In light or sandy soil seed

should be planted at a depth of one to one and a half inches, whereas in heavier soil we would say one half to one inch. There are a good many opinions as to the amount of seed required in order to secure the best stand. Our policy, however, has always been to govern ourselves entirely on the quality of the seed used, planting only the highest grade at the rate of fifteen pounds per acre. Seeding as heavy as indicated will make the plants break through the soil uniformly and will cover the ground quicker and shade out the weeds which are likely to come up at the same time, especially if planted in the spring.

Irrigation

Alfalfa should never be irrigated after it is planted until it has completely emerged and has at least attained a growth of from four to five inches in height. This procedure will

force the root systems to make a stronger and deeper growth whereas an irrigation immediately after planting would germinate all the foul weed seeds and would have a tendency to hold back the growth of the plant caused by the soil packing very tightly around the stems of the new growth stopping circulation of both air and moisture. With an application of water at the time suggested the plant is well established and able to make a rapid top growth. Young alfalfa requires more frequent irrigations the first year than in years following, depending entirely on the nature of the soil, whether light or heavy, light soil requiring at least one more irrigation per month than soil of a heavier type.

After a good many years of close observation we find that an irrigation of say a week to ten days prior to cutting the alfalfa for hay will allow the plant to make a rapid growth immediately after the crop is removed and completely cover the ground before another irrigation is necessary. Follow with water again in two weeks' time, and then again as stated before, a week prior to cutting. This gives about two irrigations per cutting.

Subsoiling the Walnut Orchard



BEFORE taking into consideration any practice of soil handling, whether in the walnut orchard or elsewhere, it is pertinent that consideration be taken of the nature and composition of the soil in general and the soil of the walnut orchard in particular. We should know something of the life processes of the soil, how the soil lives, how it eats, drinks, breathes and does its daily work.

We may compare the soil to a complex laboratory wherein there are many stones, some large, some small, covered with water, interlaid with masses of undecayed vegetable matter. In and about is a liberal circulation of air containing nitrogen to be used by the nitrogen gathering bacteria in the nodules of leguminous cover crops. And scattered throughout are the small workmen (bacteria) attacking this organic matter which is made by cover crops and manure applied to the soil, tearing it up and changing its form to combine it with salts of the soil so that the roots may take in this material as food.

The body of the soil is made up of rock fragments interlaid with the organic matter, and the space between the fragments is known as pore space. This is an area wherein is found the air and water of the soil. In the average soil 50 per cent of the volume is pore space, and for optimum conditions of plant growth approximately one-half pore space is water and one-half air. To facilitate operations man has devised tillage. It has been found that tillage admits air into the soil and air is indispensable to the roots. One has only to look upon the grove that has been flooded with water too long to see the results of the exclusion of air. Oxygen contained in the air is also most necessary in the decay of organic matter. Furthermore, air carries nitrogen to the nitrogen fixing bacteria which live upon the roots of leguminous cover crops.

Soils have a very definite breathing process in which temperature changes are very important. An increase of one degree Fahrenheit will drive from one cubic foot of soil one cubic foot

By Eugene S. Kellogg, Horticultural Commissioner of Santa Barbara County, Before Fourth Annual Walnut Growers Institute at Santa Ana

of air, and the reverse happens when the temperature falls. During periods of low pressure tremendous quantities of air are expelled from the soil, while during periods of high pressure the air reenters the soil.

Tillage makes plant food available. The small organisms depend upon the optimum supply of air and water for their work. In tearing down the organic matter carbon dioxide is formed as a waste product and this gas is also given off as a waste product in animal life. The carbon dioxide combines to form carbonic acid and a chemical action is then set up on the rock fragments, changing their nature and making them over into soluble salts, an ever renewing source of food for the plants. So that when we say that the soil needs a rest, we really mean that the soil needs a period of time for this chemical and bacterial action to make available plant food for use at some future time.

Tillage is also very necessary for the saving of soil moisture in that it prevents surface runoff. It also prevents surface evaporation by forming a mulch and breaking up the capillary system which carries the water from the soil to the air.

Tillage extends the feeding area of roots and breaks up the soil, so that the roots may penetrate into the hitherto impervious recesses of the soil.

Tillage improves the physical condition of soil. We know that there is a difference between a microscopic soil particle and a clod of soil. When soil is wet it runs together in a mass and when broken up by tillage it crumbles. This condition makes what we call a good condition of tilth.

The property which causes particles to cling together into compound particles when dry is known as cohesion and is due to certain cementing materials. In the arid regions these are chiefly salts or alkaline materials of various kinds. Irrigation water often

dissolves and causes the amount of salts to become excessive, or irrigation water may itself carry too heavy a load of salts. It is readily seen that there is need for deepening our tillage operations to allow a deeper penetration of these salts. Thus by increasing the volume of the amount of salt remaining constant the density of the solution is made less.

Where irrigation is not practiced there is commonly not sufficient rainfall to grow both cover crops and mature the walnut crop and clean culture is customary. Organic matter is constantly being used up and unless it is replaced the loosening effect of this matter upon the soil is constantly being lost. Furthermore, the sun striking the organic matter of the soil causes it to be burned out, and the result is that the soil becomes harder to handle and tends to run together when wet and must be broken up deeply to allow the penetration of water and air.

The walnut is a deep rooted tree. You have probably heard of the man somewhere in Southern California who wrote a letter to his missionary friend in China, advising him that within a few days he could expect the roots of his walnut trees in Southern California to penetrate the crust of the earth on the opposite side and asking his friend to kindly turn the roots over and start them back to California. At any rate it is a fact that the roots of the walnut penetrate deeper than those of any other orchard crop, and it is very obvious that our tillage operations should be correspondingly deep.

In view of the fact that both irrigated and unirrigated groves need a deeper tillage a number of growers in Santa Barbara County took up the idea of opening the soil to a greater depth than had been done by using a subsoiler. Probably 50 per cent of the acreage in the Goleta Valley was sub-

soiled during the past season. Various types of subsoilers were used; some had mold board plows which were converted by using a special type of chisel on the beam in place of the shear. Most of these proved too light for heavy use, particularly in heavy soils. A beet plow was shown to be admirably suited for the work, and of course a regular Killefer made for the purpose was very successful. When converting old plows a two or two and a half inch point is generally used. Most of the work is done with tractors. On an average type of soil the subsoiler could not be put down to much more than a foot without running in low gear.

The first subsoiling began in the season of 1919 when P. C. Marble, manager of the Santa Barbara County Walnut Growers' Association, subsoiled some land of a clay nature. He broke up the ground to a depth of 18 inches, running his furrows about two and a half feet apart both ways. This land was rather sloping and during the following winter there was practically no runoff. In previous seasons the runoff had been excessive. At the next harvest there was an increase of about one-third in the yield of beans. Having such good results in the bean ground, Mr. Marble in 1920 subsoiled a 20 acre walnut orchard. Furrows were run at intervals of two feet, 16 inches deep, most of the orchard being subsoiled only one way. The subsoiler was not run nearer than eight feet to the trees. The soil was plowed very deep in the spring. The 1920 crop of this 20 acres was eight tons. The 1921 crop, which was generally light in the vicinity, was 11 tons. This orchard is not irrigated.

In another orchard Mr. Marble had an interesting experience in the penetration of irrigation water. Formerly it required 24 hours for the 11 inches of water delivered at the pump to reach the ends. Eight furrows were used. After subsoiling it required four days for this head of water to reach the ends in the same number of furrows, the water being run in the subsoil furrows.

Another interesting result was noted

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after the last storm in the grove of Chester Rich. There has always been a considerable wash coming down from the lands of a neighbor, which very often gullies Mr. Rich's orchard. This year during the rain a dam was constructed across this wash and the water diverted to the subsoiled orchard. Here it rapidly disappeared from sight and was taken into the soil completely without damage. In fact, a considerable amount of water was stored in the soil which would have been wasted.

After the recent rains a number of holes were put down with the soil auger to determine penetration of moisture. The average penetration in unirrigated groves after seven inches of rain had fallen was two feet four inches in ground which had not been subsoiled. In the bottom of the subsoiled furrows there was an average penetration of three feet two inches, while an average penetration between the subsoiled furrows showed a penetration of two feet eight inches. Two days ago the same relative depths still were found, there being a penetration of about six inches greater in the subsoiled groves than in adjoining groves not subsoiled. However, recent storms, which were very gentle in Santa Barbara County, would not be as good a test as a hard torrential rain where there would be a tendency for excessive runoff.

We sometimes hear it said that subsoiling in an orchard is injurious because it cuts off roots, especially the fine feeding roots. As for the larger roots, it is generally conceded that if they come within 15 inches of the surface they should be cut off or they will sooner or later interfere with proper tillage. As a matter of fact, very few feeders will be cut off because they generally grow more or less in a vertical position and the subsoiler at intervals of two or three feet may break off a few of them, but generally passes on through without molesting them. Then, too, it is a question if any harmful results would follow inasmuch as these feeder roots are always cut off when the orchards are plowed as deeply as it seems necessary that they should be. And when the soil dries in the fall these feeders die, anyway. No one has as yet proven that any ill effects have followed this operation, and until the fact is proven I do not believe that any particular stress should be laid upon this point.

It is not my opinion that subsoiling is a cure all on all types of soils. I believe that it is entirely unnecessary on very sandy soils where the physical condition is ideal, and even in soils that are harder to handle, I believe that subsoiling in some cases at two year intervals would be more economical than subsoiling every year. Present indications would point to this practice as being very beneficial in heavier soils that have become puddled through handling while wet, soils with a salt or alkali content brought about by use of irrigation water, soils that have lost their good physical condition through burning out of humus in clean culture and subsequent failure to add organic matter. However, the practice of subsoiling should be investigated further and results carefully noted in order that more information may be had before arriving at any definite conclusion.

STRAWBERRIES IN THE PAJARO VALLEY

(Continued from Page 315.)

sued a regulation to the effect that half pint baskets must contain eight ounces of strawberries and pint baskets 12 ounces. This brought about an increase of ten pounds of berries to the chest and immediately brought about the proper filling of the baskets which heretofore had contained from six to seven ounces.

In 1917 the legislature passed a

Fresh fruit and vegetable standardization law which defined a deceptive pack as "any package having on exposed surface fruits, berries or vegetables which are so superior in quality and appearance to the balance of the package as to materially represent the entire contents," made it a misdemeanor to ship, for sale or sell a deceptive pack. The county horticultural commission and the state commission enforced act and soon found that it was not impossible to place on the market half pint basket of strawberries, was not packed deceptively.

In view of these facts, in July, the association passed a resolution adopting the pint basket for strawberries, having well in mind the fact that all chests and slides would be set aside and a free crate. During the fall of that year growers contracted for 7,000,000 pint baskets to handle the 1920 crop. During the lull period the growers found that they could ship a pint basket in the old slide and by using 16 slides in a chest, in place of 20 as before they could use their old chests. However, some growers preferred not to do this, for the reason that the baskets shaped for this slide brought a new basket on the market, caused more confusion among the basket manufacturers, these growers preferred a square top basket, the one then becoming commonly used throughout the state. The growers went through the 1920 season in more or less confusion owing to many different packages.

Growers who preferred a square pint basket placed in a tray shipping their 1921 crop in this manner, after advancing into the season with very much success, showing berries off to good advantage. A representative of a fruit concern in Paso, Texas, while in San Francisco was attracted to this package, and the result was that on May 12 a telegram was received from these El Paso people asking for a car of berries. May 25 the first car went forward. May 30 another, and one on the way to Los Angeles, containing trays. These 2,568 trays, or 321 chests were picked on a day preceding a day or, in other words, on a day we can do no picking for our San Francisco and Oakland markets. On Friday, May 28, a telegram was received in San Francisco from Los Angeles asking for a car of berries to be shipped at once, as the rains had demoralized picking conditions leaving the market without berries. Owing to these growers using trays it was possible to act immediately, as quick action was necessary to take advantage of this condition. The first car as mentioned went forward Monday, May 30, another Tuesday and still another Wednesday. Their orders being countermanded wire as local growers could then supply the demand.

In the very peak of the season, from May 21 to June 21, 16 cars of berries were diverted from the San Francisco and Oakland markets, at a time when the market absolutely needed berries. While these growers sustained a loss on some of these cars, that does not alter the fact that those berries that were left for the San Francisco and Oakland markets were then highly benefited by the removal of 16 cars.

The eastern fruit buyers, through their San Francisco representative were so much interested in the package as to offer us a price that enabled us to ship a car on August 1 to Chicago. This being the first shipped east, we naturally all went with great anxiety. However, the eastern people wired for further cars and they had received 33 cars for Chicago and one for New York.

Promising Treatment for San Jose Scale

By A. L. Quaintance, United States Department of Agriculture

WHILE the bureau of entomology believes that thorough spraying with dormant tree strength of lime-sulphur will control the San Jose scale, yet to meet the desire of orchardists for other treatments a number of experiments with sprays were undertaken. The purpose of the present article is to call attention to results secured in the treatment of the scale by the use of a spray containing one per cent lubricating or engine oil emulsified with potash fish oil soap.

The careful experiments in Florida by W. W. Yothers with various sprays for the control of citrus scale insects (the orange white fly, as published in Farmers' Bulletin 933, resulted in a formula of engine oil spray which has been found remarkably effective. A view of the small amount of oil used, namely, one per cent, emulsified with potash fish oil soap. Mr. Yothers found that any one of several oils of the lubricating type, when thoroughly emulsified and used at the dilution indicated was quite effective against these scale insects and the white fly, and these sprays have now come into large commercial use in Florida.

The surprising efficiency of a spray containing such a low percentage of oil suggested the desirability of testing sprays of this character against San Jose scale. The abundance and destructiveness of the scale in the Bentonville section of Arkansas and the desire of growers for other lime-sulphur sprays has offered an excellent opportunity for testing various dilutions of engine oil sprays against this pest. The experiments were carried out by A. J. Ackerman in the office of deciduous fruit insect investigations and have included tests of lubricating oils of a strength of one-half per cent to four per cent or five per cent, thoroughly emulsified with potash fish oil soap. The tests showed practically complete eradication of the scale by one thorough application of the spray of a strength now as two per cent of oil. Orchardists have been so pleased with results that the two per cent oil spray will be extensively used in their present necessity of bringing the pest under subjection.

It is a point yet to be established in connection with the present experiments as to the possible injury of the oil spray which may result to the trees, twigs or buds, and several seasons' experience will be necessary before a decision on this question can be reached. In view of the experience in Florida in spraying citrus trees in which with one per cent of oil, it is found that dormant deciduous trees will stand without injury one and a half per cent treatment containing two per cent of oil.

In order that entomologists who desire to do so may make tests of the present treatment available to orchardists who may wish to test it on a small scale, the following directions for making the stock emulsion are given:

Formula for Stock Emulsion

Engine oil, or oil of similar viscosity, 1 gallon; water, 1/2 gallon; potash fish oil soap, 1 pound.

The oil, water and soap are placed in a kettle and heated to a boil. As the scum appears on the surface

of the mixture as it first begins to boil. After boiling for a few minutes the brown scum begins to disappear and at this stage the kettle is removed from the fire and the entire mixture is pumped twice under pressure of about 60 pounds while still very hot. A proper emulsion can not be made by stirring nor should the mixture be allowed to cool before it is pumped. Too much pumping will often break up the emulsion. During pumping, ordinary pump packing is burnt up rather quickly by the hot oil mixture. For making the stock emulsion on a large scale an all metal pump would be necessary.

The stock emulsion contains 66 2-3 per cent of oil. To make a two per cent emulsion for use in a 200 gallon spray tank it is necessary to use 6 gallons of the stock emulsion.

Precaution should be taken to prevent the stock emulsion from freezing, which occurs at a temperature of about 15 degrees Fahrenheit.

In case difficulty is experienced in making a proper emulsion, due to hardness of the water, the water used should be softened by the addition of 1 pound of caustic soda or lye per 100 gallons of diluted spray. The caustic soda should be dissolved in 2 or 3 gallons of water and then added to the spray tank and thoroughly stirred, after which the proper quantity of stock emulsion can be added.

Any one of the following, or similar oils, may be used, some one or more of which can doubtless be obtained in most parts of the country: Diamond paraffin oil, 180 red neutral, Jr. red engine oil, Nabob oil.

EUSTIS LIMEQUAT

A new citrus variety, known as the limequat, is coming into prominence and is being listed by several nurseries in Florida. The limequat was produced by the United States department of agriculture in the course of various experiments in hybrid citrus fruits by crossing the West India lime with the kumquat orange. The hybrids possess the hardy characteristics of the kumquat, and while not as resistant to citrus canker as the still hardier kumquat it is satisfactory in resistance and can be recommended, especially for home gardens.

The fruit is very much like the lime in quality and flavor and can be used in "ade" drinks in the same way. Moreover, the rind of the limequat, like that of the kumquat, is edible, so that the whole fruit may be utilized. The color is light yellow resembling that of grapefruit.

Budding experiments on different stocks are in progress, and the present indications are that the limequat will thrive on any of the stocks commonly used except the sour orange. Like the lime, if planted low and mounded with soil the limequat bud will strike its own roots, thus simplifying the stock question. The fruit is borne at the most desirable time, during the hot summer months. Limequat promises to become a valuable addition to the list of citrus fruits.

NO ADVERTISING SIGNS IN CALIFORNIA FORESTS

Advertising signs in the 17 national forests of California must come down, following an order issued by the district forester at San Francisco on January 27. Advertisements printed on rocks and trees are also to be effaced. According to the regulations of the forest service of the United States department of agriculture, such advertising is prohibited in all national forests without special permits, which are seldom issued. The object of this regulation is to prevent defacing of the mountain landscapes of the national forests with billboards and other unsightly signs.

NEW DIVISION OF EXTENSION WORK

L. H. Goddard, a farmer of Fayette County, Ohio, has been named by Secretary Wallace to head the new division of projects and programs of the office of extension work of the states relation service, United States department of agriculture. He assumed

his new duties February 20 and will have charge of work intended to aid in formulating and carrying out those features of the extension program having a national or broad regional significance, and with administrative matters pertaining to the projects, plans of work, budgets, and expenditures under the federal laws relating to extension work.

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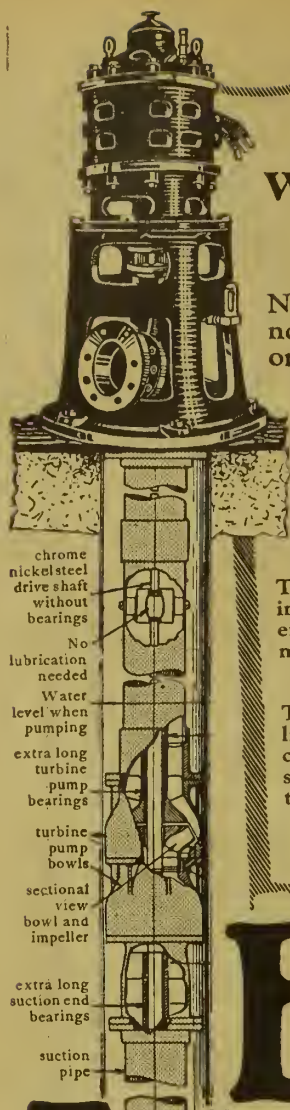
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Frost Damage to Apricots

By A. H. Hendrickson, Mountain View Experiment Station

MOST fruit growers have observed that there is more injury caused on apricots by a frost when tree is in blossom or setting fruit than by a low temperature of similar severity and duration when the tree is wholly dormant. They have also perhaps noticed that the young fruit becomes more tender as the season advances. This last fact is contrary to what would naturally be supposed from outward appearances. In appearance the blossom with its delicate parts would seem to be more tender than the fuzzy young fruit surrounded and somewhat protected by the dead calyx, or so-called husk. Yet most growers would be surprised if told that injury from frost and lack of set is often caused by frosts late in the season rather than during blossoming or shortly before.

The reason for tenderness, as the season advances, is due to the low concentration of the sap in the tissue of the young fruit. Pure water freezes at 32 degrees Fahrenheit, while salt water freezes at a point several degrees lower. Similarly, within the cell in the sap there are materials, chiefly in the form of sugars, which tend to prevent the freezing of the sap until the temperature is several degrees below the freezing point of pure water. Generally speaking, the more concentrated the sap, that is, the more sugars and similar materials it contains in solution, the lower will be its freezing point. Hence cells with thin watery sap freeze more quickly than those with a more concentrated sap. It often happens that the temperature falls low enough to injure the former cells without hurting the latter. If a majority of the cells of a given part of the plant are frozen, that part usually dies or at least is severely injured, while if a comparatively small number of cells are frozen recovery usually follows.

Rate of Fall of Temperature

During the fall and winter months the cells in the twigs of the apricot are filled with concentrated sap. No injury follows the ordinary frosts because the sap is not frozen. The twigs and leaf buds of the apricot are fully as hardy as of the peach and are able to withstand much lower temperatures than are ordinarily experienced in the apricot districts of California. The early blossoming season of the apricot, however, restricts this fruit to a much narrower range than the peach. As the bright days of late winter begin to warm up the apricot buds, certain activity in the cells causes the sap to become less concentrated or more watery and therefore more easily frozen. Consequently temperatures only a few degrees below freezing are injurious at this time when the same temperature a few days or weeks earlier would have done no damage.

In the process of freezing the water of the sap is removed from the cell and forms ice crystals in the intercellular spaces. This leaves the protoplasm or jelly like material in the cell dry. The more water that is removed from the cells the drier the protoplasm becomes. As water from the roots cannot be conducted upward fast enough to replenish that being withdrawn to the intercellular spaces, certain changes take place in the protoplasm which result in the death of

this substance. If the frost is a one only a small amount of water withdrawn from the cells and injury may not occur. If the protoplasm when the tissue thaws is able to take up water as it moves back into the cells.

Certain studies have shown that amount of injury by a given low temperature varies with the time of year, condition of plant, rate of temperature fall and rate of thawing. The first of these has been discussed in the preceding paragraph in which it was pointed out that danger from frost usually increases with the advance of the season from blossoming time until the danger of frost is past. Weak and poorly nourished plants and those having a thin watery sap are frequently more severely injured than those in which the sap is concentrated.

Fall Frosts Not Harmful

Trees having concentrated sap are those which we usually speak of as having mature wood and well developed buds. The rate of fall of temperature is one of the most important factors to be considered in a discussion of frost injury. It has been repeatedly observed that there is no injury from excessive cold when low temperatures occur suddenly late fall or early winter. Yet the same temperatures in other years reach after an interval of more moderate weather are not nearly so serious.

Gardeners "harden off" cabbage and tomato plants by exposing them to cool temperatures for short periods before removing them from the hot house to the field for the same reason. Frost when apricots are in blossom coming after a succession of warm days, is often more injurious than of the same severity following a cold weather. This has been observed several times with almonds at the University farm at Davis. Plants seem to become adapted to cold weather when the change is gradual and are able to stand lower temperatures than when the change is abrupt.

The amount of injury following a frost is thought by some observers to be influenced by the rate of thawing. Less injury is believed to occur when the thawing is slow, due to clouds, smoke, or more when the temperature is quickly raised by the unobstructed morning sun. This view is general among orchard men and so investigators, although Dr. W. B. Chandler of Cornell University by a series of careful experiments found much injury followed where the thawing was gradual as where it was rapid. The foregoing factors are all of importance when the frosts are not severe, but if the temperature goes low enough buds, blossoms and fruit are killed regardless of the rate of fall or the rapidity of thawing out.

First Theories of Smudging

Heating orchards and vineyards was not a new practice. Early books on horticulture recommend burning straw on frosty nights to form a blanket of snow to prevent radiation of heat. The same idea prevailed when the first systematic attempts at smudging were started. A dense cloud of smoke was deemed the essential factor. This proved ineffective as the saving of heat thus effected was entirely too small to prevent the temperature from reaching the critical point.

Other devices, such as irrigating

ward before a frost was expected, laying trees with water, and the use of fans for stirring up the air, all proved impractical. The first methods relied upon addition of heat due to use of comparatively warm water and the increase in humidity which would tend to prevent radiation. Not enough heat, however, could be added by running water in the irrigation furrows to combat serious frosts and crops were often lost when dependence was placed on this means of frost protection. Spraying trees with water is not effective and sometimes causes breakage by formation of ice on the branches. As frosts usually come on quiet nights when the warm air is displaced by the cold air flowing down from the hills and settling in the low places, windmills and fans have been tried for setting up air currents which would tend to mix the air and prevent any of it from getting cold enough to cause injury. This was also not feasible because of the immense volumes of air it was necessary to move.

The only remaining method of combating frost in orchards is the actual conduction of heat to the air by burning coal, wood or oil. Coal and wood are no longer used to any extent, having been displaced by oil which is more convenient and easy to handle. The usual type of orchard heater in deciduous orchards of California is the open or lard pail type. A number of growers are installing improved stack type heaters which throw more heat and burn the oil more efficiently. The usual number of heaters is approximately one in each square acre, surrounded by four trees, with a double row around the outer edges on the windward side. The lard pail type in use has a burning period of from two to two and a half hours for the one gallon size and approximately four to five hours for the two gallon size. The larger stack heaters burn for a considerably longer period. The fuel now being used is for the most part stove distillate, although a number of growers are still using crude oil.

It Comes on Clear Nights
In the region around San Francisco Bay and extending southward to San Benito County frost during the blossoming season usually occurs on clear quiet nights or when there is almost imperceptible draft from the north or southeast. The critical temperature is ordinarily not reached until 1:30 or 2 o'clock, which necessitates burning the heaters four or five hours. The ordinary frost coming in March or April does not generally fall below 27 or 28 degrees Fahrenheit. As it is possible to raise the temperature three or four degrees by opening heaters it is entirely feasible to fight a frost of this severity, but if the temperature goes lower it is questionable whether the crop could be saved by the type of equipment now in general use.

In addition to the heaters the equipment really essential is a tank wagon for filling the oil pots, a storage tank for reserve supply of oil, a set of test thermometers and an electrical alarm. The thermometers and alarm are especially important as their use depends the amount of fuel burned and the safety of the crop. Test thermometers may result in the loss of the crop in addition to the oil used for nothing.

Final Vigilance Necessary
Success in fighting frost in orchards at frosty locations comes only with vigilance. Not one frosty night in the

critical season can go unheeded nor should the pots be lighted needlessly. Close observation of climatic conditions is valuable in determining what temperatures may be expected. The grower should know from his thermometer the temperatures in his own orchard and just what he can do with his heaters in an emergency. Apricots usually blossom profusely and unless attacked by disease set heavily. A proportion of these could be lost by frost and still have a satisfactory crop. A close watch of the temperature will show the close observer at what point he will lose a small portion and at what point the heaters

should be started to prevent complete loss. Orchard heating is too expensive an operation to be carried on in a haphazard fashion, although to the careful man whose orchard is subject to this trouble it gives excellent returns on the money and time invested.

HARDY AVOCADOS

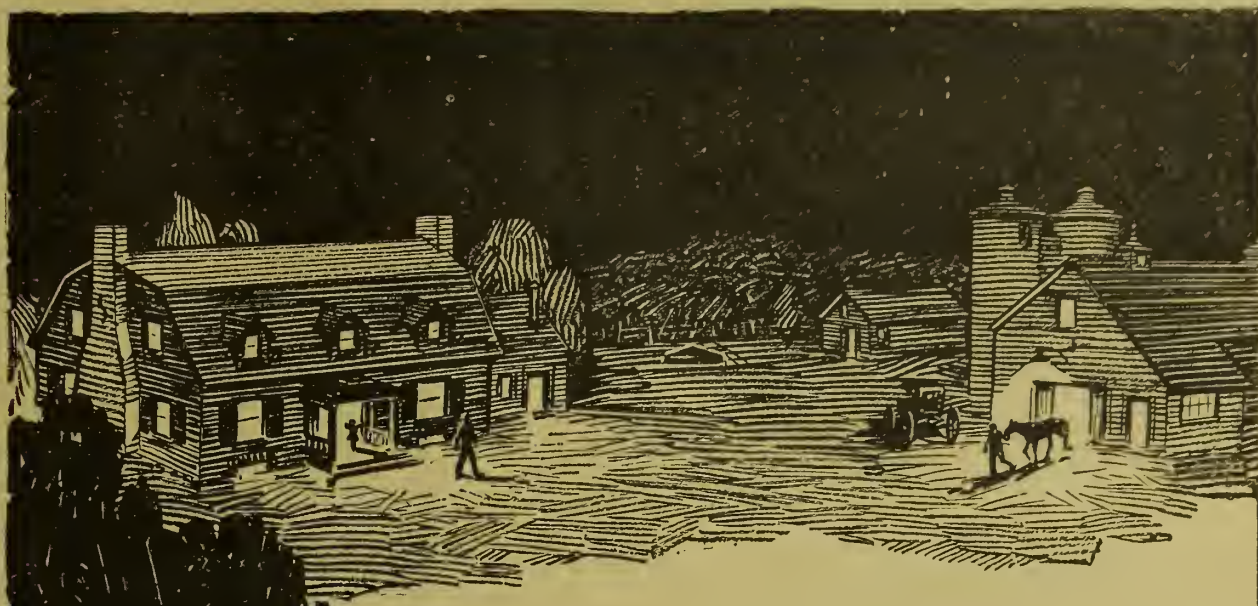
Since the recent cold snap there has been much interest shown in avocados that passed unscathed through that trying period. Among others being observed by the committee on varieties is the Ward. It passed through the winter when nearby Fuertes were injured. The fruit is a semi-thick skin, dark purple in color, somewhat rough and pebbly. It was top worked

on one seedling with three standard varieties and was the first to bear. The seed is comparatively small; the oil content 24.98 per cent; ripens December-February.

KERN COUNTY TREES AND VINES.

In the report on tree statistics for 1921 by Horticultural Commissioner Pomeroy we note the following of unusual interest:

There are 43 acres of pomegranates, a comparatively new crop of considerable promise. Of citrus trees the acreage is 1,332, nearly all of oranges. Wine, table and raisin grapes combined total 10,000 acres. The least planted of orchard deciduous trees appeared to be quinces and nectarines and the heaviest plantings are of apples and pears.



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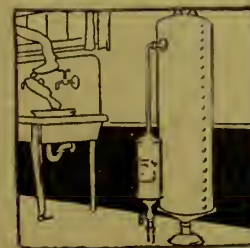
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The Avocado---America's Most Wonderful Food



THE last issue of Pacific Coast Record, Los Angeles, of which H. W. Heyl is business manager, has an excellent article on the avocado written by the editor, J. D. Minster. A feature of the article is a number of recipes for serving avocados in every course of the meal, from the cocktail to the ice cream. Mr. Heyl writes that he will be glad to send copy of this paper to any avocado grower who will send him name and address. From notes on the history of the avocado as given in the article we quote:

A fruit which is coming into general use in restaurants and hotels in California, and for that matter throughout the United States, and one which promises to be a general food throughout the country within the next ten years, is the avocado. North American horticulturists point to this as one of the greatest undeveloped sources of food at the present day.

In Mexico and Central America, as well as through Hawaii and the West Indies, the avocado is fairly well known, and in the former country it is a staple article of diet with the Indians who consider it a gift of the gods. That it will soon be as well known as the banana and much more widely used, few horticulturists dispute.

Ten years ago this fruit was scarcely known. In that time, however, orchards of considerable size were planted in California, Florida, Cuba and Porto Rico, and the problems of propagation, culture and marketing are gradually being solved, so that it will not be long before even ordinary and common restaurants are serving this product in place possibly of meat.

There is no known tree food product which has the food value of the avocado. It contains a very high percentage of oil, and the flesh is of a buttery consistency when ripe, and yellow or greenish yellow in color.

The history of this tree indicates that it grew wild on the lower slopes of Orizaba in Southern Mexico and down through Central America. It spread through Central America to Peru, then into the Antilles and Brazil, and finally through all of the tropical portions of South America. The first written account as far as is known is contained in a report of Gonzalo Hernandez de Oviedo in 1526, who spoke of having seen the tree in Colombia near the Isthmus of Panama.

In 1532 Pedro de Cieza de Leon mentions the fact that this fruit was being used by Spaniards who had settled on the Isthmus of Panama, and that it was a common article of food among the natives at Arma and Cali in Colombia. Francisco Cervantes Salazar speaks of seeing the avocado in large numbers in the market places of Mexico City as early as 1554. He gave it the name of "aguacate." The Spanish name apparently was originally "ahuacate," taken from the Aztec "ahuacatel."

The first introduction into Florida was recorded in 1833 when Henry Perrine sent trees from Mexico to his ranch below Miami, at present time the center of the Florida industry. The first California introduction was in 1871 when R. B. Orr brought three trees from Mexico and planted them in Santa Barbara. Just why the California Mission Fathers, who introduced the olive, the grape and a number of other semi-tropical fruits from Mexico, did not bring the avocado is a riddle. The growing of the fruit has spread to the South Sea Islands, and Tahiti at the present time ships considerable fruit to San Francisco. Northern Australia, Italy, Spain, France, Algeria, the Canary Islands and the Philippines are also taking up the development of this fruit.

Looking at it from the standpoint of real food, experts of chemistry declare that it contains more protein and ash than any other fruit on the list. It does not contain carbohydrates as largely as any other fruit because of lack of sugar, but its fat content is above that even of the olive. The average avocado contains 20 per cent of fat while some varieties run as high as 30, and others as low as 10

per cent. The digestibility of avocado fat is equal to that of butter or beef fat. As to the calorific or energy producing volume of this fruit, a pound represents an average of calories with a maximum as high as 1,325, and a minimum as low as 1,000 calories, respectively. The nutritive value in the avocado exceeds that of an equal weight of lean beef, of ordinary white bread or any other similar food.

All Americans who have eaten avocado like it immensely. It is probable that not more than one percent of the residents of the United States today have ever tasted it, but they have done so, they admit that it is delicious. Its delicately rich flesh, its soft creamy flesh, and its satisfying effect are rarely exceeded from any other food.

Not long ago Victor Hirtler, assistant manager and maitre d'cuisine of the Hotel St. Francis, San Francisco, was asked to write an article on avocado for the table. This was done for the California Avocado Association. The following extract is produced with the permission of the association, identified by Willett L. Hardin of the California Avocado Association:

"Brillat-Savarin once said that man who invents a new dish is more use to humankind than he who discovers a new star in the heavens. As wide as is the range of dishes which appear on our bills of fare, they are derived from a comparatively limited amount of foodstuffs. Cooks and epicures have for years endeavored to devise new dishes to tickle the palate of those blessed with eating goods; yet these new dishes result themselves into new combinations and mixtures of known food stuffs, become popular only through their flavors or savory combination, or as an ephemeral success and vanish through the fad of the hour or through the predilection of a celebrity of the day."

"But given a new food product, either of the gardens, fields, or woods or the streams or oceans, a new material is given the expert cook to his ingenuity in bringing out the characteristic individuality in its original form. The remotest product in the temperate zone have been sacked to produce something new, may become of use as human food, and the supply is so varied as to permit a large assortment where to pick according to season. Preparation has further extended the amount to choose from during the whole year, and the development of transportation gives today to the range man a variety on his bill of which a hundred years ago not a prince could afford."

"Today it is the explorer in foreign countries who meets with new dishes and having acquired a liking, introduces them at home. The world traveler in his peregrinations meets new creations of the chef's art, wishes to find them on his home table. Governments in their search for new foods for their increasing populations send out scientists in quest of a material likely to prove of value as a new foodstuff."

"It is such new products in the hands of an expert chef that enables him to produce those new dishes which make him famous and incidentally bring a welcome addition to the table. Among these new introductions which have been found of value and which a ready market is found for is the avocado. The avocado is served in its raw state, and the is indeed adapted to a variety of preparations to which most fruits do not so readily lend themselves. The characteristics of a good avocado are: Thin skin, small stone or pit, flesh of the consistency of butter, smooth and free from fiber. Maturity can be determined by pressing with the thumb on the skin, when the flesh should give way; also when halved, the skin or covering of the stone should adhere to the stone. Shape has nothing to do with flavor or quality. It is claimed that small, thin fleshed varieties of Guatemalan avocados are a finer, more delicate nutty than the large, thick fleshed varieties. There is not a course with which the avocado cannot be served, either in the raw or the cooked state."

cocktail to ice-cream. If we consider the raw state first, we can serve this fruit chilled on ice, halved, and served with a French dressing. The simplest way of serving it is to halve it lengthwise and remove the stone, making incisions in the flesh pretty near to the skin. Sprinkle salt and onion or lime juice over it and chill it on ice. Again, the flesh can be scooped out, lightly mixed with mayonnaise, and refilled in the shells. It also blends well with other salad ingredients, such as celery, apples, tomatoes, walnuts, pineapple, grapefruits, red pepper, etc. The dressings may vary from plain salt and lemon juice to French dressing, mayonnaise, and Thousand Island dressing; also it is sometimes served with sugar and cream.

"As a cocktail, the flesh is cut in cubes, mixed with cocktail sauce, and green peppers, chilled, and served in glasses. As a sandwich, the flesh is rubbed through a sieve, seasoned, mixed with mayonnaise, spread on lettuce leaves, and pressed between two slices of bread. In Mexico, the avocado is used as an ingredient of soups, to which it is added cut up in small pieces. Fish baked with avocado is a novelty worth trying. Most fishes when baked in a dry state, without the addition of a generous amount of fat, be it either butter or oil, dry out quickly, being in general deficient in fat. The addition of avocado, rubbed to a paste with either butter or olive oil and seasoned with paprika and salt, then spread on the fish and baked in the oven, is a decided novelty. As a garnish with a planked fish, the combination is also pleasing."

THE PROBLEM OF OLD ORCHARD DECLINE

By Leonard Coates

This subject has been handled in a very able manner by one of California's best known and successful deciduous orchardists, but I doubt if stress enough was laid upon the injury done to most orchard trees with the pruning shears and saw. This wounding, mutilating, usually begins when the tree is planted and continues in different forms according to the whim of the operator. It is simply a phase of commercial orcharding; it would not pay to do otherwise. To hire men who would literally make only clean cuts and cover the same with a protective compound could not be done, because the men do not exist in sufficient numbers who would and could do it. The late Elbert Hubbard wrote a book on the man, under McKinley's administration, who carried a letter to Garcia, and admitted that the whole world was crying out for just such men, and it is still crying out.

The Vacaville fruit men made a lot of money by their shrewdness in grafting over their orchards to any and all promising new early fruits. Vaca Valley was ever foremost in the development and marketing of the best early fruits, but the orchards could not stand the strain and soon succumbed. Their lease of life would have been renewed with plenty of water during the dry years, but the result was inevitable.

"Mutilation," I take it, is the prime factor in orchard decline, and, as land becomes scarcer and more expensive, the policy of the commercial orchardist of the past and of the present will become less profitable.

I would urgently advise all growers to study Dr. Whittens' article, "Response of Deciduous Fruit Trees to Pruning," in the September Monthly Bulletin of the State Department of Agriculture.

THE NICKEL SUN-MAIDS

Twelve months ago a nickel package of raisins to be sold and bought as a confection was unheard of. Today, due to intensive merchandising and advertising, California raisins in nickel packages are being sold all over the country, in crossroads villages as well as the big cities, and by confectioners, tobacconists, bootblack stands, street vendors, and through dozens of other new outlets to millions of people who had previously thought of raisins only as an auxiliary in cooking or for table desserts. Four hundred million five cent packages will be sold this year to this new market, thereby removing from the ordinary channels of distribution and

consumption the burden of absorbing 20,000,000 pounds of raisins. Incidentally, the demand thus created by advertising has resulted in the carton factories of the West running at full production—and the orders came at a time when much of the equipment was idle. Once again is seen the stabilizing effect of good advertising. —V. R. Churchill, vice president Honig-Cooper Co.

WILLOW CULTURE

In years ago some attempts have been made to grow willows or osiers for commercial purposes. More than a quarter of a century ago, the late E. K. Sweetser of Santa Monica, then superintendent of the large Rindge or Malibu ranch in Los Angeles and Ventura Counties, planted all sorts of "basket willows" obtainable. Of the one known as "golden osier" he made an especially large planting.

These willows were to be planted in favorable locations, in wet lands, and left to chance to develop commercial cuttings. But in many countries willows are set out in commercial plantings, in rows, cultivated and fertilized. They are planted on good, though low lying lands, neither sand nor clay, but a peaty loam, subject perhaps to occasional overflow. The crop has been found profitable for furniture, baskets, etc. There is always some market for such material in any country. In the United States the labor problem proves the most serious deterrent to the more extensive use of basket willows.

Where cultivated the cuttings are put out in very early spring, ranging in diameter from that of a lead pencil up and in length from 12 to 18 inches. They are planted from 18 to 24 inches apart, each way, to allow for cultivation and are, in some countries, heavily fertilized, for the willow is a gross feeder and will stand the strongest fertilizers in heavy applications. The crop is cut as soon as the leaves fall, tied in bundles and stood with the butts in water until spring; the sap then moves and the bark easily peels. This gives white rods which are sorted for length and again tied in bundles. The unpeeled rods are not stood in water but are seasoned as soon as cut. Varying shades of "wood color" are obtained by boiling the rods in water as soon as cut and then peeling off the bark. The cost of handling may possibly preclude willow culture from the list of California's commercial industries. As the material is very heavy when first cut it should be handled "on the ground" until ready for market; hauling away would add materially to the cost.

PLANTING DISTANCE OF FRUIT TREES

F. W. Allen, assistant professor of pomology, University of California, has recently made a report on the planting distance of fruit trees based on a study of the yields of trees planted in 1915 at the university farm school at Davis.

The report shows that with rapidly growing trees such as Elberta peaches and Pond plums the shorter distances of planting have already begun to interfere with the yields. With the smaller growing varieties, such as French prunes and Bartlett pears, the closest plantings have produced the largest yields thus far.

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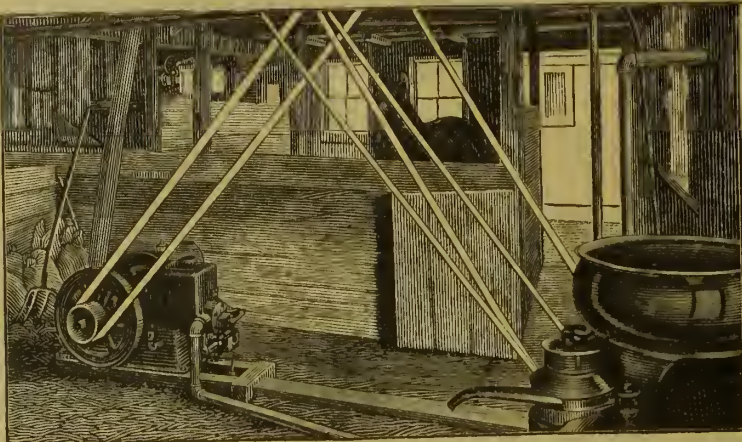
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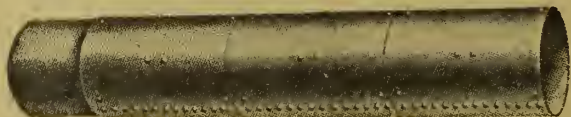
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Funds in Bank

In case a man has money in the bank and dies, leaving wife and children and debts to pay, can the wife draw out the money from the bank? If so, how can she get it?—Subscriber.

If the deceased does not leave more than \$1,000 in any bank then the wife, on filing an affidavit with the bank, stating that the depositor is dead and the affiant is the surviving wife, and the whole amount left on deposit in any and all banks in this state does not exceed \$1,000, may procure such deposit, and a receipt of the affiant is a sufficient acquittance to the bank. This may be done without applying for letters of administration on the estate. Of course if there is other property of the decedent there is no particular reason for taking this means of procuring the money as in such instance the wife would have the first right to be appointed administratrix of the estate, and on production of certified copies of the letters of administration she would be entitled to receive the money as such administratrix. Debts of the deceased of course must await the regular course of the courts in probate and the family is also entitled to have an order made for its support out of the estate, which takes precedence even over debts of the estate.

Joint Homestead

Husband and wife have accumulated property and have minor children. It is the desire to arrange property so that it will go to the survivor with the least expense and so that in case the husband dies the wife cannot be persuaded by the children to sell or invest the property. What would be the best means of handling this matter?—Subscriber.

A joint homestead could be declared on the property, in which event, on the death of either of the parties the property would vest in the survivor without the necessity of taking administration upon the estate in so far as the home is concerned. If a will is made, as the property is common property, the husband would be entitled to convey by will only an undivided one-half in the property. An arrangement could be made whereby a life estate in the property could be established with the remainder to the children, but that of course could be distributed by the joint consent of all parties, and in this case it would be a rather complicated procedure, so that the homestead and a will taking care of all the property other than the homestead would undoubtedly be the best means.

Wife Sole Legatee

Under will wife was made sole legatee during her lifetime. No provision was made for the sale of the property. If it becomes burdensome could she dispose of the property, assuming that there are minor children?—Subscriber, Hughson.

The code provides that whenever it is for the advantage of the estate the executor may sell real estate or may be required to do so on application to the court of any person interested. If property has been distributed to the widow, then it will be necessary to have a guardian appointed for the children and similar proceeding taken to terminate the interest which the minors have in the reversion of the property.

Responsible for Children's Bills

Is a father obliged to pay bills contracted by his daughter eighteen years of age? When does a son become responsible for his own bills?—Subscriber.

A parent is liable only for articles necessary for the support and maintenance of a minor child under his charge, according to his circumstances. Upon the attainment of majority the authority of the parent over the child ceases and the parent then ceases to become responsible even for necessities. The son becomes of age at 21, daughter at 18.

Directors Interested in Contracts

Have the directors of an irrigation district the right to be interested in ditch diggers or furnish teams or implements for contracts on works of the district or be interested with other parties in making contracts to do work for the district? Who are the proper parties to investigate such action if they are wrong?—Subscriber, Ter Bella.

Section 58 of the irrigation act provides that no director or officer shall in any manner be interested in a contract awarded by the board or profits derived therefrom, and for a violation of this provision such officer shall be deemed guilty of a misdemeanor and when convicted thereof shall forfeit his office and be punished by a fine not exceeding \$500 or be imprisoned not exceeding six months, or be subject to both fine and imprisonment. The procedure to take against directors violating this provision would be for any party in the irrigation district to make complaint to the district attorney of the county. The irrigation act also provides for the recall of the holder of any elective office in the district, which includes the directors. The provisions for recall are quite elaborate but are instituted by the signing of a petition by registered voters, equal to at least 25 per cent of the highest vote cast for candidates at the last general election in the district.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Dahlia Divisions

In digging dahlias for winter storage I found numerous small bulbs attached to the large ones. Can the small ones be detached and planted or are they to be left on the large ones?—Subscriber, San Fernando.

It is better to divide these clumps and, like potatoes, each tuber will form a new clump during the coming summer's growth, but bear in mind that unlike the potato tuber the "eyes" of the dahlia are not generally scat-

tered over the bulb but are on around the stem or woody connecting with attaches the young tuber to the mother plant. Hence to secure new plant care must be taken to separate with the tuber a portion of the stem. These may be planted three to six inches under the surface in good rich soil.

Salt peter in Stumps

I've read in your question and answer columns about using salt peter stumps and burning them out. I like to know something definite. Say for instance, take a two foot stump; how much salt peter would be needed; how long will it take to per-

trate and how soon can it be torn open with dynamite, and how soon can it be burned?—Subscriber, Orland.

Removal of stumps by saltpeter is more or less slow of operation as suggested by the inquirer. The quickest method of handling it is by the use of a small charge of dynamite. Break up the stump, after which allow a few weeks of drying out which will make its final disposal by fire comparatively easy. However, if the saltpeter is used, bore three or four large auger holes as deeply as can be handled. Fill with saltpeter. Action is hastened if holes are filled with water so as to dissolve the saltpeter.

Henry System of Pruning

Would like to see an article discussing the Henry system of pruning by someone who has made a study of it and is not prejudiced against it.—Subscriber, Wasco.

We are passing this question on to our subscribers. It is new to us as we have not heard of the Henry system.

Mexican Morning Glory

P. D. B. wishes to know if anyone has a plant or plants of quamoclit grandiflora, a Mexican vine with fiery red flowers an inch in diameter, borne in succession on long peduncles. The plant has three lobed leaves, and a full description was given about August, 1914, in the Pacific Garden under the name Ipomeae Howardii.

Water Measurement

I have a lease on the Colorado River Indian reservation. The contract says that the government is to furnish four acre-feet of water for the year. It does not measure the water but charges for nine inches each irrigation. How large a stream of water would be required to cover seven acres nine inches deep in three hours? Can it legally charge for excess water where no measurements are made?—Subscriber, Parker, Arizona.

It is not possible to answer correctly when size and kind of ditch, speed of flow and depth of water are not given, but an approximate measurement of the water used can be made by constructing a gate across a dirt ditch so there will be comparatively still water above the gate and a clear drop having air behind the overflowing water. Place a stake upstream about three feet from the gate with the top of the stake level with the bottom of the gate opening, then with a slide moving from one side of the gate close the opening until there is five inches of standing water on top of the stake. Measure the width of the opening left in the gate and multiply by five for the miners inches. That is, if the water stands five inches on the top of the stake and the opening is 20 inches wide there will be about 100 miners inches of water passing through the gate. This will cover one acre two inches deep in one hour and take four and one-half hours to cover one acre nine inches deep, or 31½ hours to cover seven acres nine inches deep. If the seven acres is flooded in three hours it is very likely better results can be obtained by using a smaller stream a longer time and not using so much water at one irrigation. A depth of four to six inches should be enough and more is likely to leach the fertility out of the soil. We do not see how a charge for excess water can be made when there are no measurements.—J. B. N.

Testing Milk

Where can I have a free test made of milk to determine whether it is real milk? We have tried making butter out of the cream but it will not turn.—Subscriber, Burbank.

By taking a small quantity of this milk to the health department of the city of Los Angeles think you can have a milk test as to butterfat. Presume the cream is not "ripened" sufficiently or it may be it has not been at right temperature when churning has been attempted. Cream should be allowed to ripen at from 45 to 50 degrees Fahrenheit until it is properly "soured" or until the lactic acid has been developed. Then the temperature at churning time should be not lower than 55 degrees Fahrenheit, though often when cows are on dry feed it is necessary to raise the temperature to from 60 to 65 degrees Fahrenheit. Likewise if it is desired to hasten the ripening process a temperature higher than the 50 degrees mentioned may be advisable. If temperature is too low one may raise it by following the old time method of "driving the devil out of the cream" by dropping a hot

horseshoe into it; or the more modern and more cleanly method often recommended by Mrs. Sherman in these columns, stirring the cream with a bottle filled with hot water.

Gophers and Figs

Will pocket gophers allow success in planting figs in alfalfa?—Subscriber, Denair.

The only way to have fullest success with figs in alfalfa is to keep the gophers down. If the land is well leveled deep flooding at irrigation time aids, but the trap, poison and smoke treatments are surer. Then there are some cats which earn their living many times over by gopher catching. Gophers are apparently very fond of fig roots, and must be kept under reasonable control.

Sweet Butter

Is it true that butter made out of

sweet cream will not keep long? I find it very difficult to make the cream turn sour. If I let it stand four or five days in a warm place it will sour, but not before it has developed a strong odor. The only way I can make edible butter is to churn every other day while the cream is fresh and sweet and that butter begins to spoil after a day or two. Now the trouble is not lack of cleanliness because I am very particular about sterilizing my dishes, neither does the fault lie in the fact that I leave a lot of buttermilk in the butter because I am careful to work it over a second time and, as far as possible, get the milk all out of it. Can you suggest anything that might help me out of the difficulty?—Subscriber, Santa Cruz.

Sweet butter, that is, butter made from only slightly ripened cream and left entirely unsalted is usually considered our highest quality butter. Some housewives make a specialty of making into little "pats" of, say, one-



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half pound and selling to regular trade with very frequent deliveries. It is very difficult, however, to get perfectly sweet cream to deliver up its butter globules. If the cream is started at the right temperature, say 50 degrees Fahrenheit, it will usually "sour" very satisfactorily. If the weather is cold and the temperature too low it may be warmed by filling bottles with hot water and setting them down into the cream. Then raise temperature at churning to at least 55, preferably 60 or 62 degrees. Churn, wash, work, put into pats and sell at once. It should command from five to ten cents above salted butter. Of course it will keep under ordinary conditions only a very few days. If, however, the salted butter is preferred the inquirer should get satisfactory results by close observation of temperatures, thorough cleanliness and salting at the rate of 2 1/2 per cent of total butter.

Nematodes in Alfalfa

Will alfalfa bring nematodes?—Subscriber, Denair.

No, but if the soil is infested alfalfa roots suffer. In fact alfalfa is one of the crops most seriously affected by the nematodes.

Green Manure Crop

I want to seed alfalfa to enrich the soil. Will sweet clover be better?—Subscriber, Denair.

Greater tonnage may be had from the sweet clover for the first few months, but if time is allowed we presume there would be little difference in results.

Eucalyptus Mulch

Are eucalyptus leaves good to use as a fertilizer in the garden and among the flowers?—Subscriber, Corona.

They would be fine for a mulch, or if thrown into a compost pile with ashes, poultry manure, soil, garbage from the table and numberless other wastes of every home they would be more effective as a real fertilizer. However, it takes a year or more to make a good compost out of dried leaves, weeds and waste. It is worth the time, however, and a year may be sufficient if worked over and moistened through the summer.

Curdling Sweet Milk

Would you kindly inform me through your paper of name of the flower or plant that is used to curdle sweet milk and where it can be obtained?—Subscriber, Novato.

To curdle milk in the manufacturing of cheese the factories simply use rennet, which may be secured from the lining membrane of an unweaned veal calf. It may be secured in the form of an extract, however, from any store handling dairy supplies. To more directly answer the question, the plant presumably is Galium verum or Yellow Bedstraw or sometimes called Lady's Bedstraw. The plant is a fine ornamental for rockeries and along banks. It is a weed over much of the eastern part of the United States. We do not think it is handled by nurserymen on the coast.

Lime-Sulphur for Curl Leaf

Is there any way to mix lime and sulphur to be used as a spray for curl leaf of peach trees, besides buying it already mixed? Would lime and bluestone answer the same purpose for curl leaf?—Subscriber, Visalia.

The mixture of lime and bluestone, if properly made, is one of the very best fungicides for preventing curl leaf. In fact, that mixture will result in Bordeaux spray, full instruction for mak-

ing of which was given in the pest fighting special of the Cultivator, September 24, 1921. The formula is too long to give in this column, but in a word it consists of copper sulphate (bluestone), five pounds; stone lime, five pounds; water, 50 gallons. Dissolve the sulphate in water and slake the stone lime. Pour together in the remainder of the water, thoroughly stirring. The same issue gives the formula for home making of lime-sulphur spray, but unless one understands the mixing purchase of the commercial mixture is better and in any case probably cheaper.

Beet Pulp for Calves

Can you advise me as to young stock fed on beet pulp and then turned out on range? I have been told that beet pulp affects the stomach and they won't live if turned out on range.—Subscriber, Santa Maria.

It is possible care should be exercised to avoid overfeeding, especially of young stock. Henry's "Feeds and Feeding" says: "Breeders of pure bred dairy stock recommend dried beet pulp for cows on official test which are receiving heavy concentrate allowance, as it has a tendency to keep the bowels open and is not apt to cause digestive disturbances." Woll says: "As it is produced in large quantities and fed at the factories it is often fed too heavily for best results, sometimes without dry roughage or grain feed. Not more than 100 pounds (of wet pulp) per 1,000 pounds of body weight should be given daily." We may add that it takes about ten tons of wet pulp to produce one ton of dried pulp. As it is not particularly high in feeding value it is probable care should be exercised not to feed too heavily to very young stock.

Grafting Peaches

I have seedling peach trees, one and two years old, that I want to graft into peaches. One man told me that grafting peach on peach is unsuccessful. Is he right? If he is right, can I bud?—Subscriber, Fair Oaks.

The grafting of peach on peach stock may be readily done but might be hard for the novice without complete instructions.

Bats in the Garret

There is a colony of bats in the garret and they are so numerous that they have ruined the ceiling. How may we get rid of them?—Subscriber, Pomona.

Bats are insectivorous, in fact, they feed exclusively on insects, so they are generally considered beneficial. There seems to be no established procedure in destroying them. So far as we can find any literature upon them it has to do with their protection. They certainly could not be poisoned for with their feed coming from flying insects they will not touch any poisoned bait. Our impression is that the best procedure would be to stop all openings in the garret. If this were done in the night when they were outside of the building and they could not gain entrance the question would be solved. If, however, some were left in the building and could not be controlled in any other way poison gas, the same as used in fumigating citrus trees, would rid the place of them. This hydrocyanic acid gas should be handled, however, by an expert who knows its deadly qualities.

Sow Bugs

Our strawberry patch is badly infested with bugs of the variety that I have always known by the name of "sow bugs." That may not be the technical name but perhaps you may know what I mean. They are the kind you find on the under side of

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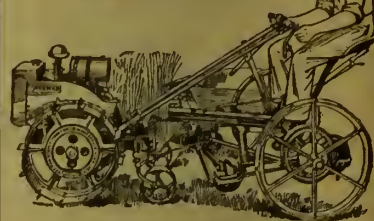
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a board that has been lying on the ground. I am afraid that when berry time comes they will take all the fruit. Can you tell me of anything that may safely be used to kill them?—Subscriber, Santa Cruz.

Sow bugs may be a most serious pest in a wet season like the present, especially in strawberries where even in warmer weather they are protected by the leaves of the plants. Where the infestation covers only a small area hand picking is a sure way of reducing. They may be poisoned by using slices of raw potatoes, carrots or other vegetables rolled in paris green. These pieces may be placed under the vines or wherever the pests gather.

Ginseng

Will you kindly give me some information about how to raise ginseng? Is it very profitable to grow and is the seed very expensive? How many years after planting before one can dig any roots? Is there always a good market for ginseng and what does it sell for? Is it hard to grow? Don't you think parts of Oregon or Washington are better suited for it than California?—Subscriber, Los Angeles.

The best advice we can give is one word: Don't. The effort to grow ginseng in California has not resulted in profit and we fear has caused serious loss to many who have tried it. It requires a lath house or other protection from sun heat and much labor. The market is in China. Americans can find no medicinal value whatever in the root and its value to the Chinaman as indicated by the price paid seems to be because of grotesque and peculiar forms of growth. The Chinaman looks upon it as a universal panacea. The plant aroused sufficient interest, however, so that at one time the United States department of agriculture issued Farmers' Bulletin 551, "Cultivation of American Ginseng"; also Farmers' Bulletin 1184, "Ginseng Culture." These may be had free by writing the Department of Agriculture, Washington, D. C., if they are still in print. The bureau of plant industry, United States department of agriculture, Washington, D. C., also issued in 1912 Bulletin 250, "Diseases of Ginseng and Their Control." If still in print this bulletin may be had by writing Superintendent of Documents, Washington, D. C. Its price is 15 cents. The Northwest would doubtless be better adapted to its culture for it is a native of the damp woods along streams in the Middle West.

Root Knot

I send rotted pieces of stumps. How can I get rid of them? Some are as large as one's fist.—Subscriber, Clovis.

This is root knot and there is no satisfactory treatment. In planting vines be sure that roots are free from the knot and observe especially around the crown of the tree as to whether the disease is manifesting itself there. Reject all trees or vines which show it. Where trees are planted, especially if they are in bearing or are still producing fairly well, we would not disturb them, for they may have several years of usefulness. If, however, it is manifested as crown gall cut off smoothly with sharp chisel and paint over the healthy wood with Bordeaux paste.

Guavas in California

Are guavas cultivated in California? If so, where may trees or bushes be obtained?—Subscriber, Hayward.

There are many thousands of guava trees in California and if planted in a frostless section they bear well and usually prove profitable. The guava, however, is pretty close to the tropical in its requirements and will stand but little of cold weather.

Timber Along Highway

To whom do road trees belong—the man who owns the land through which a public road runs or the county? How wide a strip (if any) is exempt from ownership? If so, from what point is the measurement made (center of track?) Frequent hard rains make it necessary for wood to be moved over on to higher or firmer ground. Owner has never objected to this but would like to cut and use wood.—Subscriber, Bonsall.

As a rule roadways in farming sections are used by the public because of an easement or dedication for public use by the owners of the abutting acreage. Hence the acreage of most farms is computed to the center of the highway. The practice is for the land owners to plant a shade row nine inches out from the line. In case the land owner tires of the shade or wishes to use the growing tree for timber or fuel purposes he cuts and uses without let or hindrance. In some cities and counties, however, one must consult the city or county forester.

Gumming of Cherry

How shall I treat cherry trees which have gum forming over body and branch? Is there a special kind of knife or tool to clean infected parts? I used Bordeaux paste last year without results.—Subscriber, Beaumont.

It is quite probable this is not a fungous trouble and if it is not the Bordeaux would have no particular value. It is more probable that the cause of the trouble is the physical condition of the tree or soil. Extreme drouth at one season followed by saturation of the ground later may cause a deciduous tree to refuse to function properly, and sour sap, gumming, little leaf or other indications of trouble are all we have to judge from as to specific conditions. A thorough study of tree and soil conditions only can determine. Where a cherry tree is seriously gummed on trunk and branch we would hardly consider it worth the effort to restore it to health.

Squash Bug

I found this bug on my almond trees. Is there any means of getting rid of it, and what sort of a bug is it?—Subscriber, Manteca.

The insect accompanying this query was badly mashed in the mail. There were sufficient of the remains, however, that we are reasonably sure it is the common squash bug so destructive in gardens. We have never heard of it being a serious pest of the almond orchard. When trees are in leaf, if present in sufficient numbers, it could be controlled by a spray of arsenate of lead.

Insulation for Cold Storage

Would ask as to lining of a cold storage plant. What is generally used for the lining? Is cork used and where is it grown?—Subscriber.

For insulating purposes cork is probably one of the very best, though in California redwood sawdust and the finer or planer shavings are practically as satisfactory. Cork is secured from the bark of the cork oak, *Quercus suber*, which grows in Southern Europe and Northern Africa. There are many beautiful cork trees in California where they do exceptionally well, making one of our most beautiful roadside trees. We believe some of the oldest trees of this variety in the state are at Niles, Alameda County. We think the cork chips may be had of any dealer in refrigeration supplies.

Prunes Leak Sap

I have a few two and three year old prune trees that the sap is leaking out of and trees do not seem to make any

headway. Can you give the reason for this and how it may be overcome?—Subscriber.

It is pretty firmly established that such effect is due to drouthy conditions last fall about September and October—a physical drouth. The same condition occurs where the trees are planted on soils of too great alkalinity—a physiological drouth. The latter is a condition where plenty of water occurs, but the plant cannot use it. Good care, including ample water supply, is all that can be done to recall trees to former vigor.

Thrips on Pomegranates

Could you tell me what spray to use for thrips on pomegranate trees, also when and how often, what strength?—Subscriber, Porterville.

Just as the buds begin to open make thorough application of five per cent nicotine dust, or, perhaps better, one

of the commercial ready-to-use nicotine dusts. These are usually prepared containing small percentage of pure nicotine and perhaps 75 per cent of sulphur. Of course the dust application should be made as soon as buds begin to open and at intervals for a few weeks.

NEW HEAD AT DAVIS

The University of California announces that Claude Burton Hutchison, professor of plant breeding of Cornell University, has been selected to head the college of agriculture at Davis and to become professor of plant breeding. While with the Missouri agricultural experiment station, Professor Hutchison gave special attention to soil and drainage investigations in relation to crop production. He was author and co-author of many bulletins of the Missouri station. At Cornell University his main field of investigation was that of plant breeding. He has achieved distinction as an investigator and writer in this field.

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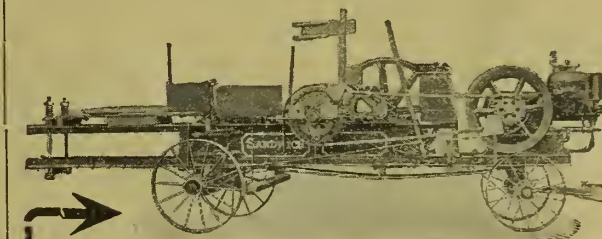
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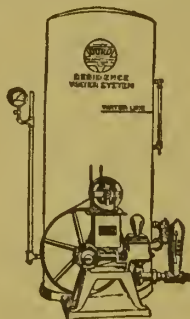
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The Cultivator costs only one dollar yearly

Household Department

"BURY ME NOT ON THE LONE PRAIRIE"



WEEKS ago request came to the household department of the Cultivator for the words of the old cowboy song, "Bury Me Out on the Lone Prairie." One of the largest libraries on the Coast was set to hunting through its files and indexes but was unable to find it. Then we appealed to our "court of last resort," the readers of the Cultivator, and almost by the next mail letters began coming in with clippings from old scrapbooks, with manuscript jotting down recollections of the old song.

C. A. Wheeler of Paso Robles sent in clipping with comment by Prof. W. L. Wright:

"If the average person were asked to name an American folksong he would probably mention some one of Stephen Foster's well known melodies. These, however, are not folksongs, but are the creations of a pioneer American composer.

"Our Western cowboys have produced one of the few unalloyed American folksongs. This is 'The Lone Prairie,' also known as 'The Cowboy's Lament.' The song is as follows:

"O bury me out on the lone prairie,
Where the wild coyotes will howl o'er me,
In a narrow grave just six by three;
O, bury me out on the lone prairie.

"So they buried him there on the lone prairie,
Where the coyotes howl and the wind goes free,
In his narrow grave just six by three;
So they buried him there on the lone prairie."

Nearly every round-up added a new verse to the song, according to Prof. Wright, and there were many variations.

This is the only version of the song we have seen with "Bury me out on the lone" prairie." The others have not. Here are the words, many more verses, as sent in by a Napa reader:

"Bury Me Not on the Lone Prairie"

Here is a poem desired by one of your subscribers. Is in a book of cowboy songs collected by Professor John A. Lomax, (Sturgis & Walton Co.) containing this and many others equally interesting.—Frances Power, Napa.

The Dying Cowboy

"O bury me not on the lone prairie,"
These words came low and mournfully
From the pallid lips of a youth who lay
On his dying bed at the close of day.

He had wailed in pain till o'er his brow
Death's shadows fast were gathering
now;
He thought of his home and his loved ones
high
As the cowboys gathered to see him die.

"O bury me not on the lone prairie
Where the wild coyotes will howl o'er me,
In a narrow grave just six by three,
O bury me not on the lone prairie.

"In fancy I listen to the well-known words
Of the free, wild winds and the song of the birds;
I think of home and the cottage in the bower
And the scenes I loved in my childhood's hour.

"It matters not, I've oft been told,
Where the body lies when the heart grows cold;
Yet grant, oh grant this wish to me,
O bury me not on the lone prairie.

"I've always wished to be laid when I died
In the little churchyard on the green hillside;
By my father's grave, there let mine be,
And bury me not on the lone prairie.

"Let my death slumber be where my mother's prayer
And a sister's tear will mingle there,
Where my friends can come and weep o'er me;
O bury me not on the lone prairie.

"O bury me not on the lone prairie
In a narrow grave just six by three,
Where the buzzard waits and the wind blows free;
Then bury me not on the lone prairie.

"O bury me not," and his voice failed there,
But we took no heed of his dying prayer;
In a narrow grave just six by three
We buried him there on the lone prairie.

Yes, we buried him there on the lone prairie
Where the owl all night hoots mournfully,
And the blizzard beats and the winds blow free
O'er his lowly grave on the lone prairie.

And the cowboys now as they roam the plain—
For they marked the spot where his bones were lain—
Fling a handful of roses o'er his grave,
With a prayer to Him who his soul will save.

"O bury me not on the lone prairie
Where the wolves can howl and growl o'er me;
Fling a handful of roses o'er my grave
With a prayer to Him who my soul will save."

Another with very different refrain comes from Mrs. J. A. Netzley of Glendora:

THE DYING COWBOY

(By Rev. T. J. Swanzy, Composed and Arranged)

"Oh, bury me not on the lone prairie,"
These words came low but manfully,
From the pallid lips of a youth who lay
On his dying couch at the close of day.

He had wasted his life till o'er his brow
Death shadows were closely gathering
now;
He thought of his home and his dear friends
nigh,
As the cowboys were gathering to see him die.

Refrain:

Where the lone dove coos and the crickets have nests,
Where the wild flowers bloom on the prairie crest;
Where the coyotes howl and the wind sports free,
The cowboy was buried on the lone prairie.

"Oh, bury me not on the lone prairie,
Where the coyotes will howl in their rage o'er me;
Oh, here in a grave just six by three,
Will you bury me not on the lone prairie!"

"It matters not, tho' the preacher once told,
Where the body is laid when the heart grows cold,
But grant, oh grant, as a boon unto me,
That you bury me not on the lone prairie.

"I oftentimes have wished that when I died,
To be laid in the graveyard on the hillside.
By the grave of my father, oh, let my grave be,
So you bury me not on the lone prairie!"

"There's another whose tears so freely she'll shed
For the boy who died on a prairie bed;
But little does it pay to think of her now,
She has curled these locks and pressed this brow.

"These locks she has curled evermore she'll miss,
This brow she has pressed will the cold grave kiss;
For the sake of those, then, who'll weep over me,
Will you bury me not on the lone prairie?"

"She has been in my dreams"—and his voice failed there—
They took no heed of his dying prayer,
So there in a grave, just six by three,
The cowboy was buried on the lone prairie.

Every set of verses which has come in shows variations from every other one and so interesting that we wish there were room to print all. The collection would be a treasure for one who studies folksongs. From every camp fire where the song was sung, from every bunkhouse where the boys gathered after supper, from the "hurricane deck of a Montana bronk" as one of our subscribers puts it, come the words that framed themselves on the lips of the singer.

We can give space to only a few more versions, but wish to credit here verses sent in by Mrs. Mary McHenry of Beaverton, Oregon; Mrs. F. J. Gehringer, San Martin; Mrs. L. L. Heseman, Corning; S. E. Maggard, Selma; Mrs. William E. York, Babbistite; Miss Agnes Peterson, Placerville.

The two following are so complete and well arranged that we give entire:

Sent by E. C. Converse, Santa Paula:

"Oh, bury me not on the lone prairie;"
Those words came slow and mournfully
From the pallid lips of a youth that lay
On his dying couch at the close of day.

He had wasted and pined 'til o'er his brow
Death's shadows fast were drawing now;
He had thought of home and the loved ones
nigh,
As the cowboys gathered to see him die.

How oft have I listened to those well-known words,
The wild wind and the sound of birds;
He had thought of home and the cottonwood boughs,
Of the scenes that he loved in his childhood hours.

"I have always wished to be laid, when I died,
In the old churchyard on the green hillside,
By the grave of my father, Oh, let my grave be;
Oh, bury me not on the lone prairie.

The Cultivator Patterns



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PATTERN DEPARTMENT

California Cultivator

Los Angeles

"I wish to be laid where a mother's
care
And a sister's tear can mingle there;
Where friends can come and weep o'er
me;
Oh, bury me not on the lone prairie.
"Oh, bury me not"—and his voice failed
there;
They paid no heed to his dying prayer;
In a narrow grave just six by three,
They laid him there on the lone prairie.
Where the dewdrops fall and the butter-
fly rests,
The wild rose blooms on the prairie's
crest,
Where the coyotes howl and the wind
sports free,
They laid him there on the lone prairie.
From G. M. Merriman, Alameda:

"O BURY ME NOT ON THE LONE
PRAIRIE"
O, bury me not on the lone prairie,
These words came low and mournfully
From the pallid lips of a youth who lay
On his dying bed at the close of day.
He had waited in pain till on his brow
Death's shadows fast were falling now;
He thought of his home and his loved
ones nigh,
As the cowboys gathered to see him die.
O bury me not on the lone prairie,
Where the wild coyotes will howl o'er
me,
In a narrow grave, just six by three
O bury me not on the lone prairie.

It matters not, I've oft been told,
Where the body lies when the heart
grows cold;
Yet grant, O grant this wish to me,
O bury me not on the lone prairie.
O then bury me not on the lone prairie,
In a narrow grave just six by three,
Where the buffalo paws o'er the prairie
sea;
O bury me not on the lone prairie.

I've always wished to be laid when I
died,
In the little churchyard on the green
hillside,
By my father's grave, there let mine be,
And bury me not on the lone prairie.

Let my death slumbers be, where my
mother's prayer
And a sister's tears will mingle there,
Where my friends may come and weep
o'er me,
O bury me not on the lone prairie.

O bury me not on the lone prairie,
In a narrow grave just six by three,
Where the buzzard waits and the wind
blows free,
Then bury me not on the lone prairie.

There is another whose tears may be
shed
For one who lies on his prairie bed,
It pained me then and it pains me now;
She has curled these locks, she has
kissed this brow.

These locks she has curled, shall the
rattlesnake kiss?
This brow she has kissed, shall the cold
grave press?
For the sake of the loved ones, that will
weep o'er me,
O bury me not on the lone prairie.

O bury me not on the lone prairie,
Where the wild coyotes will howl o'er
me,
Where the buzzard beats and the wind
goes free,
O bury me not on the lone prairie.

O bury me not, and his voice failed
there,
But we took no heed of his dying prayer,
In a narrow grave just six by three,
We buried him there on the lone prairie.

Where the dewdrops glow and the but-
terfly rests
And the flowers bloom o'er the prairie's
crest,
Where the wild coyotes and the wind
blows free,
On a wet saddle blanket lay a cowboyec.

O bury me not on the lone prairie,
Where the wild coyotes will howl o'er
me,
Where the rattlesnakes hiss, and the
crows fly free,
O bury me not on the lone prairie.

O we buried him there on the lone
prairie,
Where the wild rose blooms, and the
wind blows free,
O his pale young face no more to see,
For we buried him there on the lone
prairie.

Yes, we buried him there on the lone
prairie,
Where the owl all night howls mourn-
fully,
And the rattlesnakes hiss, and the crows
fly free,
O'er his lonely grave on the lone prairie.

And the cowboys now, as they roam the
plains—
For they marked the spot where his
bones had lain—
Flung a handful of roses o'er his grave
With a prayer to Him who his soul will
save.

O bury me not on the lone prairie,
Where the wolves can howl and growl
on me,
Flung a handful of roses o'er my grave
With a prayer to Him who my soul will
save.

Another:
Seeing a call in the Cultivator of
February 18th for the "Song of the
Dying Cowboy," I will enclose one
that we used to try and learn the
dogies to trail by back in Montana
some twenty years ago. This is as
near as I can remember it. Possibly
you have had several in already.
Leaving you to capitalize and punctu-

ate same as my schooling was done
on the hurricane deck of a Montana
bronk.—Sour Dough Miller, a new
member to California Cultivator.

COWBOY'S LAMENT

As I rode by Tom Sherman's barroom,
Tom Sherman's Saloon one day,
I saw a young cowboy 'twas dying,
Who called me to his side these few
words to say.

Chorus:

Play your fife lowly, and beat your drum
slowly,
And play a death march as you carry
me along.
Go take me to the prairie, and throw
the sod o'er me,
For I'm a young cowboy; God knows
I've done wrong.

It was once to the saddle I used to go
dashing;
It was once to the saddle I used to
be gay;
But I first took to drinking, and then to
card playing;
Got shot through the body, and I'm
dying today.

Chorus:

Go write a letter to my gray-headed
mother,
And write another to sister so dear.
But still there's another that would
Bitterly weep if she knew I lay here.

Chorus:

Oh, bring me a cup of cold water,
A cup of cold water, the poor fellow
said;
But when I returned his spirit had
parted,
And gone to his Giver. The cowboy
lay dead.

Chorus:

HOUSEHOLD QUERIES

Household Helps from Gilroy Sub-
scriber

"Former Subscriber," Modesto,
writes that the hard soap she makes
has good bleaching qualities but is
hard on the hands. I make all my
waste fat into hard soap and find that
by adding half a pound of powdered
borax to amount made with one can
of lye that the soap is improved and
it does not injure the hands in the
least.

I find many helpful things in your
household department and would like
to pass on some of my ideas to others.

My favorite way of cooking par-
snips is to fry a few slices of bacon.
Cut bacon in small pieces, fry and
turn the bacon and fat into the
mashed parsnips. Beat up well, put
in baking dish and set in oven for a
few minutes before serving.

I also find that rice added to sum-
mer squash is very good as it brings
out the flavor of the squash and takes
up the excess moisture. I boil my
rice Japanese style, viz: dropping it
into boiling water and boiling 20 min-
utes covered closely, drain and add to
seasoned, mashed squash. I raised
Italian squash last year and like it
better than any other I have tried.

I often use rice with left over meat
or gravy. A very appetizing ragout
can be made by combining boiled rice
in any quantity to suit taste with any
kind of left over meat or fish and
gravy seasoned to taste—Subscriber,
Gilroy.

Italian Salami

Have noticed in the Cultivator that
the Lompoc subscriber wishes to know
of a good recipe for salami. This is a
good sausage and salami recipe. If
you want to make salami, omit the
cinnamon and put in a few grains of
whole black pepper. Take equal
amounts of pork and beef as you wish,
taking care that neither is too fat.
Grind the beef and pork separately
and then mix thoroughly together.
These are the ingredients for 32
pounds of meat already mixed:

Salt one pound, pepper one ounce
(ground), cinnamon one-half ounce,
cloves, one-fourth ounce, nutmeg one
teaspoon, saltpeter one pinch; diluted
with a little broth. Garlic, half a cup
ground, one pint wine and the pinch
of saltpeter can be boiled together
with the juice of garlic or otherwise
just let it come to the boiling point.
Then strain this liquid into the meat.
The amount of liquid depends upon
the taste of the person. Mix the in-
gredients and meat thoroughly and
then stuff in beef casings and hang
up. They should not be allowed to
hang in a draft. This recipe has been
used continuously for years in our
family.—Mrs. H. V. Marcetti, Modesto.

It always hurts a young man a little
when some girl he knows tells him
that she is engaged.



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by our own Domestic Science Director:

First—soak them over night, if possible—but if
not, for several hours at least. Second—cook them
slowly until tender in the water in which they were
soaked. Third—use plenty of water so the fruit will
be "loose." Fourth—be sure you don't cook them
too long as they will become too soft. Flavor with
an inch stick of cinnamon or some lemon or
orange juice. Sugar is not required, as slow cook-
ing brings out the rich fruit sugar in the prunes.

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HOUSEHOLD QUERIES

Hard Crust on Cake

Please tell me the cause of hard crusts on cakes. My cakes are very light but have a very hard crust.—Subscriber, Santa Rosa.

There are several things that might cause a hard crust on your cakes. Too much sugar is often the cause of this. For a plain cake would advise not more than one cup of sugar to a scant cup of liquid. Layer cake ordinarily requires about 20 minutes' baking. Baking in too hot an oven or leaving in too long may be the cause of hard crusts. Baking done entirely on the upper grate of the oven causes this condition, but under those circumstances cake is not as a rule light.

Candied Citron

Will you please print a recipe for candied citron such as you buy at the stores for use in fruit cakes, cookies, etc. We have a citron tree but have been unable to find recipe. Will you please print recipe as soon as possible.—Subscriber, Yorba Linda.

We reprint directions given in California Cultivator of February 12, 1921.

In preparing citron for preserving

it is halved, put in brine for three weeks, and the brine must be strong enough to bear the weight of an egg the entire time the citron is in it. By keeping up the proper strength of the brine, the citron may be kept in storage until necessary to use it, being kept this way many months.

You may not depulp the citron raw, as the fiber between pulp and rind is too strong. The citron is boiled in water from 45 minutes to an hour, which boiling loosens up the pulp so it can be easily removed, with a spoon. The boiling also brings out the salt in the fruit and after it is dipped in two washings of cold water all salt should have been removed.

Now the citron is ready for taking up the syrups. Since the citron has already been boiled in only water for about one hour, its texture is softened up so that syrups can soak through it evenly. A syrup can be prepared thick as honey and the citron boiled in it (do not put into the syrup more than one-half its weight of citron—into 100 pounds of syrup put only 50 pounds of citron), the water in the citron will dilute the strength of the syrup. Hence the water of the citron must pass off as steam during the cooking and at the end of one hour the syrup should be just as dense as

at the start. Now the citron can be removed from its syrup and both allowed to stand for nearly a week in some vessel.

At the end of the first week the cook will find that the strength of the syrup has greatly decreased. Now the syrup should be brought to its proper strength and the citron cooked in it a second time.

Each time the citron is removed from the vessel in which it is cooked to the vessel it is to stand in, the syrup should be of proper strength. This re-cooking should take place as often as the syrup is found below the standard of strength. When the syrup has become constant in density, the citron can be kept stored this way at the desire of the cook as long as the syrup covers the fruit, though it is exposed to the air. Dense syrups are preservatives, but weak ones invite fermentation.

Citron should cure up in the syrup for at least four weeks. After this time the syrup should be drained from it and the fruit allowed to dry upon trays in a dry place away from the sun and the bees. It will take from five to seven days for the fruit to dry.

When it is dried, it is dipped into a crystallizing syrup made from pure cane sugar. This syrup is prepared by dissolving sugar in boiling water until you get a super saturated solution—allow the syrup to stand for five hours when a crust of sugar will be formed upon the top—remove the crust and dip the fruit well. Next lay the fruit upon clean trays and after 24 hours standing a nice crystallization of sugar will cover the fruit. At last the fruit is ready for boxing for shipment.

Prepare your syrups used for cooking three-fifths glucose and two-fifths cane sugar. Cooked in clear glucose the flavor is lost and fruit is too tough. Cooked in straight sugar syrup after standing awhile the sugar crystallizes in it, and transparent condition is lost and fruit becomes brittle.

Orange and lemon peel can be candied according to the same process.

Prune Cake

One-quarter teaspoon soda, 6 mixing spoons bread batter, 1 egg, 1 cup sugar, 1 mixing spoon lard or butter, 2 cups flour, cinnamon and nutmeg to taste, ½ pound pitted cooked prunes cut in small pieces, ¾ cup crushed nuts.

Mix soda in a little hot water, then pour into the batter and stir well. Add egg, shortening, sugar and flour, sift spices in flour, stir well, add nuts and prunes, stirring in slightly. Put in well greased pan and bake in moderate oven one hour.—Mrs. A. Spagnoli, Campbell.

"THE GRIND AND THE STEPPER"

In any kind of school there are two kinds of students, the natural grind and the stepper.

By a grind, I mean a fellow who always has both eyes open for enough trouble in the form of more work with no play. Work is easy to find, but what good does it do to grind away at it continually without rest?

Constant grinding of an ax sharpens it, but it also wears it away.

The same is true with a person continually grinding away at lessons; it sharpens the wits but wears away the health. It also prevents your mixing with your fellow students, a large and important part of your education.

On the other hand, we have the stepper who never misses a dance, a show or a flunk. This kind of a fellow will not amount to much in life because life has to be taken with a certain amount of seriousness to make a success of it.

If it were possible for all of us to strike the dividing line between these two classes we should approach being perfect students. We should try, at least, to make such a balance our goal. Then when we graduate we have not only some knowledge of books, but also a collection of school life memories and experiences with our class work, but neither can take the place of the other.—P. McD., in P. H. S. Agricultural News.

HINTS FROM HOUSEKEEPERS

Some of Our Favorite Recipes

I enjoy the household department and have used a great many of the recipes. Thought some one might like to try some of my favorites that are just a little different that I have been using for years. Success to the paper.

Onion Souffle.—1 cup boiled onions, ½ cup bread crumbs, 1 egg yolk, 1 teaspoon chopped parsley. Make white sauce of 1 tablespoon each butter and flour, 1 cup milk, ¼ teaspoon salt. When it boils add to it the onions, etc. Fold in beaten white of egg and bake 15 minutes.

Two Ways of Serving Cabbage.—Beat 1 egg, add ¼ cup sour cream, ¼ cup vinegar, 1 teaspoon sugar. Stir together and pour over cooked cabbage and just bring to a boil. Heat a lump of butter until well browned. Put the cooked cabbage in serving dish, pour the hot butter over it just before sending to table.

Casserole.—Use round steak, cut in pieces for serving. Roll in flour, fry brown, put in bean pot or baking dish. Fry 1 large onion, add to the meat. Make a quantity of thin milk gravy in the skillet, pour it over the meat and bake slowly for at least two hours, or until meat is very tender.

Sour Cream Cake.—1 cup sugar, 2 eggs, 1 cup sour cream, 1½ cups flour, 1 level teaspoon soda, a little salt and flavoring. This is good when baked in muffin pans or in layers. ¼ teaspoon of baking powder may be added if desired.

Prince of Wales Cake.—½ cup shortening, 1 cup sugar, 2 egg yolks and 1 white of egg, 1 cup milk. Sift flour five times, measure out two cups and add 1 level teaspoon soda, ½ teaspoon cloves, 1 teaspoon cinnamon and sift into cake. Add 1 cup chopped raisins, 1 teaspoon vanilla. Bake in layers.

Filling. 1 cup sugar, 4 tablespoons water and boil until it threads. Beat this slowly into the well beaten white of one egg. When not quite cold add ½ cup raisins and a little vanilla.

Marmalade Pudding.—½ cup sugar, ½ cup butter, two eggs well beaten, 1 cup flour, pinch of soda, 3 large tablespoons orange marmalade. Steam ¾ of an hour and serve with whipped cream or hard sauce.

BOOKS AND BOOKS

Here is a characterization of some of our modern books which we found in a recent Saturday Evening Post. The crudity of the expressions seems particularly appropriate:

"Come si' down. Tell me. You said they larned you to read, in there. How's that?"

Salem tried to explain. "I mean sir, it came over me," he replied, "that books were like a man talking to you, say."

Captain Constantine put away his convex mirror, and grunted.

"Some is. Some hain't," he declared. "Some's more like a infant teethin', and others like a spoilt monkey that needs him a dose o' physic. Good ones, yes; good one is men."

And how about the movies?

What genial friends, what faithful guides and counsellors good books are! And there is no time for forming the habit of reading good books better than childhood. If you stop to think it over, don't you remember that most of your reading of books was done in your youthful days when the pressure of living did not fill all the hours? Get the children started early and started on the right books.

IT HAPPENED IN MONTANA

In Montana a railway bridge has been destroyed by fire and it was necessary to replace it. The bridge engineer and his staff were ordered in haste to the place. Two days later came the superintendent of the division. Alighting from his private car he encountered the old master bridge builder.

"Bill," said the superintendent—an the words quivered with energy—"want this job rushed. Every hour delay costs the company money. Have you got the engineer's plans for the new bridge?"

"I don't know," said the bridge builder, "whether the engineer has the picture drawn yet or not, but the bridge is up and the trains is passing over it."

CAUTIOUS

Lawyer: "Would you vouch for the defendant's integrity?"

Witness: "We-e-ll, not exactly, but I ain't never caught him doing nothing."

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Livestock News Notes

LIVESTOCK SALE CALENDAR
Holsteins
April 5, Guaranty Sale, Rhoades & Rhoades, Pavilion, Hynes.

Manager James A. Brown of the Brown Ranch, Capitola, writes of a record making Guernsey of his herd. She has been allowed by the University of California tester a percentage butterfat test of 9.96. This was on our Guernsey cow Imported Miranda III of the Houards." Mr. Brown says the herd includes 50 registered Guernseys, mostly of the former herd of Judge Curtis H. Lindley. The head of the herd is a young bull, Floridale Secret King, 69579, secured at the last national dairy sale, whose sire is Merry May King and whose dam is Floridale May Rose.

R. T. Jackson, of the United States biological survey, verified a report of rats killing calves in Umatilla County, Washington, which was not believed until the actual evidence was seen. Several days ago County Agent Fred Bennion received a complaint from R. C. Rasmussen of Stanfield that wharf rats had killed four of his calves. Upon investigation the assistance of the biological survey was requested. Jackson found that the rats worked in bands, chasing the calves until they were exhausted and then gnawing the flesh above the hoofs, letting the young animals bleed to death. The rats have been exterminated by a special poisoning process.

The secretary of agriculture has issued a formal complaint against every livestock commission firm that is a member of the St. Louis Live Stock Exchange and against the principal order buyers, dealers and traders at the St. Louis National Stockyards, about 110 in all, who have refused to do business with independent commission companies not members of the exchange. They are cited to appear to show cause why an order should not be issued against them under the Packers and Stockyards Act, to "cease and desist" from the practices complained of. This is the first formal complaint issued under the Packers and Stockyards Act approved August 15, 1921, and its issuance is the outgrowth of a considerable amount of complaint at the St. Louis market, and came only after it was found that an informal adjustment could not be secured. The principal charge in the complaint is restraint of trade through a boycott, and that the 39 commission firms constituting the entire membership of the exchange refused to do business with order buyers or traders, except the buyers for the very large packing concerns, who buy live stock from the four commission companies that are not members of the exchange.

The Holstein-Friesian cow Dutchland Pietertje Vale has just closed a long time test and is credited with 27,939.2 pounds milk containing 1,010.42 pounds fat in 365 days, thus showing an average of 3.62 per cent fat in the milk. She freshened at five years, one month, seven days. Her sire is Dutchland Sir Pietertje Hengerveld; her dam Dutchland Colantha Vale. She was bred and is owned by F. F. Field Holstein Trustees, Brockton, Massachusetts. Her 365 day fat production of 1,010.42 pounds equivalent to 1,263.02 pounds butter on the 80 per cent basis, gives her 40th place among cows producing above 1,000 pounds fat, she being the 47th cow to gain the high honor of producing more than 1,000 pounds in 365 days.

Among recently completed records made in the herd of the Los Angeles County Farm is that of Lilith DeKol Tritomia, purchased at the Toyon Farms dispersal sale last April. Freshening at the age of three years one month, she made a seven day record of 27.35 pounds butter from 578.7 pounds milk. Continuing on 30 day test she made 106.69 pounds butter from 2,368.3 pounds milk. This heifer was sired by the son of Jessie Fobes Bessie Homestead, the first cow to make three records over 33 pounds. Her dam is an A. R. O. daughter of Hollywood Lilith Palmyra, who has

five daughters with better than 30 pounds records as three and four year olds. Laconner Pontiac Evangeline, a senior four year old, made 24.53 pounds milk in seven days from 495 pounds milk and is starting out well for yearly test, at the present time milking well over 80 pounds per day. She is out of a 30 pound cow with a 12 year old record of 798 pounds butter in 365 days, and her sire is a brother to Miss Aaggie Acme Burke, the famous champion two year old, who is the dam of the \$41,000 bull. A two year old daughter of Toyon Fayne Valdessa was tested for seven days, 8½ months after calving, producing 14.6 pounds butter.

The University of Arizona has a Holstein cow, Theresa Belle 3rd, which recently completed a splendid year's record, having made more than 800 pounds fat, the equivalent of more than 1,000 pounds butter in one year. When she was fresh she ran seven, 30 and 60 day records and produced in seven days more than 29 pounds butter, and in one day 117 pounds milk. She averaged for one week more than 13 gallons milk per day.

Blackhawk Ranch, Diablo, has sold to Adolph Eddlemon of Lodi the two-year-old Shire stallion, Blackhawk Admiral. The sire of this colt is Dovecote King and his dam is Blackhawk Blossom. Blackhawk Blossom was sired by Lockinge Blagdon and her dam was Hawton Felicity. It will be recalled that Blackhawk Blossom won the class at the P. P. I. E. for the best single horse weighing 1400 to 1600 pounds.

Professor John Evard of the Iowa state agricultural college, and probably the best known swine expert, is now living at Monrovia. For several years Professor Evard has been in failing health, and it is expected that an indefinite stay in Southern California will effect a permanent cure. Professor Evard pioneered the plan of self-feeding swine and has been responsible for hundreds of feeding experiments.

Secretary Chas. Paine of the state fair board has compiled an 80-page booklet of the complete list of awards made at the last state fair. The data is most complete, and in addition to the livestock awards gives the breeding of the winning animals. It is thought that this is the first book of the kind ever issued and it is certain to be of great value to the livestock interests. Copies may be had by addressing the secretary.

A new world's record for butter fat production for heifers freshening under 24 months of age has been established by the Holstein heifer, Daisy Aaggie Ormsby 3d, a daughter of Sir Pietertje Ormsby Mercedes 37th. Her production figures are 870.63 pounds fat and 22,151.2 pounds milk. The former champion was the Jersey heifer, St. Mawes Lad's Lady, with 829.09 pounds butter fat.

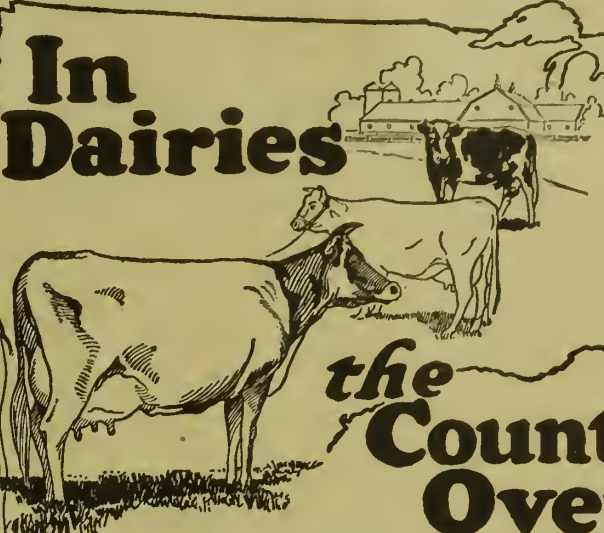
Lady Roberts Colantha, a senior three-year-old Holstein heifer, owned by J. B. Hammer of Canada, has established a new world's record for cows under full age when she produced 1468.75 pounds butter and 26,433 pounds milk in 365 days.

Charles Weeks of Palo Alto has gone in for Guernseys. To head his small herd he has purchased from Brant Rancho, Owensmouth, Golden Glow, the undefeated junior bull calf on the California circuit this past year. He is a son of May King of Fern Ridge, Brant Rancho's senior herd sire that has been twice grand champion of California and this year was the same at the California National. The dam of Golden Glow of the Rancho is Golden Glow of Highland, a splendid big cow with a good official record.

Frank D. Tomson, Lincoln, Nebraska, who for the past six years has edited "The Shorthorn in America" and had charge of the breed's publicity for the American Shorthorn Breeders' Association, will now give his entire time to his personal affairs. Mr.

Tomson is financially interested in the Woods Brothers' Corporation of Lincoln, which is extensively engaged in the protection and reclaiming of river bottom lands along the Missouri, Mississippi, Sacramento and various other rivers. This publication is advised that he will occasionally write on matters of current interest relating to the livestock situation, as he will continue to be in close touch therewith.

In Dairies



the Country Over

Bag Balm is greatly valued by cow owners everywhere because it is perfect insurance against the troubles that attack the milk yield through the udder or teats.

The slightest cut, bruise, chap or sore will make a cow restless and cause a "holding-up" of the milk. Besides, many serious ailments result from neglecting what may seem like very slight injuries of these milk-producing organs.

Any inflammation, soreness, congestion or hardened tissue will quickly heal and become soft and normal through the penetrating action of Bag Balm. Healthy tissue and normal circulation give the cow comfort and restore a full milk-flow. Caked Bag responds promptly to application of this ointment; equally valuable in treating Bunches and Cow Pox.

For the sake of safety, keep a package on hand; feed dealers, general stores and druggists sell big 10-ounce package at the reduced price, 60c.

Write for our valuable free booklet, "Dairy Wrinkles."

Dairy Association Co., Inc.
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Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and helpers, some with calves at foot, and rebred to the above bull. Most of the helpers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.
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25,000 Valencias—2 year old.
10,000 Washington Navels—2 year old.
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See Our CONSIGNMENT April 5th

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When Writing Advertisers Please Mention Cultivator.

Status of Milk Cost Studies

By R. L. Adams



TO date work is well under way in 24 counties, Humboldt, Marin, Sonoma, Napa, Solano, Yolo, Sacramento, Glenn, San Joaquin, Stanislaus, Fresno, Kings, Kern, Los Angeles, Orange, Imperial, Santa Barbara, Monterey, Santa Cruz, San Benito, Santa Clara, Alameda, Contra Costa and San Luis Obispo. Four hundred twenty-four dairies are involved in the study. Thus an attempt has been made to get a cross section of the dairy industry which will include valley and hill conditions, corral contrasted with open pasture, market milk with butter fat, coast versus valley conditions, locations close to cities with remote situations. The work is being handled by three field men giving full time and 24 cooperative cow testers, dairy inspectors, etc., all of whom report in this work to the division of farm management. The method of gathering data is by means of two annual inventories taken a year apart and 12 monthly reports recording in great detail the various expenditures, receipts and charges on each of several hundred dairies involved in the study. By this means the business of these dairies will be watched for the entire calendar year. From the records will be forthcoming a wealth of fact for correlation and use.

Perhaps the most common question asked in this connection is, What is the object of the work and what is it that is to be expected from the results? So far as the college of agriculture is concerned its interest centers around the collection of facts and their presentation. However, the reasons for the study have been neatly summed up by a member of the original committee which secured the appropriation, to show that the objects of the study are: To obtain a knowledge of what milk and butter fat cost; to correct popular idea that dairymen are making excessive profits; to

bring closer relation between consumer and dairymen; provide facts for possible readjustment of the dairy industry.

Quoting in detail he says: "In years past the dairymen have been accused by the legislature, by civic organizations and by the consumers of demanding exorbitant prices for their products. They have been accused of making excessive profits and of getting wealthy at the expense of the health and strength of our growing generation. We have never had accurate data to use in refuting this accusation. We desire now to have data, cost data, the authenticity of which will be beyond question, to show legislators and consumers that we are not making excessive profits or asking unjustifiable prices for our product.

"We wanted to show both the consumer and producer exactly the cost of producing milk so as to furnish a background, a starting point upon which to build a stable industry. We realize the vital need of milk to the people, we realize our responsibility and do not want the supply of milk to cease or diminish. In order to protect that milk supply we want to place dairying on a paying basis, and prevent and remedy the present conditions, under which many men are quitting the business.

"Another purpose was to attempt to establish a means for calculation of feed values. We hope to do this on a basis of the value of the products we produce. The investigation is being carried on, and will give figures both in terms of cash costs this current year and in terms of feeds and hours of man and horse labor necessary to produce a gallon of milk or a pound of butter. Having quantity and some equivalents we can readily calculate the prices we can pay for feeds.

"This survey was started not with the least intention of exposing anyone, or of throwing any shadows, but mere-

ly to give us, as dairymen, figures we can lay before legislators and consumers which will show them we are not profiteers.

"These then were the reasons why we asked the California legislature for an appropriation in 1921. We hope to attain several specific results.

"We want to correct the current hypothesis that we are making excessive profits.

"As a result of this corrected hypothesis we will come into a closer and more cordial relation with those who consume our products.

"We want to know, community by community over the entire state, the cost of production, so that we can tell what type of dairying is feasible in that community. By type is meant method of marketing the product, either as market milk, manufacturing milk, cheese or butter.

"This is a movement started by the dairymen for the benefit of the dairymen and consumers alike. The information obtained will be placed at the disposal of anyone who can make use of it. The success of the investigation depends on the full cooperation of the dairymen. It is the dairymen's investigation; the men who are doing the work are working for the dairymen; the results will benefit the dairymen. Therefore let every man get behind the work and do all in his power to make the survey a success and thus do all that any one man can do to help the industry as a whole."

CALIFORNIA'S LIVESTOCK

Values per head of all classes of livestock on farms in California, January 1, 1922, decreased from those of 1921, according to the annual livestock report issued by E. E. Kaufman, agricultural statistician of the California cooperative crop reporting service. Horses declined 16.3 per cent; mules, 17.1; milk cows, 20; other cattle, 19.7; sheep, 22.1, and swine, 19.4. Horses, sheep, swine and cattle, other than milk cows, decreased in number, while mules and milk cows increased as compared with January 1, 1921.

On farms in California January 1, 1922, there were 367,000 horses, valued at \$30,094,000; 61,000 mules, valued at \$6,222,000; 632,000 milk cows, valued at \$48,032,000; 1,380,000 other cattle, valued at \$47,886,000; 2,450,000 sheep, valued at \$12,985,000, and 834,000 swine, valued at \$9,758,000. All livestock in California on farms January 1, 1922, was valued at \$157,425,000, as compared with \$191,942,000 on January 1, 1921, and \$224,005,000 on January 1, 1920.

The 1922 livestock report is the most complete on California's livestock that has been issued to date and contains the estimated number of all classes of livestock by counties for the years 1922, 1921 and 1920. There has been an increasing demand for yearly agricultural statistics by counties, and it is now the plan of the California cooperative crop reporting service to compile all annual estimates on the county basis. County acreage and production of all field and fruit crops for 1921, together with county data on bearing and non-bearing trees and vines, has been compiled and will be issued at an early date. The new plan, it is said, of estimating crops and numbers of livestock on a county basis will give California one of the best and most complete crop reporting services in the United States. Copies of the complete livestock report and other reports issued by this office may be obtained by addressing the California Cooperative Crop Reporting Service, 1030 K Street, Sacramento.

KERN COUNTY'S NEW COW TESTING ASSOCIATION

Assistant Farm Adviser R. H. Klant of Kern County writes: "Last September the dairy department of the Kern County farm bureau organized a cow testing association which has operated smoothly and successfully for almost six months. The Bakersfield Civic Commercial Association at the last director's meeting appropriated \$100 for prizes to be awarded for the two best herds and the best cow. Following is our report for February:

"Number cows tested, 904. Average pounds of milk per cow, 600. Average pounds fat, 25.6. Number cows

Now is the Time!

Do you realize that it is harder to buy top registered cattle of all breeds today than it has been for years past? That when an owner can be induced to part with some of his best cattle the price inducement must be especially attractive?

There is a sound reason for this condition, for good cattle are scarce all over the country. Experienced breeders everywhere realize that the upward movement toward the greatest demand for registered Holsteins that the world has ever known is definitely under way, and the ones who own the better sorts are planning to keep them and let them multiply for the future market.

Beginners and established breeders alike will be afforded a remarkable opportunity for purchase of top registered Holsteins in

The 1922 Guaranty Sale

"THE PACIFIC COAST HOLSTEIN CLASSIC"

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(At Rhoades & Rhoades Sale Pavilion)

65 Selected Individuals from 20 California Herds!

The Highest Record Cow Ever Sold in a Pacific Coast Public Sale!

Daughters and Sons of California's Most Famous Sires!

Females Carrying the Services of the Greatest List of Sires Ever Represented in a Western Sale!

A Very Large Percentage of the Females Either Fresh or Heavy With Calf to These Great Sires!

Guaranteed Breeders, Tuberculin Tested and Sold Subject to 60 Day Retest by the Buyer!

Write for sale circular and catalog. If you want some of the best you will find them in this offering.

Auctioneers:
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Management
California Breeders Sales and Pedigree Company
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producing 40 pounds or more of fat per month, 92.

"Three best cows for month: Grade Jersey owned by J. W. Totton, Rio Bravo, 1260 pounds milk; 104.6 pounds fat. Grade Holstein, owned by W. L. Hale, Bakersfield, 1122 pounds milk; 78.5 pounds fat. Holstein, owned by

A. R. Buttles, Wasco, 2037 pounds milk; 77.4 pounds fat.

"Highest herd averages, herd over 15 cows: 17 Jerseys owned by A. V. Bennett, Wasco, 722.4 pounds milk; 36.4 pounds fat. Herd 15 cows or less: 10 mixed owned by J. W. Totton, 654.4 pounds milk; 38.1 pounds fat."

Sunlight in Drums



COMPARATIVELY few of the millions of people who today enjoy the benefits of calcium carbide in home lighting and its many other popular uses know the interesting story of its discovery. And strangely enough, after remaining a sealed secret throughout the ages, this great gift of science to humanity, easily one of the greatest discoveries of the nineteenth century, was revealed at almost the same moment to an American electro-metallurgist and to an eminent French savant.

The American, Thomas L. Willson, so the story runs, was conducting some experiments at Spray, North Carolina, in 1892, in which he made use of a mixture of lime and coal tar, which he heated to a high temperature in an electric furnace in an effort to produce metallic calcium. Instead, the product after cooling proved to be a dark, brittle mass that in disgust he cast into a nearby creek. To his surprise the water began to bubble, indicating the generation of gas below its surface. Upon touching a lighted match to the escaping fumes they at once ignited and burned with a bright flame. And this was the origin of calcium carbide as the product is known commercially today.

In the United States there grew up an important industry devoted to the manufacture and distribution of this product, and in a few years the chemical name of calcium carbide became practically obsolete in this country, the familiar contractions, carbide or Union carbide, being generally used.

Widely Varied Uses

Carbide gas generators have been in use in our rural districts for the past 22 years or more, shedding their comfort and cheer in homes that a generation ago in the half light of kerosene lamps had just emerged from the half darkness of the candle or tallow dip. Carbide has been a godsend to these homes. It has more lately added other conveniences, such as gas cooking and ironing and instantaneous water heating. Carbide tonight will supply the gas illumination for more than a million Americans in more than a quarter of a million American homes.

In the manufacturing and industrial field, where the gas process of welding and cutting is now almost universally employed, carbide is used in enormous quantities for the generation of acetylene, the gas that with oxygen, and used under moderate pressure in a blowpipe, gives the highest temperature flame known.

Not many years ago pleasure automobiles were lighted with compressed acetylene, and practically no car was without its Prest-O-Lite tank on the running board. There are no fewer of these small tanks today than then. Though we rarely see them now, excepting on trucks and tractors and motorcycles, there are really more small gas tanks in use than ever before. They are in the chemical laboratory, in the dental office, in the plumber's and sheet metal worker's kit, on launches and yachts—even in chicken houses! The gas they contain is generated from carbide. But why in chicken houses, you will ask! The answer is to give the hens a longer working day! It is a practical proved thing, and it is becoming more generally known and understood all the time.

And then there is the use of carbide for lighthouses and buoys in the world's seaways! It is not difficult for anyone familiar with carbide lighting in the home to understand how it can be utilized in lighthouses as a safeguard to navigation. What the average person does not realize is how invention has contrived wonderful automatic generating devices with supplementary attachments that make it possible to charge the gener-

ators at intervals of several months and so adjust the mechanism that it will function without the presence of an attendant.

The story of carbide is replete with romance. There seems scarcely an end to what might be written of achievements resulting directly from its many uses. Whether it serve to illuminate with giant flares a grid-iron, as was done when West Point was doing night training for the army and navy football game last fall, or be the means of rescue, as in the case of the tragic Eastland disaster, there is always a story somewhere in carbide or its gas, acetylene. It has been truly called the "gas of a thousand uses."

Calcium carbide is a product of the electric furnace. In this it is not different from the first calcium carbide accidentally produced by Willson, at Spray, North Carolina. There the analogy ends. The relation of the original Heroult electric furnace to the great furnaces at the Niagara Falls plant of one well known manufacturer of carbide would be that of the ivory figure of an elephant on your match fob to the real Jumbo of Barnum and Bailey fame.

There is always a likelihood in writing of carbide that one will become so absorbed in dealing with its extraordinary features that the more homely companion of all these will be overlooked, that is, safeguarding its use. The leading manufacturers have done this literally so far as purification and safe packing and shipping of the product is concerned. It is after the drums are opened that the care must be exercised. Gas is generated whenever calcium carbide and water come in contact. Like all fuel gases, care should be exercised in its use. It is not poisonous, like city gas, but it should be made only in approved apparatus and only in accordance with the easily understood instructions that are always available to users.

CATTLE SHOWING SCARCITY

By A. L. Spellmeyer

Beef steers are reported to have reached the eight cent mark in Los Angeles. List carcass prices have been considerably advanced. Carcass prices of 14 on steers, 13 on cows, 25 on lambs and 15 on hogs are strong for a still further advance. With beef loins listed to 30 cents and lamb to 32 retail prices show no advances. The mills are grinding and Los Angeles consumers in the residential districts report an exceedingly courteous effort for trade with price declines instead of advances.

It is reassuring to be able to forecast results. The eight cent beef prices came upon schedule. The statement made some months ago that the retail business would yet be the end that paid and that a lot of fixtures would be for sale owing to the numbers crowding into it is proving true. Last Sunday's papers showed an assortment of meat shops and fixtures offered for sale. The sinecure with meat that cost about ten cents and sold at 40 has passed in the things "that have been," apparently.

Packers again illustrate their power to command the situation if they choose. No wonder the packers opposed entering the retail field. They can get the result without doing so. Deflation and manipulation continue so far as the livestock producer is concerned but there is this satisfaction, that the game is taking lines that are familiar to us in the past. Packers are making a better profit, and they are entitled to it. Retailers are making less profit, and that also is right, but the producers are not getting it yet.



Can the Dairyman afford Hand Work?

HUMAN labor is worth so much more today than the work of a machine that hand-labor would soon drive the farmer into bankruptcy. The dairyman who milks six or more cows can no more afford to milk by hand than he could to spade up an acre lot instead of plowing it.

Cost records on both large and small farms show beyond doubt that profits are increased by the Empire Milker. Cows are benefitted, cleaner milk is produced, labor costs cut 50% or more.

In spite of new improvements, Empire Milking Machines are selling at the lowest prices quoted in ten years.

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BIG TYPE POLAND-CHINA SWINE

The registered Percheron Stallions offered are an exceptionally fine lot of high-class young horses, of great size, style and quality, from two to five years old.

The Jacks are the big-boned, rangy kind so much desired and sought after by the discriminating breeder who likes to breed and raise a big work mule.

The Jennetts are young and mostly all in foal to King Bersheba.

The registered Holstein-Friesian Bulls are twelve to eighteen months old, sired by Prince Walker Cornucopia and out of high yearly-record dams.

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A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

HOLSTEIN

Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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AN AGGRESSIN MADE FROM CULTURES.

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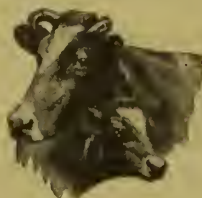
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Will reduce Inflamed, Strained, Swollen Tendons, Ligaments, or Muscles. Stops the lameness and pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone and horse can be used. \$2.50 a bottle at druggists or delivered. Describe your case for special instructions and interesting horse Book 2 R Free.

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The Cattle Situation and Problems

By Frank S. Hastings

(What follows is from an address delivered during Stockmen's Week, by Frank S. Hastings, manager of the great S. M. S. ranches of Texas. Mr. Hastings is generally regarded as one of the best informed cattlemen in America, and the message he gives California cattlemen comes from his experience in operating one of the most successful and largest cow outfits in the Southwest.—Editor.)



I AM not in any sense an oracle, nor do I come here to teach California cattlemen how to do business. Perhaps I should define myself as a student of the economics of production and marketing. And I shall focus as nearly as possible on the breeding end. Another thing, too, it is rather difficult to come to a state and give it the "once over" and attempt to tell what are its limitations. I also want to get square about breeds. I am not in any sense an advocate of a special breed, but, rather this,—it does not matter what you use so long as you improve. Personally, I breed Herefords, with an undercurrent of ten per cent Shorthorns, but there is room for the blood of all the great breeds, and it may be merely a caprice as to what one man thinks is the best to use in his business. Therefore I beg of you to understand distinctly that because I do a certain thing I do not mean that all should. In my own business I breed 90 per cent Herefords and ten per cent Shorthorns. I am criticized because I do not breed all Herefords, and because I do not use all Shorthorns. My only reply to this is that in this "mongrel" breed I have accomplished this result, the highest dressing record in the world for all time, the highest price which any carload of cattle for a show has ever attained, 50 cents a pound, and the highest price for any carload of cattle that has been sold on the market, \$21.50. If I get a result of that kind why should I change? I say this to all, no matter what you breed, breed up and use all of the great breeds.

I am very glad to state at this time that I can see a light in the window. I can see lights in the front window and lights in the kitchen. There never has been a time in my memory of 20 years when cattle were so scarce, and added to that I think we have turned a corner on consumption. The greatest blow which has come to the cattle world in the last four or five years has been in the waning consumption of meat. It began at the time of the war, perhaps, although before that and for a long time, we were told that we were "eating too much meat." If you go to a doctor he will give you the same advice he gave to the letter carrier, "you need exercise." He will tell you you are eating too much meat. I am not finding any fault with those people. They are pushing their own project, and it is legitimate. You take the cereal manufacturers, "one pound of their product is worth a pound of meat," and I got quite a shock when I read that "one pound of macaroni is equal to one pound of meat." I am not criticizing—if you are going to sell a thing you have to boost it or voluntary or involuntary bankruptcy will be bound to find you.

I was making an address before an association in 1917 and called their attention to the fact that we must bring meats back on the map. They are doing it. They are putting out some good publicity, and the press of the country in a way is advocating or rather exploiting the fact that meat is not as bad as it has been pictured. Our friends in the dairy business have always a million each year for exploiting their products. They brought up the matter of vitamins. Meat contains no vitamins, and vitamins are that—not undiscovered, but perhaps—undefined product in human food which is most necessary for the young. The cry has been, "eat lettuce; use milk in all its forms, it contains these valuable vitamins which are needed for the growth of the young." It is certain that if the mothers of families become convinced that they should feed their growing children something that contains vitamins, the rest of the family will be eating the same product. The Meat Packers Institute has published a very powerful pamphlet in which they go into the scientific end of it, and now we discover that meat has vitamins.

I believe, too, that the American people who are a meat eating race have eaten all the macaroni they are going to and are now going back to a chop or a piece of tenderloin steak. I think it is the duty of every man who is connected with the meat industry to use every opportunity he may have to exploit the fact that meat should have its place in the home economy.

As to the scarcity of cattle, I refer to this from a very personal standpoint. I do not suppose there is a desk in the United States that can tell you more definitely of the demand for cattle than mine, that is, for the calf or yearling, and in the 20 years that I have worked in 30 states I have never known such an overwhelming demand or greater scarcity of cattle. Texas has practically no cattle and demands have come from all states, demonstrating that the men in the cornbelt must have cattle to eat up their enormous corn crops. I am keeping two men busy saying that we have no cattle and telling them we do not know where they can find cattle. The state of Texas is almost barren of calves and yearlings. It is so in every state. This is at least important in comparison with last year when there was a stagnation. The thing that was most needed was movement. There was practically no movement of cattle last year at this time. There is the great Northwest, Montana, the Dakotas, with worlds of hay, and practically no cattle. There is no question now about getting loans for the purchase price of cattle. There is another thing of great interest. The demand for breeding heifers is absolutely overwhelming. Fortunately in Texas the ranges are very good, the weather is not especially bad, and practically every man who has cattle can carry them through.

My friend, J. E. Poole of the "Breeder's Gazette," said I told him it would take five years for Texas to get back to normal. I notice in another article of his that range cows have advanced from ten dollars to \$20 in the last month or so. I guess he is right. I do not mean that that is supported by the cattle movement, but a man who wants to buy heifer stuff would have to pay about \$20 more than he would in the summer.

In some correspondence before coming out here, I was told there was very little incentive for improvement in the California herds. Again do not misunderstand me, in speaking of improvement I do not mean crosses, but perhaps you can stand some improvement in your herds. A man may not get any better price for good stock, but he loses sight of the fact that he is paid for more pounds over the scale. Perhaps he is not much helped by sale improvement, but the instinct of a beef animal is to make pounds, just exactly as the dairy cow's is to make milk. If an animal's instinct is "beef," it means she will produce pounds at a lower price than a poorly bred animal and can be kept cheaper than an inferior animal, and eventually you will find that you get your money back for the small expenditures you make and for the losses you incur in culling your herd. As sure as the world is here, the fellow who has his mind fixed on producing something better will get his return.

I remember 20 years ago when I went to the cornbelt section with the statement that all the cattle of Texas were well bred, I was the laughing stock of the cattle world. Today the feed lots of the corn belt are filled with the cattle off the ranges of Colorado, Texas and Oklahoma. The bulk of the cattle in Texas are well bred. There are a great many small herds and they are just as good as any in the state. They have been willing enough for the last 25 or 30 years to come to us for bulls. The industry in Texas, taken from the Texas Pacific railroad up, is bred to a very high standard, and they all get their reward. Range bred herds have won the grand championship a number of times. We were fortunate in this ourselves. In the last four or five months California has drawn something like 2,000 cars of cattle from Texas ranges.

As near as I can understand it, your season here is from about the first of November on to, say, the first of April. You have a rather meager feeding industry. Yesterday we had a meat cut-

ting demonstration here of a heifer and steer that had never had an ounce of grain since they were calves, and it took a practiced eye to tell them from corn fed animals. They were what you would call top cattle in almost every way. As I said, I am not here to teach you your business, but if that can be done on alfalfa hay and without any concentrate it does seem to me that there is a great feeding possibility here when you are improving cattle of about three or four months. I understand that in California there are four or five year old cattle still on the ranges. From my standpoint there should not be in the producing herd anything over two years. The whole tendency is toward young cattle. At the International 20 years ago nothing under three years old won championships, then they dropped to two year old stock, and now I think nothing but a yearling has had a look in for the International grand championships. Almost invariably they pay the top prices for cattle about 18 months old, which are taken as calves and fed a period of 11 months. With that tendency toward the younger heifer, the economy is apparent, for if you can get as many pounds out of an animal in the three year old period here as you can in the four or five year old period, I think the mathematics speaks for itself. The young animal has come to stay. There is an immense feeding of calves, heifer calves, for the reason that during the spring and early summer fat yearlings on the Chicago market sell mixed without any discrimination. These are things which, of course, I do not know are possible here, but they are well worth studying.

You can get good bulls, if you have the price, on very short notice. It is just a matter of going where they are and buying them. But when it comes to the maternal side of the herd you must accumulate. You probably can go out anywhere and buy a great herd of breeding cows, but to accumulate a great breeding herd it is absolutely necessary to go through a severe process. I suppose I am known as the



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H. H. Gable

Esparto, Cal.

"great maternal crank," but the man who overlooks the maternal side of any breeding problem is apt to go back. In my own work I do not keep a cow that does not nourish a calf properly. She goes to the block if she will not produce properly. If you have a cow that does not nourish her progeny carefully, you cannot expect to make a record with her. I never keep the calf of a two year old heifer, but in spite of that, two year old heifers have calves. They all go to the block first, because the life and quality of the animal you are going to retain is influenced by the fact that she is not yet able to drag a great husky calf and give it the proper nourishment. While some of them look fine, they do not make as good beef cattle as a calf from a three year old heifer. In making our selections in the accumulation of great breeding herds we do not work entirely from the physical conformation. This is the greatest mistake that any breeder can follow. The bonnet you buy for your wife for next Easter is going to come from cattle you put on the block. Therefore you can afford to make any sacrifice in order to obtain that result. We go probably more by get than anything else, and it is almost uncanny how the man who has been with the herd can easily pick out a cow and say "She had a poor calf last year," or another and say "She had a fine calf last year and the year before." It is uncanny but true. The thing is to follow up the cow and know whether she had a good calf.

Often times in showing cattle people say, "Why did you keep that cow," pointing to one. I may be more than 100 yards away from the cow, but I can always say when we get to the cow "She has an outstanding calf." Invariably it follows that if you see a cow in the herd and perhaps wonder why that cow was kept, that cow has had an outstanding calf, and as long as the cow will produce for me the thing by which I get my bread and butter she stays in the herd during her period of usefulness. I would say this, on the maternity side of your herd take your medicine, cull out the inferior stuff, and that is the only way to accumulate a great herd.

I have only touched the edges. If I can, I want to leave this thought. It pays to improve your herd, no matter how. Do not lose sight of the maternal end. Cull out until you get a race of producing cows. If the cow is the best cow in your herd and produces a calf that does not produce anything, send her to the block. And in regard to the breeds, use them all, but always with your eyes to the stars.

ANNUAL HOLSTEIN CLASSIC, A STAR EVENT

That the attention of western Holstein breeders is focused on the annual guaranty sale to be held at Hynes, April 5, is indicated by the fact that Sales Manager C. L. Hughes reports a wider demand for catalogs than has been evinced for any sale during the past year. This widespread interest can be interpreted as an expression of confidence in the future of the Holstein and appreciation of the efforts of members of the California Holstein-Friesian Association to contribute a class of cattle of outstanding worth.

The 65 head cataloged were carefully selected from 20 of the leading California herds and represent more herds than have ever figured in any former sale. Furthermore, the committee of selection states that the average quality of the cattle listed is in every way up to the standard of former sales. For the most part the females will consist of young cows with substantial records and bred heifers of acknowledged worth. A feature attraction among the females will be found in Norma Korndyke Cornucopia, whose record of 38.41 pounds butter in seven days distinguishes her as the highest record cow ever sold at auction on the Pacific Coast. Three other cows with records above 30 pounds are listed, and more than 20 others with records from 21 to 29 pounds appear in the catalog. The reference sires, to which the offerings are bred, make a rather formidable list and include many of the acknowledged leaders of California. But six young bulls have been catalogued, and they were each selected with reference to their breeding and individuality.

This will be the first time that this annual classic has been held in Southern California, and for that reason it

is expected that many buyers will take advantage of the opportunity to attend the sale and at the same time visit the distinguished herds of that section that now boasts of owning more high record bulls than are to be found in a like area in America.

The sale will be held at Rhoades & Rhoades' sale pavilion at Hynes, which is 17 miles south of Los Angeles on the Downey-Long Beach boulevard, and will be managed by the California Breeders' Sales & Pedigree Company, Sacramento.

ANNUAL MEETING OF CATTLEMEN

March 25 has been set as the date for the convention of Zone V of the California Cattlemen's Association. The meeting will be called to order by President Hubbard Russell at 1:30 p. m., Saturday afternoon in the lecture room of the Chamber of Commerce Building, Los Angeles.

Instead of holding the regular semi-annual meeting of the state association it is planned this year to hold five meetings, one in each zone. The meeting on March 25 will therefore be an official meeting of the state association as well as a special meeting of Zone V to adopt definite plans for the future. An exceptionally interesting program has been arranged, and the cattlemen will be addressed by some of the ablest men in the country on various phases and issues of the livestock situation.

J. E. Wilson and R. D. Moore of Ripon have just purchased a fine young bull from the Waikiki Farms of Spokane, Washington. This bull is a thrifty individual, of fine conformation and good breeding. His sire is Count Foxy Lad of Waikiki, who is undefeated in the show ring of the Northwest and is out of the wonderful cow Eminent's Foxy Belle, with 816.6 pounds fat as a senior three year old. The dam of this young bull is Comassie's Golden Lucy. She has proved her ability as one of the foundation cows of the Waikiki herd. She is the dam of Pilot's Model, the grand champion cow with two gold medals to her credit, making 746 pounds fat as a three year old. This bull should put both production and type into the herd of Mr. Moore and Mr. Wilson and we wish to congratulate them upon securing such a bull for California.

Two more daughters of King Korndyke Pontiac 20th have made excellent records in the herd owned by W. J. Higdon, Tulare, both first calf heifers. Coloma Beauty Butter Maid 2nd made 21.63 pounds butter from 486.4 pounds milk in seven days as a senior two year old, and Winifred Hotaling Pontiac made 25.04 pounds butter from 480.3 pounds milk in seven days as a junior two year old. It will be noted that both heifers averaged nearly 70 pounds milk per day. Herdsman Tom Graham will continue these on long time test and has a most attractive lot of daughters of King Korndyke Pontiac 20th yet to freshen with their first calves.

Louise Alcartra Prilly, that lately made a world's record production of 40.19 pounds butter in seven days as a junior three year old in the Bridgford Holstein Company herd, Patterson, has now annexed another world's record by producing 151.32 pounds butter from 2,615 pounds milk in 30 days. She will be continued on long time test and with the wonderful start she is making promises a great record.

John A. Bunting, the popular secretary of the Pacific Coast Hereford Cattle Breeders' Association, reports the birth of a tailless calf and cites the instance as further proof of the possibilities in Hereford breeding. One group of breeders has eliminated the horns, and Bunting's friends are wondering whether he plans to go the polled men one better and develop a tailless strain. Bunting may decide to show this youngster, as it is certain that he will not be a tail-ender in class.

MILK IS ESSENTIAL FOOD

Announcing results of experiments in the agricultural chemistry laboratories of the Ohio state university, Prof. J. F. Lyman reports feeding tests on white rats which bear out the dairy

farmers' contention that "there is no substitute for milk."

Twenty-seven white rats, animals raised especially for experimental purposes, were taken to the Columbus laboratories and divided into groups of nine. The first group got bread and milk, the second bread and meat, the third bread alone.

The test ran 18 days. At the end the milk fed rats had gained an average of 38 grams, the meat fed rats had put on 27 grams, while the bread fed

groups showed advances of only three grams.

Moreover, the milk fed rats stayed sleek and strong, while those kept on bread alone went all to pieces and would have died, Dr. Lyman says, had their diet not been changed.

Dietetic investigators all over the country find that food which is good for rats is good for human beings and that laboratory results on rodents are reflected accurately in food tests on human subjects.

SEMI-DISPERSAL 65 REGISTERED HOLSTEINS

T. J. GIST & SONS HERD

Tulare, Calif.

Wednesday, April 12, at 10 A.M.

In order to rearrange their farming operations, T. J. Gist & Sons will sell at public auction their entire herd of registered Holstein females of milking age, a choice lot of bred heifers, and a good lot of young bulls, retaining their unbred heifers and heifer calves as the nucleus for their future herd.

Considerable official testing has been done in the herd and the sale offers a substantial number of young cows and heifers with official records up to over 26 lbs. butter in 7 days.

A FEATURE OF THIS OFFERING IS THE FACT THAT IT INCLUDES 35 ATTRACTIVE COWS AND HEIFERS BRED TO KING SYLVIA SEGIS COLANTHA, WHO IS A SON OF THE \$106,000.00 BULL CARNATION KING SYLVIA AND OUT OF A GOOD RECORD DAUGHTER OF DUTCHLAND GOVERNOR SIR COLANTHA, ONE OF THE BEST PROVEN SONS OF COLANTHA JOHANNA LAD.

The breeding represented in this herd is that of some of the most desirable producing families and the cattle will be offered in excellent physical condition.

Every animal guaranteed to be a breeder; no tuberculin test certificates.

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Sir Aaggie DeKol Mead



Bred in the richest Aaggie Acme-De Kol of Valley Mead cross, he should be one of the greatest young sires of the breed.

Five of his seven nearest dams average:

Butter	2 Years.....	2,040.97 Pounds
Milk	2 Years.....	41,547.20 Pounds
Butter	1 Year.....	1,130.66 Pounds
Milk	1 Year.....	23,096.60 Pounds

His seven nearest dams average:

Butter	7 Days.....	30.47 Pounds
Milk	7 Days.....	627.60 Pounds

His calves are just what we could expect from a long succession of great sires and dams, and in their present state of development fulfill every promise in the pedigree of their great sire.

Good business judgment will eventually prompt you to place at the head of your herd a bull of Aaggie Acme-De Kol of Valley Mead breeding

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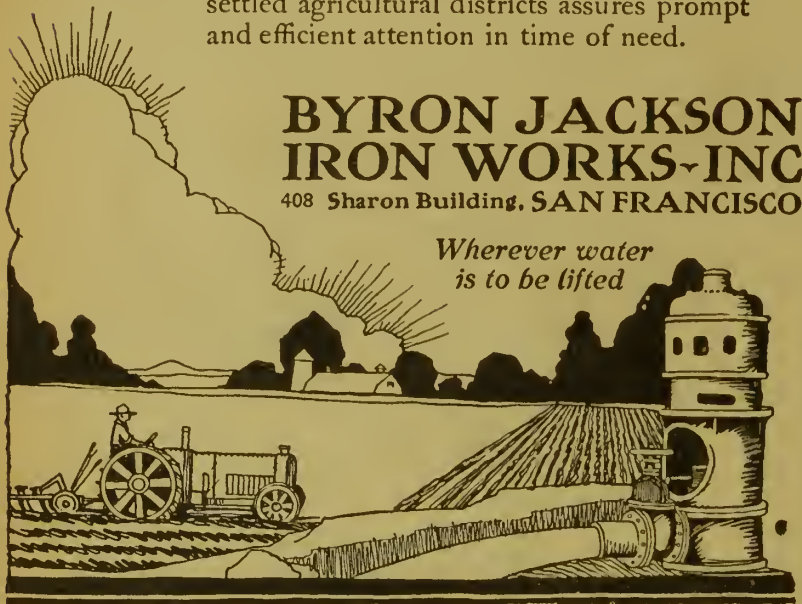
Responsibility of Leadership

One man conceived the idea of the gas and oil service station as a means of acquainting the public with the ideals of a big corporation. His idea at first scoffed at is now exemplified in thousands of such stations.

Byron Jackson Iron Works, not unmindful of the obligation of leadership bestowed by the agricultural world, is endeavoring in a less spectacular way, to give pump owners first hand knowledge of Byron Jackson ideals.

This is being done through a service department manned by the same engineers who have given Byron Jackson pumps world fame.

A system of service cars operated in the more thickly settled agricultural districts assures prompt and efficient attention in time of need.



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Wherever water
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It gives record yields in all parts of the West. Imperial Valley is the test for Milo Maize. This A & M Selected Dwarf gives remarkable yields there.

You naturally want the biggest crop from the seed you plant, and this wonderful strain always gives the "big crop." Bred up and field selected for years, this Milo Maize produces 3 to 7 heads on a single stool, and its nature is to stool.

Insist that your dealer supply you with A & M Dwarf Milo Maize.

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SURFACE IRRIGATION PIPE

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What and Why is the Piston Ring



HEREVER power is produced by pressure exerted on a moving piston, whatever the type of engine, motor or compressor, its effectiveness is determined by the piston rings.

Upon the piston rings depends whether all the force that is put into the cylinder—gasoline in the case of automobile motors, steam in steam engines, air in air compressors, etc.—is used to create power, or whether part of it escapes and is wasted. Upon the piston rings also depends control of cylinder lubrication; whether or not more oil than is needed to properly lubricate works up the cylinder walls to form carbon and, in gasoline engines to foul spark plugs and make smoke.

All pistons are necessarily made slightly smaller than the cylinders in which they operate. They must be enough smaller so that when they become heated in service they will not bind in the cylinder.

Piston rings are light springy bands of cast iron that are fitted into grooves in the piston. It is their function to close and guard this space between the piston and cylinder; to spring out against the cylinder wall with a definite, firm contact, equal at all points of their circle, so that there can be no escape between piston and cylinder wall for the power that drives the piston, so that no excess lubricating oil can creep up the cylinder walls to make trouble. Upon the equality of their tension against the cylinder wall at all points depends not only the maintaining of compression and restraining of excess oil but also maintenance of round and true cylinders. Rings of imperfect tension that bear more heavily at one point than another mean unequal wear on the cylinder

walls and out-of-round cylinders eventually.

Each ring should form a complete and concentric circle in perfect adjustment and conformity to the bore of the cylinder.

Not only is there waste of power where poorly fitting or worn rings permit gas to escape past them, but their gas condenses in the lower part of the cylinder, working then down into the crank case where it mixes with the lubricating oil. Gasoline is not a lubricant. It deteriorates the lubricating oil and the result is unnecessary wear in the motor because of ineffective lubricant.

Equal tension, uniform pressure outward from the ring's center against the cylinder wall at every point of its circumference, is the basic requirement for a piston ring properly designed and made to develop and maintain maximum compression and maximum fuel economy. The weakness of any piston ring design that does not produce this equality of tension is easily seen. The pressure against the piston ring of the compressed gas in the cylinder is the same at all points of the ring's circumference. It is in no place greater than it is in another. Therefore, it is obvious that a ring's pressure against the cylinder wall should be the same everywhere. If its tension or pressure against the cylinder wall is greater at one place than at another there is friction loss at the point of great pressure, which means loss of power and possible gas leakage at the point of least pressure. Merely closing its expansion vent by flanges, or a locking device or stepping the joint does not prevent leakage past the ring which has not equal tension on the cylinder wall.

Transportation Act

By J. L. Browning

Through processes established by the transportation act the value of railroads has been increased approximately \$5,000,000,000 above the market value of all railroad securities, that is, as the result of the transportation act it is estimated that the railroads are worth \$18,900,000,000 instead of approximately \$14,000,000,000, the maximum estimate of the market value of railroad securities in October, 1921.

On this value the transportation act requires the interstate commerce commission to fix freight and passenger rates in an amount that would produce a return to the owners of 5½ to 6 per cent, which is equivalent to about 8 per cent of the real market value of all railroad securities.

An amendment submitted by Congressman Kendric of Wyoming would, if adopted, repeal that provision of the act and remove that arbitrary limitation on the commission in fixing rates and thus make it possible for the commission in considering transportation needs of the country not only to have regard for the interest of the carriers but to consider the needs of the shippers and patrons of the road as well as the rights of the general public.

The increase in freight rates provided under the arbitrary provisions of this act have actually proved detrimental instead of beneficial to the railroads themselves. Instead of increasing revenue for the roads it has decreased the returns by limiting the volume of traffic; also as prosperity departs from the producer he ceases to be a purchaser of the things the railroads carry. This is clearly shown in the report of freight commodity statistics prepared by the bureau of statistics of the interstate commerce commission.

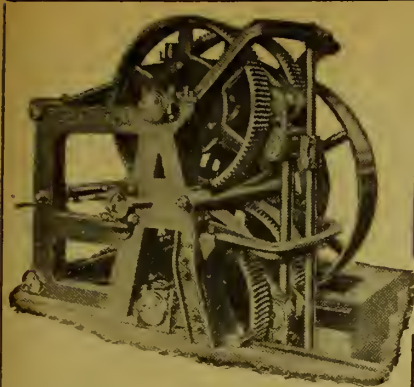
The number of cars of merchandise of all kinds was 855,006 less during the first six months of 1921 than during the same period in 1920. There were 6,644,005 cars less freight moved during the first six months of 1921 than during the first six months of the previous year. In the region west of the Mississippi the decline in the volume of freight was more than 2,500,000 cars in a single year. The revenue in that district for the first half

of 1921 was \$1,022,807,701, as compared with \$1,105,032,814 for the same period of 1920, a decrease of \$82,225,113. Undoubtedly the production of farm products was equal to that of the previous year, but many of the producers were unable to ship their products because the freight rates consumed the receipts for the products when they reached the market.

SHAMEL ON SUGAR

A. D. Shamel is in Hawaii after the sweet stuff in sugar cane. A recent letter written from the Hawaiian experiment station, says: "I find our work here even further advanced than I had dared to hope. This year we have requests from all the large plantations for bud selection work. This means that we help them pick out superior stools of cane for progeny fields. From the best progenies the second season we again pick out the best stools for additions to the progeny field. After we have made our selections from the progenies, the plantations use all the rest of the stools, except the very poor ones, for plantation seed."

Our work is really divided into two phases: investigational and commercial. In the investigational work we study bud variations, develop methods for the selection of superior stools, establish standards of selection, measure progress, and compare the behavior of progenies. In the commercial work we cooperate with plantations, they furnishing at least one trained man and as much labor as is needed in the planting of progeny fields with seed pieces secured from superior stools. The superior stool is the one that produces the most sugar. Usually it is the one having the largest number of heaviest stalks. The stools having uniformly good stalks are proving inherently good ones. It looks as though we were going to demonstrate upon an industrial scale remarkable improvement in yield of sugar through systematic bud selection."



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Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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POMONA Irrigation Gates and Valves



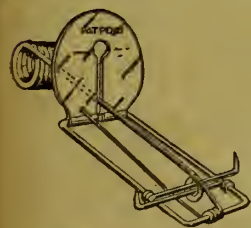
Union Tank & Pipe Co.

Designers and Manufacturers of
Heavy Plate Work and Light Sheet Metal

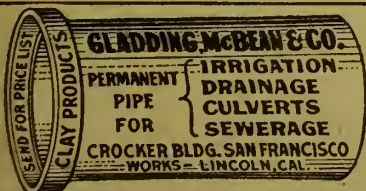
Well Casing

Plain and Corrugated Tanks
Water Tanks Irrigation Pipe

NEW OFFICE and FACTORY
2801 Santa Fe Ave.
Los Angeles, Cal.



The STAR Gopher Trap
TAKES THE GO OUT OF GOPHER
Send 30c in postage for sample, 6 for \$1.50. The Star Mfg. Co., 235 Aliso St., Los Angeles.



Bee Hives and Supplies

Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

The A. I. ROOT COMPANY, Dept. B.
1824 E. 15th St., Los Angeles, Cal.
PACKERS OF AIRLINE HONEY

STAWBERRY PLANTS

That Please the California Fruit Grower. G. J. Strelcher, Napa Co., Cal., writes: Jan. 7-22. Received strawberry plants today in fine shape, they are nice clean, well rooted stock. The inspector said they were the best rooted plants he had ever seen.
Our New 1922 Catalogue describing more than 21 varieties and containing other information now ready for your FREE copy quick.

V. R. ALLEN, Seaford, Delaware

When Writing Advertisers Please Mention Cultivator.

SUDAN CROP WORTH MILLIONS

From an eight ounce package of seed, introduced from Africa in 1909 through the efforts of C. V. Piper of the United States department of agriculture, the growing of Sudan grass has rapidly increased until in 1918 the value of the crop was estimated to be \$10,000,000, and its popularity is said to be greater here than in its native country. It is particularly well adapted to semitropical regions and the warmer parts of the temperate zones, but it has been grown with some success as far north as Southern Alberta. Since its introduction by the department in this country it has been tried with good results in Australia, South America, the Philippine Islands, Hawaii, Porto Rico and Cuba.

In a recent department bulletin, 981, Sudan Grass and Related Plants, published by the department of agriculture. H. N. Vinall and R. E. Getty have given extensive information regarding the history, adaptation, growing and utilization of this plant and some related grasses. Sudan, however, is far the most important, and the others have been treated only briefly. This new grass has proved best adapted to the southern half of the Great Plains in the states of Texas, Oklahoma and Kansas. It does not succeed well at high altitudes nor within 200 miles of the northern boundary of the United States. It has a high water requirement, but it withstands drouth well and recovers quickly when rain comes.

Sudan grass is admirably adapted for use as an emergency hay crop and is rapidly supplanting millet in many states. It is being used successfully by thousands of farmers as a summer pasture. For this purpose there are few crops that give better returns and serve so well to supplement the permanent pastures and the feed lot.

The bulletin outlines the results of numerous feeding experiments with Sudan grass. In these experiments it was demonstrated that Sudan grass hay compares very favorably with other well known hays in feeding value, especially as a roughage for work horses and stock cattle.

At present seed production is unprofitable on account of low yields and uncertain price. Yields of seed are highest in Western Texas and in the irrigated regions of New Mexico, Arizona and California. In growing the seed a great deal of care is necessary to prevent hybridization with the sorghums. When intended for seed it should never be grown on a field that has produced sorghum the previous year, and the field should be at least 80 rods from any field of sorghum.

WORK ON NATION'S HIGHWAYS

Highway construction will not be delayed by the requirements of the new federal highway act. The federal highway system will consist of roads not exceeding seven per cent of the total in any state, designated by the state and approved by the secretary of agriculture. Work is being rushed by all the highway departments on the preparation of maps of the proposed system, but naturally such an important matter will take some little time and consideration. The government authorities will insist that important through routes meet at state lines which will require conferences between authorities of different states.

In order that work will not be delayed pending the approval of each state system the secretary of agriculture has amended the rules and regulations for federal aid to permit the immediate construction of such roads as it may reasonably be anticipated will become part of the system.

State highway officials are being advised that the anticipated route of which the road to be built is a part should be as long as practicable, preferably entirely across the state. A map must be submitted showing the route, other possible routes and connecting routes. If this is found satisfactory the project will be approved for immediate construction.

The state of Washington submitted the first complete state system, and others are expected in a short time.

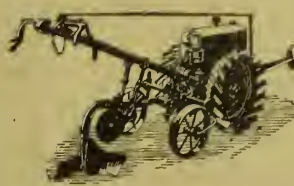


New Price

\$295

f. o. b. Factory

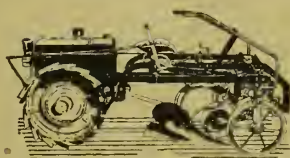
Standard Walking Type Now Sells For Less



Standard Walking Type Utilitor with Plow



Standard Walking Type Utilitor Equipped with 84-inch Mowers



New Riding Type, Model 501-A \$340 f. o. b. Factory

YOU CAN now own one of these handy, money-making, time-saving machines for less money. The Utilitor has proved its ability on hundreds of farms to do better, faster and less expensive work than animal power.

On the belt it has no equal for its size. It moves from job to job under its own power.

All hitches have been simplified and perfected.

We are also offering the NEW RIDING TYPE Utilitor. It steers from a comfortable seat by means of a tiller control. Most of the operations are watched from the driving position.

The New Riding Type sells for \$340 f. o. b. factory. Ask for Model 501-A.

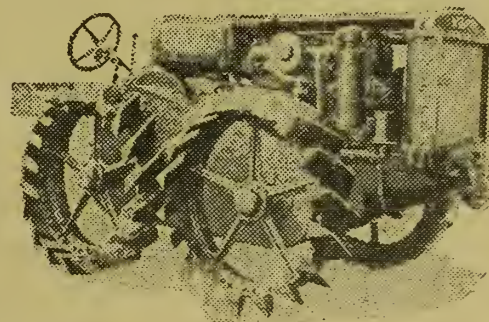
With increased discount and reduced prices the Utilitor is more attractive than ever from the dealer's standpoint.

Complete description of all models on request. Please address Department 303

MIDWEST ENGINE COMPANY, Indianapolis, U. S. A.

KROYER BUILT

4-Wheel Drive Insures Greatest Traction Under All Conditions



WIZARD 4-PULL TRACTOR

The Wizard 4-Pull is the only tractor having a rigid 4-wheel drive. This delivery of power to all 4 wheels gives the Wizard all the traction of a track machine—and under some conditions more—but without prohibitive upkeep costs of track tractors.

Built to Last

After delivering normal pull, the Wizard 4-Pull has 35% reserve power. It is built with over-strong parts throughout to support maximum performance.

There isn't a single oil or grease cup on the Wizard—the only tractor that is automatically oiled throughout. A great time saver. Every working part except wheels and fan is enclosed and absolutely protected against dust and dirt.

Keep these two points clearly in mind:

- (1) The tremendous traction of the Wizard.
- (2) Its unequalled durability and low upkeep cost.

For particulars, tear out this advertisement and mail it to us with your name and address.

Kroyer Motors Company

Los Angeles Harbor, San Pedro, Cal.

QUALITY

DEPENDABILITY

DURABILITY

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4½ cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. One recent order of County Farm Adviser's was 5,000 White Leghorns, 2,500 Brown Leghorns, 850 Red chicks. His orders are coming after two years' extensive trial of our chicks throughout his county. "I had the pleasure of seeing some your Anconas, White Leghorn pullets. They are grand." "Your Barred Rock chicks, bought May, 1919, proved great winter layers." "Can you furnish me 100 Wyandottes or Reds as good as your's last year? There's nothing like them here." These strains, 180-290-egg Leghorns, Rocks, Reds, Anconas, Orpingtons, Wyandottes, Minorcas, Andalusians, ducks, turkeys, yearly lead many egg-laying contests, supply foundation stock, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guaranteed. Booking for immediate future delivery, below prewar prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 No. Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Have you had satisfaction with your

BABY CHICKS?

If not, give us a trial. Our chicks give satisfaction.

DAY OLD DUCKS on orders.

STEELE'S EGG RANCH.
Phone Gardena Exchange 692.
Moneta, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. **J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.**

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Soquel, Santa Cruz County, California.**

THE MISSION HATCHERY

Barred-White Plymouth Rocks, R. I. Reds, Black Minorcas, White and Brown Leghorn, Baby Chicks and Hatching Eggs. Quality high—prices low. Circulars free. **Mission Hatchery, Box 27, Campbell, California.**

White Leghorns—Eggs for hatching our specialty; produced right, selected right, shipped right; 100% fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." **Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, Calif.**

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each, **Bronze Turkey** eggs 60 cents, and **Pekin Duck** eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address **Braemar Ranch, Santa Barbara, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Parks' P. R. Pedigreed Cockerels and Eggs for hatching (230-egg strain); breeding pen direct from Parks, Altoona, Pennsylvania. Cockerels, \$5.00. Eggs, \$5.00 for 15. **E. B. Williams, R. D. No. 2, Fillmore, California.**

White Leghorn Chicks from Hoganized vigorous two and three-year-old hens on free range. 287-egg strain. Prices reduced. Hatch each week. Safe delivery guaranteed. **Mrs. Robert Goddard, Los Gatos, California, R. A. Box 122.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. **Mrs. Flora Cox, Anaheim, California, R. 2.**
Peafowl For Sale—Old and young. Stamp. **Hiram Yoder, Tuleta, Texas.**

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

For Sale: White Leghorn Baby Chicks from free range selected hens mated with pedigreed cockerels from 200-287 egg trapnest records. May and June prices \$3.50 per 25, \$6.50 per 50, \$12 per 100. Special prices 500 and 1000 lots. Safe arrival guaranteed; you pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Order now. Established 1898. **Must Hatch Incubator Co., 438 Seventh St., Petaluma, Calif.**

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. 1, San Diego, California.**

Baby Chicks from Petaluma Electric Incubator have "Pep" that surprises customers. Electricity is life. Modern poultrymen are rapidly adopting our system with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself or get chicks from hatcheries using Petaluma Incubators. Write for our free catalog. **Petaluma Electric Incubator Co., Petaluma, California.**

Baby Chicks. Barred Rocks and Rhode Island Reds from carefully selected stock. You want the best, we have it. All chicks shipped by parcel post. We pay all charges. Prices for April and May: 25 chicks \$5; 50, \$9.50; 100, \$18. Order early as we are heavily booked. Established 1915. **Hargett & Son, Route 2, Box C, Compton, California.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.**

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. **Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

White Leghorn Hatching Eggs and Chix. Special reduction for April and May delivery; 18 years of trapnesting for vitality and high production. None better anywhere. Circular free. **Bonnie Brae Farm, Burbank, California.**

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Barred Plymouth Rocks, "Wonderful Layers, champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. **Charles H. Voddan, Los Gatos, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. **Model Poultry Farm, W. C. Smith, Prop., Corning, California.**

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. **Richard Mitchell, 420 Grimes Ave., RR 2, Box 130, Burbank, Calif.**

White Leghorn Baby Chicks from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. **Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Better Be Safe Than Sorry and order your chicks from the **Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. **Schellville Hatchery, Schellville, Sonoma County, California.**

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. **Forster Bros., Box 198A, Sunnyvale, California.**

Thoroughbred White Wyandotte Eggs, \$1.75 per setting, postpaid. **Mrs. Chas. Dougherty, Norwalk, California.**

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. **Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings.** **Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)**

Walter Hogan Stock White Leghorn Chicks. December and January chicks come from Winter layers. The cockerels are in the market for early broilers. You can have the chicks out of the brooder house in time to put in a Spring brood. We are hatching the chicks and ship by Parcel Post, safe arrival guaranteed. You can do what others do—make money with poultry. **Lyon Hatchery, Gardena, California.**

White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. **BLUE ANDALUSIANS** high class stock \$3.50 setting. **GOLDEN CAMPINES** and **LAKENVELDERS** from best yards in America. Mature early, heavy layers of white eggs, \$6.00 setting. **Anconas—\$2.50 setting.** Postpaid. **J. B. Crawford, Route 2, Compton, California.**

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. **J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.**

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 11. One-third cash with order. **Hawley's Hatchery and Poultry Farm, Route A, Box 351a, Lodi, California.**

Baby Chix: White Leghorns (Tancrets), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. **Enoch Crews, Seabright, California.**

Ancona Hatching Eggs from selected laying stock. Mated for beauty and heavy egg production. By the setting or hundred. Write for Mating List. **R. G. Baugh, 3534 Allendale Ave., Oakland, California.**

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. **S. H. Evans, Chowchilla, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

For Sale—Baby chicks, Barred Rocks, Rhode Island Reds, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tohener Hatchery, Route 2, Box 306, San Jose.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Thoroughbred Barred Rock Hatching Eggs. \$2.00 per 15 postpaid. Orders hooked for Ringneck pheasant eggs. **W. Leland Smith, Fair Oaks, California.**

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. **Maud Beeching, 1578 W. 46th St., Los Angeles, California.**

White Wyandotte Eggs from Pure Bred Stock, \$2.00 per setting of 15. **P. M. Moore, Campo, California.**

Light Brahmas—A few young cocks. Setting eggs \$5.00 per 15. **Keys Ranch, El Monte.**

Thoroughbred Langshans. Excellent layers, large, true to type. Eggs \$2.50, also stock. **Francis Rudkin, Fillmore, Calif.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. **Derryfield Farm, Capital National Bank Bldg., Sacramento, California.**

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA, CALIFORNIA.**

Big Type Durocs—Better Durocs at right prices. **Harvey M. Berglund, Dixon, California.**

BERKSHIRES

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. **Calac Orchards, Martinez, California.**

HAMPSHIRE

Hampshire Swine—always top the market. We have for sale, purebred Hampshire Hogs of all ages. Write us what you want. Address **Braemar Ranch, Santa Barbara, California.**

POLAND-CHINAS

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. **Bassett Bros., Hanford, California.**

WANTED

Want to Hear From Owner Having Farm For Sale: give particulars and lowest price. **JOHN J. BLACK, 116th Street, Chippewa Falls, Wisconsin.**

We Want a Few Thousand first class navels one and two year old trees not damaged by frost. **Southwest Nurseries, Head Office, Harlingen, Texas.**

SEEDS AND PLANTS

SUDAN GRASS SEED

(The Great New Hay Crop)

First introduced in the United States 1909 from Sudan, Africa. Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, it grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings. Pasture. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.

Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$5; 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.

BOWMAN'S HDWE & IMP. CO.

721 J St. Sacramento, Calif.

FOR SALE: GENUINE CERTIFIED HAIRY PERUVIAN ALFALFA SEED. DULY CERTIFIED AS COMING FROM INSPECTED FIELDS. EACH LOT NUMBERED AND IDENTIFIED WITH FIELD ON WHICH GROWN. IF YOUR DEALER DOES NOT HANDLE MY SEED, WRITE OR WIRE TO ME FOR PRICES, SAMPLES AND STATISTICS. **E. F. SANGUINETTI, ESTABLISHED 38 YEARS, YUMA, ARIZONA.**

Berries and Small Fruit Plants. Grown and shipped Direct from my large Berry Farms and Nurseries here of over one hundred acres. All select plants from improved strains of record producing vines. Twenty-five years of practical experience. Proper time to plant now. Send for price list. **M. J. MONIZ, Berry Specialist, Sebastopol, California.**

For Sale: Onion Seed, Genuine Sweet Spanish. They yield 8 to 15 tons per acre. Easy to grow and very profitable, and are highest priced onion on the market. Now is the time to plant seed. Packages 15c, 25c, 50c. Send orders to **E. Middleton, 333 W. 2nd St., Pomona, California.**

For Sale: 500 pounds Klondyke Watermelon seed, best brown varieties, at \$2.00 per lb. 100 pounds black seed Chilians \$1.00 per lb. All seed guaranteed to grow if planted at proper time. **Sam Oskey, 2005 Audrey Street, Los Angeles, California.**

Cory Thornless Mammoth Blackberry Plants and Loganberry Plants, 1 dozen each for \$2.50. Very special rates in larger quantities. Plants well rooted and in A1 condition. **C. E. Jenkins, 127 Luther St., Riverside, California.**

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. **Georgia Yams** or **Southern Queen (White),** \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. **B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.**

75,000 Rootings—Thompson, Malaga, Sultan, Zinfandel, Zante Currant and Muscat—\$28 a 1000. 7 kinds of cuttings, including Red Malaga. Trees, farm seeds; Sudan seed in car loads. Wanted 10,000 Tokay rootings. **Box 501, Fowler, Calif.**

For Sale: Strawberry Plants—Klondyke, Brandywine, Gibson and Senator Dunlap, \$5.00 per 1,000. **Cumherland Black raspberries,** \$3.50 per 100. \$35.00 per 1,000. **S. R. Moore, R. F. D. 3, Box 19, Inglewood, California.**

Cory Thornless Blackberry—Extra large plants, from experienced grower and shipper. 12—\$2.25, postpaid. Satisfaction guaranteed. Illustrated folder. Write **Chas. E. Mortenson, Lodi, California.**

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year, old, per hundred \$3.00; 2 year old, per dozen \$1.00. 2 year old, per hundred \$7.00. **Currier Bulb Co., Santa Cruz, California.**

Cory Thornless Blackberry—Extra large, well rooted plants now ready. You get the genuine from the Pioneer Grower **Wm. Mortenson, Route 1, Lodi, California.**

San Fernando Mission Grape Cuttings—\$10.00 per thousand at my ranch about ½ mile Southeast Old Mission. **P. F. Carton, Box 237, San Fernando, California.**

Cory Thornless Blackberry—Extra fine 6 foot plants, will bear this year; 6 for \$5.00, prepaid. Extra fine transplants 20c each, \$100.00 per 1,000. **A. L. Emery, 550 Kingsley Avenue, Palo Alto, California.**

Genuine Honey Sorghum Cane Seed, \$7.00 per 100 lbs. Best variety for syrup or feed. **Ray C. Robinson, Sorghum Specialist, 930 W. 5th Ave., Pomona, Calif.**

Alfalfa Seed—Certified Hairy Peruvian, Smooth Peruvian, Common. Write for samples and prices. **Delta Seed & Feed Co., Yuma, Arizona.**

Strawberry Plants—"Caroline" Extra choice. Bears first year. \$8.00 per thousand. **S. T. Stuver, El Cajon, California.**

Plant Our Six Weeks' Potatoes—Earliest biggest producer known. **J. L. Lawson, San Jose, California.**

Thompson Seedless Cuttings. Carefully selected, 10,000 at \$10 per M. **W. F. Ripley, Live Oak, California.**

Sour Orange Seed, fresh from Florida. Immediate delivery. **Milo Hunt, Whittier, California. Phone 250.**

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

GOATS

For Sale—Highest class pure bred and grade Toggenbergs. Milk goats. **La Corona Goatery, El Monte, California.**

DUCKS

Mammoth White Pekin Duck Eggs \$1.00 per dozen, \$8.00 per hundred. **A. Surtman, Petaluma, California.**

HORSES

For Sale—Ten Horses, suitable for Farm, ranch or grading work. **American Railway Express Company, Stables—551 Banning Street, Los Angeles, California.**

TREES

FOR SALE

NAVEL AND VALENCIA

NURSERY STOCK

NOT FROSTED

W. B. Ames, 9th floor, Merritt Bldg., 8th & Broadway, Phone 1156, Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

Walnut Trees grafted on Northern California Black, Placencia, Eureka, Payne, Hachiya Persimmons, locally grown on Lotus roots, also bench grafted and seedlings ready to plant. Royal apricots on apricot roots. Standard varieties apples, peach, pear, plums and nectarines. Rooted grape vines, berries, etc. All stock first class, prices reasonable. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVAL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Wonderful Pomegranate Trees. Strong, two-year old stock, well rooted. Ranging in price from 30c to 50c. Sample mailed on request. The supply is limited; place your order NOW. L. E. Ingoldsby Nurseries, Box 244, Lindsay, California.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Seedlings—Apple, pear, plum, peach, 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 100 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Avocados: We have a nice bunch of Puebla, Fuerte, a few Spinks, Knight, Queen and Blake. Well grown trees in fine condition. Coolidge Rare Plant Gardens, Pasadena, California.

JUJUBA CHINESE DATE Grafted trees, 2 to 4 ft. high. Best fruiting types. Sample of processed and dried fruit 25c. Chas. Booth, R. 3, Box 53, Chico, Cal.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 585, Phone Colorado 6044.

For Sale: Valencia Late, Washington Navels, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

Avocado Seedlings for Sale, a few thousand, established in paper containers. W. P. Sherlock, R. D. 2 Puente, California.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

For Sale—Selected Eureka Walnut Grafting Wood. F. C. Stone, R. A. Box 174, San Jose, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Sacks and burlap for balling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

MISCELLANEOUS

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco—Smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Kentucky.

Homespun Smoking or Chewing, 5 lbs. \$1.50, 10 lbs. \$2.50. Valuable formula. Smoking 5 lbs. \$1.00. Pigeon Roost, Sedalia, Ky.

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Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Free Smoking Tobacco—Smoke on us. Write for free sample. Hawesville Tobacco Co., Hawesville, Ky.

Posts—Lumber Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

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Sale or Trade—Ideal Stock or Dairy Ranch. 500 acres, one mile from town and railroad, fully equipped with all necessary implements and tools, horses and grade and registered Shorthorn Durhams. Fine house, large barn, blacksmith shop, garage, bunk house, pumping plant at creek and house, water runs in creek all year, well fenced and cross fenced, over 100 acres bottom plow land, burr clover pasture, variety of fruit trees around house, over 200 acres can be put into fruit and alfalfa if desired, about 2000 cords of oak and pine on stump, elevation 800 ft., 32 miles east of Stockton. Would consider residence and mercantile business in trade. Price \$40,000—terms 7%. For further information apply to owner, H. W. HANMAN, Valley Springs, California.

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50 hogs, implements, feed, etc., included; in well-known free range section; handy village advantages; city markets; 70 acres heavy cropping tillage; pasture, about 150,000 ft. timber; 65 apple and peach trees; well arranged cottage, good barn, spring water; to settle affairs only \$2900, part cash, easy terms. Details page 107, new illus. catalog, 1200 bargains. FREE. STROUT FARM AGENCY, INC., 831 H. K. New York Life Bldg., Kansas City, Missouri.

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For Rent or Sale—Good farm near Woodville, Tulare County. 8 acres 5 year old Thompsons pruned; 14 acres of alfalfa; 10 acres of 1 year Thompsons; 3 acres of raw land. Ranch is on Tulare-Porterville highway. Electric pump and pipe line. Sale price \$18,000. Address Box 366, care E. E. F., Willows, California.

Paradise, the Fruit Grower's Opportunity. Water, electricity, telephone, good roads, healthful climate. Write: C. H. Nielsen, Paradise, California.

Lake County Snap—10 acres fruit, on beautiful Clear Lake; \$5500, terms. Write Box 135, Lakeport, California.

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TURKEYS

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Mammoth Bronze Eggs—Foundation stock "Gold Nugget" and other prize strains. For six generations we have hatched only selected eggs from 2-year-old hens, then have kept only best birds for breeding stock. No inbreeding. Eggs guaranteed. Andrews & Andrews, Bo-Ka-Haunt, Hemet, California.

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Thoroughbred White Holland Turkey Toms \$15. - Eggs 60c each. Chinese Pheasants, pen of three, \$12.50; eggs \$5 setting. Matured Silver female, \$7. Prompt delivery. Pause Pheasantry, Fair Oaks, California.

For Sale: Eggs from fine Bronze Turkeys, 35c each, or \$30.00 per hundred. Wright's Poultry Farm, Box 455, Elsinore, California.

For Sale—1 Bourbon Red Tom, \$10.00. One Mammoth Bronze Tom, \$15.00. Thoroughbreds. Mrs. G. E. Rasdell, Shawmut, California.

Choice White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Robinson, Hemet, California.

Mammoth Bronze Turkey Eggs 35c, 50c, \$1.00 each. Fertility guaranteed. A few breeders left. Keys Ranch, El Monte.

Bourbon Red Turkeys, Red Jacket Strain—Egg orders booked now. Young stock reasonable. E. C. Laux, Hemet, Calif.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Tankership, California.

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Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint \$2.20 a gal. Roof Paint Special 35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdway 5401. Los Angeles, Calif.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

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Pedigreed Flemish Giants—No fancy prices. Maud Beeding, 1578 W. 46th St., Los Angeles.

MACHINERY

Orchard or grain farming outfit for quick sale at \$2500 on cars at Dixon, Solano County, California. Yuba 20-35 tractor and tools complete and first-class condition throughout. 5 bottom Newell-Sanders disc plow, 14 extra discs; 2-4 bottom John Deere 12-in. plow, adjustable iron draw bar, 8 rolling coulters and 13 extra shears. 40-in. spike tooth harrow and draw bars, new. 36-in. spring tooth harrow and draw bars, new. 2½-ton farm wagon and Gem seed sower, complete. New low iron wheel wagon, 1½-ton capacity, 2-ton iron tired trailer, with high sides, iron wheels and axles. See this bargain to appreciate it. Now is the time to orchard and summer fallow plow. Don't miss this bargain. James Porter, 1½ miles south of Dixon, Solano County, California, at large white house on west side of State Highway.

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 400 gal., \$16.25; 600, \$26.25; 1,000, \$36.25; 2,000, \$48.25. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., office upstairs, 120 N. Main, L. A.

One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drew Carriage Co., Ontario, Cal. Yuba 12-20 in excellent condition at real bargain price. L. M. Railsback Company, 115 S. Los Angeles St., Los Angeles, California.

For Sale—One Hardie Sprayer never used. W. S. Coffin, Ontario, California.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Innisfail Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Leesee, Davis, California.

Ridgewood Ranch—Registered Herefords. Chocely bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

For Sale—Small herd registered Holsteins, on semi-official test, T. B. tested. W. A. Walker, Ripon, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

BEWARE QUACK TREE DOCTORS

As the old orchard problem becomes more acute there is a tendency to attract the selfish interest of so-called tree doctors who advertise the cure of all tree ailments by mysterious or secret treatments. We have something of a parallel to this condition in the case of the human family. Physical ills are likely to develop which, on account of our lack of knowledge, may be difficult or impossible to diagnose or cure. Here is the "quack's" opportunity! He blandly offers a free diagnosis and makes extravagant promises of a sure cure for all and every trouble. Only the ignorant, to use a mild word, can offer such broad and confident promises as those sometimes made with regard to the cure of all kinds of difficulties in the case of decadent trees. We would suggest that the fruit grower beware of all extravagant claims for success in treating decadent trees until local orchard experience has demonstrated the value of any particular treatment.

When a bit of sunshine hits ye,
After passing of a cloud;
When a fit of laughter gits ye,
And your spine is feeling proud;
Don't forget to up and fling it
At a soul that's feeling blue,
For the minst that ye sling it,
It's a boomerang to you.—Capt. Jack Crawford.

Veterinary

Answers in this column by Dr. Wm. Cretie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Heaves

We have healthy looking work horse that seems to be getting the heaves. Please let us know cause of heaves and if he can be cured.—Subscriber, Fresno.

Heaves is caused by overeating and stretching the stomach beyond its normal capacity, the pneumogastric nerve goes to both stomach and lungs. Overloading the stomach seems to paralyze that nerve, and the effect is most noticeable on the lungs. It is hard to cure, but the following powders have given good results in some cases: Take one dram arsenic, one ounce powdered belladonna leaves, one ounce powdered digitalis leaves, two ounces powdered nux vomica and four ounces farina. Mix all and divide into 30 powders. Give one powder in the feed every evening.

Bathing a Horse

We have been told that bathing horses by turning hose on them through summer months will weaken them. Would like your opinion regarding this.—Subscriber, Pomona.

It does a horse just as much good to be clean as it does a person. We would advise clipping and then grooming him well with a good brush once or twice a day. Once a week a good bath with soap and water will do him good also. The water should not be too cold and the soap should be all rinsed off and the skin rubbed nearly dry with a coarse towel. If the water is very cold and is allowed to evaporate it will chill the animal and might do some harm.

Ruptured Pigs

Three pigs out of ten that we are feeding are ruptured in the rectum. It protrudes one and one-half inches. What is the cause and treatment?—Subscriber, Alvaro.

The cause is constipation. Press the rupture back in place and feed laxative feed. Alfalfa pasture and sour milk is good for growing pigs. Very little more can be done for them.

VALUABLE INFORMATION ON MARKETING

Far sighted farmers get more money for their livestock and crops by following the law of average prices in the marketing of their products than do those who ignore the seasonal price fluctuations. In the past one of the chief difficulties confronting those who wished to profit by such information was that reliable figures which showed the monthly trend of prices for crops and livestock were not readily available. For that reason "Market Statistics," a 280 page bulletin published by the United States department of agriculture, should prove especially valuable. It was prepared by the bureau of markets and crop estimates.

In the case of hogs, for example, actual average prices are given for each of the last 11 years, month by month, for several of the more important market centers. Tables show the average monthly prices for the 11 years combined. The man who ships hogs to Chicago can find out from a table in this bulletin that the average December price is 9 per cent lower than the 11 year average. The average September price is 8 per cent above the 11 year average. When comparing September, the highest month, with December, the lowest month, it is seen that the September price for the 11 years is 19 per cent above the December price. With such information available one can often adjust his farm operations so as to get his stock ready for market during the months of average high prices. He may also see where it would be profitable to hold his crops for marketing in months of higher than average prices.

"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer Incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

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Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

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1st and Grand Ave. East San Gabriel, Calif.



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Place your order now for early spring chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

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Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking orders for immediate and future delivery of all the popular breeds of baby chicks; Pekin, Muscovy and Indian Runner ducklings; Mammoth Bronze baby turkeys; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

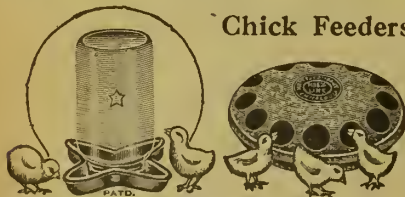
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Chick Feeders



Use Moe's Poultry Yard Fixtures. Designed by specialists, made to last. Ask your dealer and send for our catalogue.

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Try the Coulson System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars. Coulson Co., Petaluma, Cal.

When Writing Advertisers Please Mention Cultivator.

A Living From Hens

By Jean A. Koethen



CALIFORNIA poultry has had a good deal of advertising lately, not only on account of the remarkable increase in production in the last two years, but because of the prices "California whites" command in the New York market, and it is not strange that eastern folk, looking for a more salubrious climate combined with a reliable income should turn their eyes toward the California hen. The following letter from J. L. L. of Garrettsville, Ohio, is no doubt typical of many that are coming to farm publications and prominent poultrymen all along the coast:

"I have read your book and the Cultivator and have just finished making a scrap book from Cultivator clippings. I plan to return to California in June, 1922, and purchase a few acres for poultry if conditions are favorable for next year and the future. I was in the business in Petaluma in 1901, was successful and liked it very much; was in Los Angeles winter of 1920. Land is so high I think Central California is more favorable. As California has a large surplus of eggs at present and it must be very expensive to ship east and as eastern folks, seeing California can ship at a profit, are going into the business in all sections, will the time soon come when California poultrymen keeping 1,000 to 2,000 hens on six or eight acres can not make a good living income with good management and productive stock? What is the average per hen per year for the year just ended, and is California poultry keeping as profitable as in 1901?"

To put it briefly, as I understand the question, is a man in middle age justified in giving up his business in the East and coming to California with the expectation of making a good living income with a commercial flock?

Such a question is always hard to answer because of the personal element. Some California poultrymen are making a lot of money right now. Some, I am sure, are not. The average farmer (and the poultryman is a farmer) is not a get-rich-quick promoter. He has rarely had the profits he was entitled to. When prices began to fall a year ago prices of farm products fell first, all except poultry products, which remained fairly stable and saved the day in many states, as Professor Dryden has recently pointed out. According to Professor Dryden, prices of chickens are now 67 per cent above the five year prewar average, and prices of eggs 73 per cent above. The question is, Will poultry and eggs continue in this enviable position as compared with other farm products or will prices drop to a point where a good living is not possible for the little fellow, the man who does all his own work and must depend solely on market eggs for his income?

At the annual meeting of the Poultry Producers of Southern California on January 28 the question of expansion of the poultry industry was discussed by both Manager Stanley of the southern association and Manager Barber of the Poultry Producers of Central California. Production in California has increased 20 to 25 per cent the past year, and a similar increase is looked for in 1922. In Washington the industry is growing even more rapidly. So far the Pacific Coast organizations have been able to find a market for all surplus eggs, and a federation of the five organizations is being arranged, which will probably be in a position to extend our markets as well as to do away with overlapping and competition. "The main thing that has developed a market for Pacific Coast eggs in New York," said Manager Barber, "is standardization. If standards can be improved our market may be extended." It is for improvement in standards and extension of markets that all organizations are working, and if overproduction, with consequent lower prices, is to be prevented, it will be because poultrymen stand together shoulder to shoulder, forget their differences and cooperate to the fullest extent.

Conditions in and around Los Angeles, however, are different from those in other parts of the coast be-

cause of the very rapid increase in population. So great has this been that for a part of the year Los Angeles imports eggs as well as exports them. Consumption has actually increased faster than production, and 110,000 cases of eggs were shipped in last year. How long this condition will continue J. L. L. knows as well as I. It may end with this season, and it may go on indefinitely.

Hand in hand with increase in population goes the backlot hen. No one knows how many there are of her, but some have estimated her numbers as anywhere from one to two million. Every newcomer who left a farm back in Iowa or Missouri or Ohio is pretty sure to have his backlot flock in California. Some have blamed the backlot hen for slightly lowered prices in 1921 as compared with 1920 and 1919, which was the best year California poultrymen ever had.

How 1921 compares with 1901 I do not know. That it is better than 1910 I am quite sure. The fact that the industry is organizing and working to standardize its products and to stabilize prices as well as open new markets is wonderfully hopeful. Eggs and poultry are a necessity; the reason the producer does not always get living prices for his product is not so much overproduction or lack of demand as because somebody else gets his profits. With the farm bloc in Washington demanding fair play for the farmer and our producers' organizations working for more stabilized prices it looks as if producer and consumer must ultimately get closer together and the industry go on developing the next ten years as it has the past ten.

Now here is a little advice for J. L. L., which may as well be taken by Californians as by easterners: Don't put your eggs all into one basket; two are better and safer. Come to California, J. L. L., and buy just as much land as you have money to pay for, or perhaps a little bit more. Set it out to fruit, whatever fruit does best in the district you have chosen. Plant a patch of alfalfa and buy a cow. Build a 1,000 hen laying house and stock it with the best White Leghorns you can find. The manure from cow and chickens will keep your fruit growing, and the milk will keep your chicks growing. When oranges freeze and the walnut crop is poor you will still have eggs to keep the pot boiling. When the egg market fails your fruit keeps you going. Fruit and poultry together is the safest bet. A good many California people are planting their places on this system and there will be more next year.

The average production per hen per year is generally set at 150 eggs, though many flocks reach 175. The net income per hen varies considerably according to management. It would hardly be safe to expect an income of more than a dollar per hen, but experienced and careful managers sometimes double and even quadruple this amount. So much depends on the breeding of the hen and the character of the man behind her that generalizations are impossible.

Poultry Queries

Conducted by Jean A. Koethen

Shall We Sell?

Our 59 pullets, not yet a year old, are averaging a little over 41 eggs a day, which seems very good to us. Our problem is the comparative price of eggs and feed. Our last sack of feed cost 15 cents more than the one before, and eggs are five cents a dozen less. We are obliged to sell to the local stores; they ship to the wholesalers who in turn sell to Los Angeles retailers. We took in 12 dozen fresh eggs this week and received only 20 cents a dozen. At this rate our hens will not pay their feed bills. Shall we sell them or do you think the market will pick up soon?—Subscriber, Arroyo Grande.

This morning's paper chronicled a slight advance in the wholesale price of eggs. Whether this is a harbinger

of better prices nobody can say, but I doubt if there is hope of a permanent advance while eggs are going into storage. Packers, as you know, always push the price down as low as

The Cause of White Diarrhea

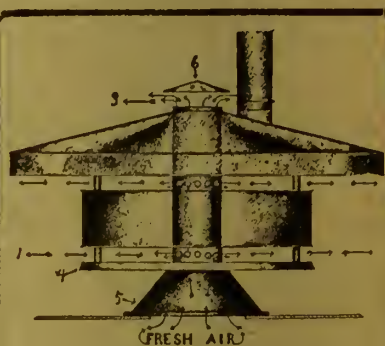
White Diarrhea is caused by the bacillus *Bacterium Pullorum* transmitted through the yolk. There is scarcely a hatch without some infected chicks. The germs multiply very rapidly and one infected chick may infect the entire brood. The germs can be killed by the use of preventives. Intestinal Antiseptics to kill the germs should be given as soon as the chicks are out of the shell. It is much easier to prevent than it is to cure.

How to Prevent White Diarrhea

Dear Sir: Last spring my first incubator chicks when but a few days old began to die by the dozens with White Diarrhea. I tried different remedies and was about discouraged. Finally, I sent 50c to the Walker Remedy Co., Dept. 593, Waterloo, Ia., for a box of their Walko White Diarrhea Remedy. It's just the only thing for this terrible disease. We never lost a single chick after the first dose. We raised 700 thrifty, healthy chicks, where before we never raised more than 100 a year. I'd be glad indeed to have others know of this wonderful remedy. Ethel Rhoades, Shenandoah, Ia.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send 50c for box on our guarantee—money back if not satisfied. Walker Remedy Co., Dept. 593, Waterloo, Ia.



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anywhere from 200 to 1500 BABY CHICKS and would like to have a SYSTEM that will furnish all the WARM FRESH AIR required, no matter what the climatic conditions may be, write us for our

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C. E. HILL CO.

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possible while they are storing eggs in the spring, and the producer has just as much power as the local association can wield—no more. Possibly it is because of an unusual number of withdrawals from the Poultry Producers the past year that the organization has not been able to stabilize prices. Possibly the poultry producer is getting his share of the slump which all farm products have suffered. At any rate your problem is the problem of the whole poultry industry in California just now. It would certainly be a pity to sacrifice those fine pullets. Why do you not cull out those that stop laying from any reason whatever the next two months and keep the rest, at least till prices reach their summer level? Every hen that goes broody or starts to molt, every hen whose comb looks wilted or whose pelvic bones are stiff and close together may be removed without much loss. Then you might try preserving as many eggs as you can in water glass. Mix a quart of water glass with ten quarts of boiled water which has partly cooled, keep in a large stone jar and immerse every clean egg as soon as it is laid. These water glass eggs usually command a good price in the fall.

Chickenpox

My hens have a disease similar in some respects to roup. One eye is closed with hard pus in the side of it, and there are hard black sores on the wattles. I am giving Roupene and painting sores with iodine.—Subscriber, Morgan Hill.

You have probably discovered by this time that your hens have chickenpox. You should isolate all that show any signs of the disease, anoint the sores with carbolated vaseline and mix dry sulphur in the mash, one pound of sulphur to 50 pounds mash. If your flock is large and the disease seems to be quite general it may be best to write Poultry Division, College of Agriculture, Berkeley, California, about vaccination. This is rather

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs

White Leghorn Chicks Only

Our customers contest which closed September 30, 1921, showed Farm No. 11 with 600 pullets hatched February, 1920, laid 217.09 eggs each, all in one flock. Can you beat this record?

We supply you stock bred for over 10 years for heavy production, incubated in the finest hatchery with perfect ventilation. Chicks delivered in perfect condition by our two specially constructed and ventilated auto delivery cars; capacity, 15,000 chicks at one load; or packed for express shipment by an expert who had 15 years in the Express service. Can any other Hatchery or Breeder offer you such service and quality chicks?

Call and see our new AIR WASHER SYSTEM, nothing like it anywhere. Perfect ventilation.

We are exclusive hatchers for spring of 1922, for F. R. Richardson, George J. Richardson, Charles G. Weaver, L. G. Hack, G. A. Saylor, C. W. Phelps, and George L. Miller; being the product of 25,000 pullets bred for the breeding hens.

Agent for "Pride of Petaluma" Brooder Stores. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circular.

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Box K. Van Nuys, Calif.

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Hens Not Laying?

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OFFERS FOR SALE

2000 Second-Year Breeding Hens at \$3.00 Each

17 years breeding for vigor and egg production behind them. Now trap-nesting 3,000 pullets.

HATCHING EGGS—\$10.00 per 100.

CHICKS—\$15.00 per 100; \$125.00 per 1,000.

WEEKS AUTOMATIC ELECTRIC BROODER for 100 chicks, \$12.50.

WRITE

CHAS. WEEKS

Palo Alto, Calif.

expensive and not always successful, and the poultry division does not advise resorting to it unless there is danger of an epidemic. A good many poultrymen are coming to feel that chickenpox is due to heavy feeding in the warmer weather of early spring rather than to contagion and is to be fought by lightening the ration and adding greens instead of by vaccination. There is a great deal we do not know yet about chickenpox.

Sick Ducklings

My ducklings, 19 days old, are beginning to drop off without any sign of sickness. Sometimes within five minutes two or three of the largest will drop dead. For the first ten days I fed steel cut oats, then changed to one part corn meal, one part heavy shorts and three parts bran and five per cent beef scrap and green barley.—Subscriber, Riverside.

The proportion of corn meal and beef scrap is too large for such young ducklings, but the main reason for these sudden deaths is lack of sand or grit, which ducklings must have. I judge, as water is not mentioned, that the ration has been fed dry, and that too is hard on ducklings. It is better to start them after the first three or four days when bread crumbs or rolled oats or dry coarse bran are given, on a mash consisting mainly of bran with a small amount of rolled oats and shorts added, making one-third of the whole cut green feed, with at least five per cent sand or chick grit added, and moistening the whole with cold water till it is crumbly. After they are well started on this mash gradually add a little beef scrap and corn meal till the proportion reaches at the end of a month about what you have been giving. Never omit sand or grit for the ducklings must have it to digest their food with.

Feather Eating

My Plymouth Rock and White Leghorn hens are pulling and eating one another's tail feathers. They have a balanced ration of mash, greens and grain and are in good condition and laying well. Is this feather pulling a disease?—Subscriber, Venado.

Feather eating is a vice, not a disease. Sometimes it is apparently due to lack of sufficient animal food, sometimes there seems to be no reason. Like a child's biting its nails, it is a habit, and one not easy to break. In the case of your hens, as you are giving the mash only an hour in the morning, lack of meat and lack of occupation may both be to blame. Try keeping the mash before them all day, and in addition give a meal of green cut bone once or twice a week, just what the birds will clean up in 15 minutes. Give them in the morning enough cut alfalfa so they will have something to pick at all the rest of the day. All hens whose skin is bloody should be isolated at once. When a flock once gets a taste of blood and learns where to find it they will keep picking at each other.

Uneven Shells

Why do my hens lay eggs with uneven shells? Some have thick ridges

and sometimes the same hens lay eggs with smooth shells. The flock is on free range and has grain morning and evening. Are these uneven eggs suitable for hatching?—Subscriber, Hullville.

Only such eggs should be incubated as are perfectly satisfactory in size, shape, texture and color, eggs that will command the highest market price. You may be right in thinking the same hens lay both smooth and rough shelled eggs, but it is generally believed that each hen always lays a certain shape of egg and that if you set smooth large eggs the pullets hatched will lay eggs like those they were hatched from. Perhaps your hens have not enough lime to make good, strong shells.

Distinguishing Sexes

Will you please tell me how to distinguish males from females of White Leghorn chicks. Can they be distinguished at five days old as some experts claim?—Subscriber, Arroyo Grande.

People who handle a great many chicks learn to distinguish sex very early, just how early I do not know. The males develop combs first but the females feather out earlier. I am quite sure a well sexed cockerel can be picked out at two weeks of age, and probably an expert can pick out most of the cockerels in a flock before two weeks. A husky youngster with a more noticeable comb than the average is quite sure to be a male, and those that stand up highest on their feet are generally males, but this rule is not infallible.

Weak Pullets

I have what promised to be a very fine flock of pullets, hatched January, 1921, but they have not proven good. They do not seem to be sick, but sit around and dwindle away, finally die in many cases. They have the very best of care and a balanced ration. Can you tell me what may be the cause, and how I can build them up?—Subscriber, La Mesa.

If that were my flock I should examine the house for mites the first thing. That done, I should make sure that the hens had an abundance of fresh air. Some months ago I visited a poultry plant where the hens were sitting on the roosts moping and nearly suffocating with the dust raised in the scratching litter, which was kept in the house by lack of any air current sufficient to carry it off. All the ventilation came through the wired in front. Is it possible that something of this sort ails your flock? If you are satisfied that ventilation and cleanliness are what they should be, you will have to conclude, I fear, that there is some inherent weakness in the birds, due to sickness when they were small or to weakness in the breeding stock. In that case the best thing is to get rid of every mopy hen. Kill them if they seem sick, and send to market if they are merely not laying. If they are losing weight you have reason to suspect tuberculosis, and for this there is no cure but absolute cleanliness and elimination of every affected bird. You know, of course, that lack of green feed has killed off many a flock.

NATIONAL EGG LAYING CONTEST

English Wyandottes won the cup for February. The 300 hens in the contest laid 5,217 eggs during February, or an average of 17.39 eggs per hen.

Number of eggs laid by different breeds for month and to date are: Wyandottes, 926, 3,211; miscellaneous varieties, 910, 3,055; Leghorns, 877, 3,031; Plymouth Rocks, 785, 3,030; Anconas, 863, 2,624; Rhode Island Reds, 856, 2,562.

Ten leading pens to date are: S. C. White Leghorns, England, 430; White Wyandottes, England, 422; S. C. White Leghorns, England, 398; White Wyandottes, Missouri, 396; R. C. R. I. Whites, Missouri, 392; S. C. White Leghorns, Washington, 388; Barred Rocks, New Jersey, 361; Barred Rocks, Missouri, 360; White Wyandottes, England, 358; Black Langshans, Missouri, 353.

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Inferior seed is dear at any price. Compared with the expense of cultivating and harvesting, the cost of seed is the merest trifle. Your crop, your profits, depend on the seeds you plant. Therefore, KNOW them!

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Buy from your dealer. If he is a live wire he handles Germain's PROVEN Seeds.

Write Dept. C for free copy of Germain's 1922 Seed and Planting Book.

Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means \$1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. Write for easy terms and free catalog.

LIVESTOCK MFG. COMPANY
Box 716 Clarinda, Iowa

Los Angeles Markets

Los Angeles, March 22, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 36 cents.

CHEESE

Brokers' prices:

California flats, 20@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 27½; case count, 24½; pullets, 24.

POULTRY

Price to producers: Hens, 25; colored, 31; broilers, 37@45; roasters, 38; old roosters, 14; fryers, 45; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 40, dr., 45; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, March 21—Weighed and delivered on cars without food or water: Hogs (hard grain fed) 125 to 175 lbs., 10.50; 175 to 225 lbs., 11.00.

Cattle (on feed, good weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 7.00; 150 to 225 lbs., 8.00.

Sheep: Ewes, 5.00@7.00; lambs, 11.50@12.50.

HIDES, PELTS AND WOOL

Quotations furnished by California Hide Corporation for stock delivered to warehouse.

Green salted hides—No. 1 steers, 7 per lb.; No. 1 cows, 6 per lb.; No. 1 bulls, 5 per lb.; No. 2 hides, 1½ less per lb.; grubby hides, 1½ less per lb.; kosher hides, 1 less per lb.; glue hides, 1 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each.

Green hides—No. 1 steers, 6 per lb.; No. 1 cows, 5 per lb.; No. 1 bulls, 4 per lb.; No. 2 hides, 1½ less per lb.; kosher hides, 1 less per lb.

Calfskins and kipskins—No. 1 calfskins, under 15 lbs., 10 per lb.; No. 2 calfskins, under 15 lbs., 8 per lb.; No. 1 kips, 15 to 30 lbs., 8½ per lb.; No. 2 kips, 15 to 30 lbs., 7 per lb.; kosher skins, 1 less per lb.; glues, 1 less per lb.; slunks, 20@40 each.

Dry flint hides—No. 1 hides, 16 lbs. and up, 10 per lb.; No. 1 kips, 6 to 16 lbs., 10 per lb.; No. 1 calfskins, under 6 lbs., 10 per lb.; No. 2 hides and slunks, 2 less per lb.; glue hides and skins, 2 per lb.

Pelts—Large, long wool, 75@130 each; medium, 25@175 each; short wool and shearings, 10@25 each.

Goat skins—No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow—Tanners, white and hard, 5½ per lb.; No. 1 4½ per lb.; No. 2, dark and greasy, 2@3½ per lb.

Wool—According to quality and condition, 10 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market steady. Lugs, 80@1.00. Stocktons: Burbanks, per cwt., best, 2.40@2.50; poorer, 2.00@2.25; ungraded, 1.40@1.75 per sack. Idahos: Russets, best, mostly 2.00@2.25; bakers, 3.25; Rurals, 1.75. Orecons: Burbanks, bakers, 3.00. New stock, Carlsbad, 10@15 per lb., according to quality. Sweet potatoes: Movement light, market weak.

Locals, No. 1, best, per lug, 55@75; poorer, 50; few best, 85 in small lots. Arkansas: Nancy Halls, 4½@5 per lb.; per bushel, 2.00@2.25.

Onions: Demand light, market firm. Stocktons: Per cwt., White Globes, best, mostly 8.75@9.00; browns, best, mostly 7.50@8.00; lugs, whites, best, 2.75@3.00; browns, 2.25@2.50.

Garlic: 7@8 lb.; poorer, 5@6.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, March 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, large, fancy, 1.50@1.75; medium, 1.25@1.40; small, 45@1.00.

Asparagus: Local, 60 lb. Imperial Valley, 50@60. Delta, 35@50.

Bunched vegetables: Per doz. bunches: Turnips, 35@40; carrots and beets, 70@75; radishes, 20; parsley, 20; spinach, 35@40; mustard, 20@25.

Cabbage: Per field crate, mostly 2.25@2.50.

Caulliflower: Market weaker. Per field crate, mostly 2.50@2.75; poorer, low as 1.75@2.00.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, best, 5.00@6.00; poorer, 3.00@4.00. San Diego, cold storage, 8.00@8.50; small sizes, 5.00@6.50.

Lettuce: Demand moderate, market steady. Locals: Quality poor; best mostly 2.25@2.50; poorer, 1.50@2.00; per field crate, according to quality. Imperial Valley, small to medium sizes, 3.75@4.25.

Parsnips: 1.25@1.40.

Onions: Green, 15@20 bunch.

Peas: Imperial Valley, 35. San Pedro, 35@40 per lb.

Peppers: Demand moderate, market steady. Mexicans, Chilis, 11@15 per lb.; Bells, fancy, mostly 20@25.

Rhubarb: Box, 1.50@1.75.

FRESH FRUIT

Strawberries: 9.00@12.00 per cr.

CITRUS FRUITS

Grapefruit: Market firm. Californias: Northern, packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.00@2.50.

Imperial Valley, 3.00@4.50, according to size and quality. Arizonas, 3.75@4.75; few 5.00 in small lots.

Lemons: Demand and movement moderate. Market firm. Locals: Loose boxes, best, 2.25@2.50; poorer, 1.50@2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 6.00@6.25; market pack, 4.00@6.00; culls, 50@1.00 per field box; few best, 1.50@1.75.

Tangerines: Demand and movement light, market weak. Best, 7@8; poorer, 5@6.

GRAIN

Prices on L. A. Grain Exchange. Barley, March delivery, 1.46½; Milo, March delivery, 1.30.

HONEY

A bumper honey crop is looked for, although the season may be late on account of cold weather. It will probably be about June 1 before the new crop is ready to move in volume. Beekeepers are making provisions for a heavy flow of nectar. Some plant species in Southern California have been in bloom for several weeks. Bees are active and starting to build up. Supplies are light, but the demand is said to be very limited. The market is largely nominal, with few recent sales. Quotations f. o. b. California points, for eastern shipments, less than carloads for pooled carlots, follows: White orange blossom, 11; light amber sage, 8; extra light amber sage, 8½; light amber alfalfa, 6¾@7. Little demand is reported for beeswax, which is selling lively at 22 cash or 25 in trade.

San Francisco Markets

San Francisco, March 21, 1922.

BUTTER

First 36½

CHEESE

Dairy Exchange quotations: California Young America, fancy, 22½; Oregon Trips, 25; Oregon Young America, 25.

EGGS

Dairy Exchange Quotations: Extra 21½; Extra Pullets 25.

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs., 40@42 per lb.; 1½ to 2 lbs., 44@46 per lb.; 2 to 3 lbs., 44@46 per lb.

Colored Fryers: 2½ to 3 lbs., 42@44 per lb.

Colored Young Roosters: 3½ to 4 lbs., 40@42 per lb.; over 4 lbs., 35@38 per lb.; staggy showing spurs, 25@30 per lb.

Colored Old Roosters: Slow, 18@20 per lb.

Leghorn Old Roosters: Slow, 15@18 per lb.

Leghorn Hens: Weak, movement slow, supplies increasing, 2½ to 3 lbs., 20@22 per lb.; 3 lbs. and over, 22@24 per lb.

Large Colored Hens: 27@29 lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@25 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7@7½ per lb.; second quality, 6@6½; cows and heifers, No. 1, 5½@6½; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 8@9 per lb.; ewes, 6@7.

Lambs: 12@13.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 13 per lb.; do 200 to 250 lbs., 12 per lb.; do 250 to 400 lbs., 10 per lb.; light sows, 11 per lb.; heavy, 10 per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Turlock, March 15

59 155 11.60

15 206 11.10

10 244 10.60

1 320 9.10

1 boar, 15.00

86 hogs

1 car, 16 consignors, \$1,706.54.

Madera, March 16

71 169 11.25

1 110 10.75

1 270 10.25

73 hogs

1 car, 7 consignors, \$1,394.55.

Fresno, March 17

100 187 11.70

1 410 9.20

101 hogs

1 car, 6 consignors, \$2,222.11.

Kearney Vineyard, March 17

47 185 11.70

23 236 11.20

3 333 10.20

73 hogs

1 car, 1 consignor, \$1,728.11.

Bakersfield, March 18

78 178 11.40

16 feeders 107 10.00

3 stags 367 2.00

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while

higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 18.00@19.00 lg. crate; poorer, 15.00@17.00 lg. crate; Nos. 1 and 2, 85@1.25 doz.; Nos. 3 and 4, 50@75 doz.

Asparagus: 35@50 lb., according to quality.

Bunched Vegetables: Carrots 50@60 doz.; turnips, 45@55 doz.; beets, 50@60 doz.; parsley, 15@20; radishes, 30.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.50 sack.

Caulliflower: 1.25@1.50 doz.

Celery: River, fair, 2.00@4.00 crate; San Diego, 6.00@6.75 crate.

Chicory: 2.25@2.50 crate.

Cucumbers: Hothouse, fancy, 2.00@3.00 doz.; smaller, 4.00 sm. crate; English, 2.50@2.75 doz.

Egg Plant: Florida, 15@30 lb.

Endive: 40@55 lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Slow, feed; Imperial Valley, 3.75@4.25 crate; L. A., 1.50@2.50.

Mushrooms: Ordinary, 35@60 lb.

Onions: Brown's, 6.75@7.00 cwt.; Wh. Globes, medium, 8.00@9.00; Gr. Onions, 1.50@1.75.

Peas: So., 40@55 per lb.

Potatoes: Rivers, fancy, 2.15@2.30; Oregon Burbanks, 2.15@2.40 cwt.; Idaho Netted Gems, 2.25@2.50; Salinas, 3.00@3.25 cwt.

Peppers: Florida and New Mexico, Bells, 15@22 lb.; Chilis, 5@10 lb.

Rhubarb: Southern, 2.50@3.00 box; Bay, 12@15 lb.

Squash: Cream, 1.25 per lug; Hubbard and Banana 6@8 lb.

Spinach: Local, 5@7 lb.; poor for less.

Sprouts: 14@15 lb.

Sweet Potatoes: Best, per cwt., 3.75@3.90; Louisiana and New Mexico Yams, 2.10@2.15 per 50-lb. basket.

Tomatoes: Mexican, repacked, 3.50@4.00 per Los Angeles lug; poorer, original pack, 2.00@3.25; cr., fy., 2.00@2.50.

Turnips: 1.75@2.00 sack.

FRESH FRUIT

Avocados: California, 4.00@7.50 doz.

Bananas: Best Eastern and Hawaiian, 6½@8 lb.

Pears: Winter Nellis, 3.00@3.75 box; poorer storage, 1.00@1.75 box.

Pineapples: 5.00@6.00 doz. for medium size.

Strawberries: 7.50@10.00 crate.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples In 50s

Choice 13½

Extra choice 13

Fancy 15

Apricots In 25s

Standard 18½

Choice 22

Extra choice 23

Fancy 26

Extra fancy 28

Moorparks, fancy 29

Moorparks, extra fancy 31½

Figs

California Peach and Fig Growers prices:

White Standard (in 50s) .07½

Choice (in 50s) .08½

Fancy (in 50s) .11

Bricks, 12 No. 10s. 1.10

Bricks, 24 No. 8s. 1.80

Bricks, 50 No. 6s. 2.30

Bricks, 70 No. 4s. 2.95

Layers, 10 lb., 4 row 1.60

Layers, 10 lb., 5 row 1.40

Calimyrna Bricks, 24 No. 3s. 2.05

Peaches

California Peach and Fig Growers prices:

Yellow Muir

Slabs (in 25s) .10

Standard (in 25s) .10½

Practically peeled, Standard (in 25s) .11½

Cartons, 30 11 oz., per case 3.10

Cartons, 60 11 oz., per case 6.00

Cartons, 24 2 lb., per case 6.50

Cartons, 10 5 lb., per case 6.60

Pears

Standard In 25s

Choice 12@13

Extra choice 15@16

Fancy 17@18

Prunes

California Prune and Apricot Growers prices:

Size Basis Price Per lb. In 25 lb. Boxes

30-40s. 10 @10½ 13½@14

40-50s. 8½ @ 8½ 11½@12

50-60s. 7 @ 7½ 9½@10

60-70s. 6½ @ 6½ 8½@9

70-80s. 6 @ 6½ 7½@8

ROOT STORAGE EXPERIMENTS

The agronomy division at Davis is carrying on some storage experiments with root crops. Feeding tests have shown that roots are highly desirable additions to rations for certain animals. Yields have been found satisfactory, also, the tonnage per acre of mangels in some cases running over 50 tons per acre. But roots long and stored in a pile soon deteriorate from mold and decay. In the East successful storage is accomplished by placing in a mound covered with earth or in an underground cellar, but the main consideration there is to keep the roots from freezing. The difficulty we have here in our mild winter climate is keeping the roots cold enough to prevent mold and decay.

A system of storage to be successful not only must keep the roots from deterioration from spoiling to any great extent but must be handy and convenient to the place of feeding. Simply leaving the roots in the ground during the winter where they were growing during the summer meets the first requirement, but during rainy weather it is impossible to harvest them each day for feeding. In the spring the roots send forth seed stalks for reproduction, a characteristic which is accompanied with rapid deterioration in feeding value due to increased woodiness of the roots and stalks.

The different methods being investigated include: Ridges of roots covered over with earth both with and without ventilation and with and without a fly-roof to protect the ridge from the heat of the sun. Mounds of roots covered with earth both with and without ventilation. Stratification of roots in sand and earth both in a moist and in a dry condition, and storage in bins in an underground ventilated cellar.

The most striking results so far have been in the comparison of the ventilated against the non-ventilated ridges. The sections of the ridges not ventilated collapsed a short time ago and on digging out the dirt it was found that the roots had practically all molded or rotted away. The temperature of the non-ventilated ridges has run between 75 and 90 degrees Fahrenheit, while those of the ventilated ones has been between 40 and 48 degrees Fahrenheit so far during the winter. The ventilated ridges have not been dug into but have shown no signs of collapsing.

Later in the spring the various mounds and ridges will be opened to note the condition of the roots and especially to note if there are any differences among the different classes of roots, sugar beets, mangels, swedes, and carrots, as to their resistance to mold, decay and deterioration.

BARLEY VERSUS CORN FOR FATTENING PIGS

Corn has long and justly, too, been considered the premier fattening grain for hogs, says N. K. Carnes of the animal husbandry division of the Minnesota college of agriculture. Corn is deficient in protein and ash, the growing and muscle building materials, but is rich in carbohydrates and fat. When it is supplemented by tankage, a food rich in protein and mineral matter, it becomes a superior feed for fattening hogs.

Barley can be grown in sections where corn will not mature, and in many instances has proven a profitable grain to feed, but as yet no individual or experiment station has been able to demonstrate that barley is fully equal to corn in a ration for fattening hogs. Barley is a carbonaceous feed, containing more protein and ash than corn, but where corn is supplemented with tankage, the increased protein advantage of the barley is overcome. Barley contains more fiber and is consequently less digestible and palatable than corn.

A feeding trial just completed at the university farm bears out the above statements. Two groups of 11 and 12 fall pigs, respectively, were self fed, free choice from May 25 to July 5. Group 1 was self fed shelled corn and tankage, and Group 2 ground barley and tankage, with the following results:

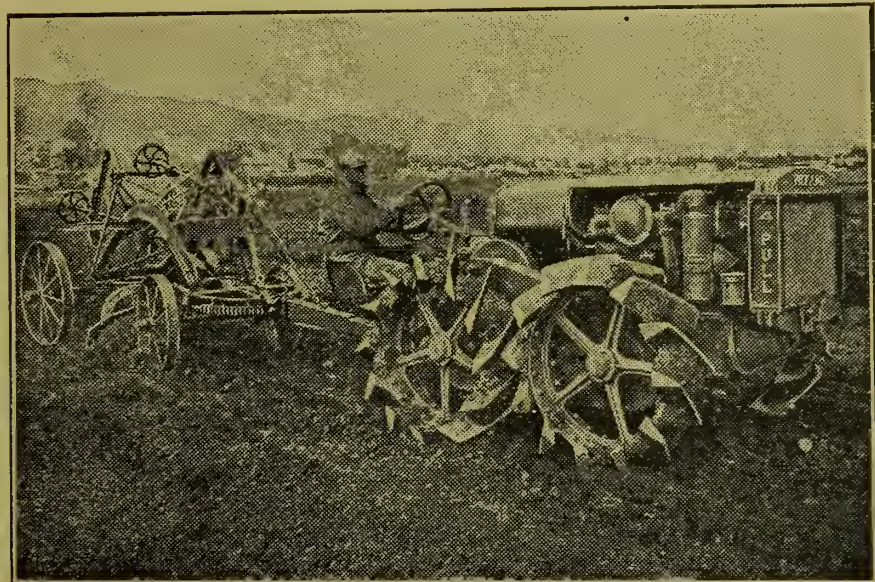
	Group 1	Group 2
Initial cost per 100 pounds at university farm.....	\$10.61	\$10.61
Initial cost per pig.....	13.22	13.23

Average initial weight per head (pounds).....	124.6	124.7
Average final weight per head (pounds).....	203.4	187.9
Average total gain per head (pounds).....	78.8	63.2
Average daily gain per head (pounds).....	1.87	1.50
Total feed consumed per head:		
Shelled corn (pounds).....	261.36	
Ground barley (pounds).....		256.70
Tankage (pounds).....	38.29	46.53
Feed consumed for 100 pounds gain:		
Shelled corn (pounds).....	331.59	
Ground Barley (pounds).....		406.17
Tankage (pounds).....	30.18	29.41
Total feed per 100 pounds gain (pounds).....	369.88	452.70
Total feed cost per head.....	\$2.81	\$3.05
Selling price So. St. Paul.....	9.50	9.50
Selling price Univ. farm.....	9.00	9.00
Ave. sell'g price per head.....	18.31	16.91
Return over feed per head.....	2.28	.63
Feed prices: Corn, 45 cents bu.; barley, 44 cents bu.; tankage, \$47.50 ton.		

The pigs fed ground barley and tankage made smaller gains than those fed ground corn and tankage, and required 18.3 per cent more feed for 100 pounds of gain. All pigs from both lots sold at the same price, but the corn and tankage group made \$1.65 more profit per head than the barley and tankage group.

NEW EQUIPMENT, GREATER EFFICIENCY

The Kroyer Motors Company, manufacturing the Wizard-Four-Pull tractor, has now completed the removal of its plant from Stockton to the yards of the Los Angeles Shipbuilding and Dry Dock Corporation at



Wizard Four-Pull Tractor Handling Road Machinery.

Los Angeles Harbor. The removal of parts for upward of 200 tractors and the installation of special machinery has been proceeding since the first of the year, and the actual construction and output of the first unit of this year's production of tractors is now under way at the new plant. The shipyard plant, in whose machine, metal and wood working shops the Wizard tractor is now being built, has a record of \$62,000,000 of steel ship and machinery construction in the past four and a half years. The revolutionary engineering principles upon which the Wizard has been designed and built were developed as the result of Mr. Kroyer's 30 years of practical tractor experience. The machine presents many striking and unique features. Its pull is upon all four wheels and each wheel is equipped with shoes set at such angles as to give a worm and gear effect in contact with the ground and to yield the maximum of traction. To overcome the greatest possible amount of up-keep expense, Mr. Kroyer has built the Wizard with a motor which has 35 per cent reserve power after yielding its normal pull, and has also built every part of the tractor itself proportionately strong. The Wizard has not a single grease cup, and its only working parts exposed to dust and dirt are its wheels and its fan.

FRESNO CLAIMS HEAVIEST SNOW FALL IN UNITED STATES

Fresno County will be well in the running this year in claiming the heaviest snowfall of any district in the United States, if the weather man maintains his present mood.

The popular impression still goes in 47 states of the Union that Fresno is a warm place, but there is at least one section of the county that isn't just now. This is up in the Sierra Nevada, where Fresno County comes on to the rim of the world.

It is many a year since even the Sierra knew such a heavy precipitation. Trappers coming back from the trails and lumbermen working high up in the mountain camps tell of everything being covered with a heavy white carpet from six to eight feet in depth.

The United States weather station at Camp Seven, which is at about 7,000 feet elevation and five or six miles east of Hume in the Kings River watershed, is keeping close tab on the precipitation. The weather man there registered on January 14 no less than 45½ inches of snow and ice on the ground. Higher over the ridges and in the high Sierra meadows the depth of snow deposits goes well over the four foot figure, while there are drifts as deep as ten to twelve feet, so hardy travelers say.

At the Summit weather station, in the Northern Sierra, a precipitation of 48 inches has already been recorded, and the Fresno station to the south is gradually overhauling it. The registrations of the two Sierra posts are probably higher than anything in the Rocky Mountains—which would give the Sierra Nevada Mountains the heaviest snowfall in the United States.

One of these days it will become a popular pilgrimage to Fresno County

Thousands of city, town and village gardens also include small fruits, asparagus, rhubarb and other permanent crops.

This bulletin gives brief instructions for the planting and care of the more important small fruits and perennial vegetables. More complete information may be found in the special bulletins of the department of agriculture and of the state agricultural colleges and experiment stations.

CALIFORNIA EGG LAYING CONTEST

The contesting hens laid for the ten days from March 1 to 11, 3878 eggs, or a percentage of 62.5, Alex Stewart's at the front with a production of 81 per cent. Following are the high pens for the ten days' Alex Stewart, 81 eggs; Boehm & Noel, 78; R. H. Young, 77; D. B. Walls, 77; E. D. Crewdson, 76; W. J. Neef, 76; L. A. Thornewill, 75; J. J. Shore, 75; D. C. Berry, 74; Geo. B. Ferris, 73; C. R. Russel, 73; A. E. Seifert, 73; Sunrise Poultry Farm, 72; Geo. Wood, 72; Sea Breeze Poultry Farm, 72; W. A. Ford, 72; Bolfin's Poultry Farm, 72; C. P. Brooks, 72; Hollywood Farm, 71; Ferris, 71; H. C. Kleinsmith, 71; H. H. Corbett, 71; S. L. Gibson, 70.

No Speeding

Rastus, a young negro hand, was showing one of his employer's guests around the farm. Presently they came to a tree with a hornet's nest hanging from it.

"Well, Rastus," said the guest, pointing to the nest, "I'll bet you're afraid to poke this stick in there."

"No sah, boss. I won't do dat. Ise not afeard of de hornets, but I don't want to git arrested fer speedin'."

Went Too Fast

Jack—Yes, I had a little balance in the bank, but I got engaged two months ago, and now—

Muriel—Ah, love makes the world go round.

Jack—Yes, but I didn't think it would go round so fast as to make me lose my balance.

Advice is like snow: the softer it falls, the longer it dwells upon and the deeper it sinks into the mind.—Coleridge.

WEATHER REPORT

San Francisco, Cal., March 18, 1922.				
Rainfall—			Temp.—	
Stations—	Past Wk.	Season	Norm.	Max. Min.
Eureka.....	1.17	28.41	35.79	56 36
Red Bluff.....	.02	15.20	19.84	62 36
Sacramento.....	.22	12.84	15.79	62 38
San Francisco.....	.29	17.85	18.46	59 44
San Jose.....	.60	13.68	13.61	64 34
Fresno.....	.63	9.68	7.56	70 34
San Luis Obispo.....	1.82	21.75	16.35	68 30
Los Angeles.....	.38	18.77	12.88	68 42
San Diego.....	.56	17.98	8.24	60 38



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Steel laid teeth for all makes of harvester, thrasher and bean machinery.

If your dealer does not carry our teeth order direct from us.

Information on Request

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Two Chances at Gopher

Have been using 3 of your Double Catch Gopher Traps and now lack only a few of having caught 100 gophers. Enclose check for 6 more traps.—W. T. H. Modesto, Calif. 2-6-22.



Young Gopher

CATCHES GOPHER ANY SIZE OR AGE

At Hardware and Seed Stores.

Price 50c Postpaid

Two Traps \$1.00

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Old Gopher

Manufactured by
E. J. CHUBBOCK CO.
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San Francisco, Calif.



Let it mother your chicks

BABY CHICKS are frail little fellows. They must be fed and "nursed" and watched. For each fluttering bit of chick life represents a chicken. Each represents a future profit. Hence the right start means everything—to the chicks and to you.

Do you know what causes more chick deaths than anything else? Indigestion! For the digestive organs of the baby chick are just as delicate, just as sensitive, as those of the human baby.

Because we feel that nothing is good enough for a baby chick that is not clean enough for a human baby, *cleanliness* is our first consideration in the manufacture of SPERRY BABY CHICK SCRATCH. Cleanliness means a healthy flock—and that means healthy profits. That's why we take care that only prime, clean grains go into this feed. During its entire process of manufacture, the same absolute cleanliness is observed as in manufacturing SPERRY Red Package Cereals for your table.

Years of experience has taught us how to mix a feed with the same food values that the mother hen would scratch for her baby chicks on the open range. That's why SPERRY BABY CHICK SCRATCH is properly granulated and proportioned for fast-growing little bodies. Made of prime, re-cleaned seeds and cracked grains with a small percentage of high grade bone and charcoal—SPERRY BABY CHICK SCRATCH is the best feed-and-health insurance any poultryman can buy for his chicks. It gives them the sturdy start they need!

Remember, too, that SPERRY BABY CHICK SCRATCH is *absolutely gritless*. This means you do not have to pay a fancy price for shell and grit. You, yourself, can supply these more economically.

In the new edition of our booklet, "Makes Hens Happy," you will find quite a bit of help on feeding chicks—and grown-ups, too! Your copy is waiting for you—and it's free. Simply mail the coupon now.

Sperry Baby Chick Mash: This feed meets the demand of many poultrymen for a mash made up of ground grains and high-protein nutrients. It makes for rapid growth without overtaxing the gizzard and digestive tract of the baby chick. It should be fed in conjunction with SPERRY BABY CHICK SCRATCH after the first week. Your dealer has it—in 50- and 100-pound yellow-striped bags.

SPERRY Baby Chick Scratch

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

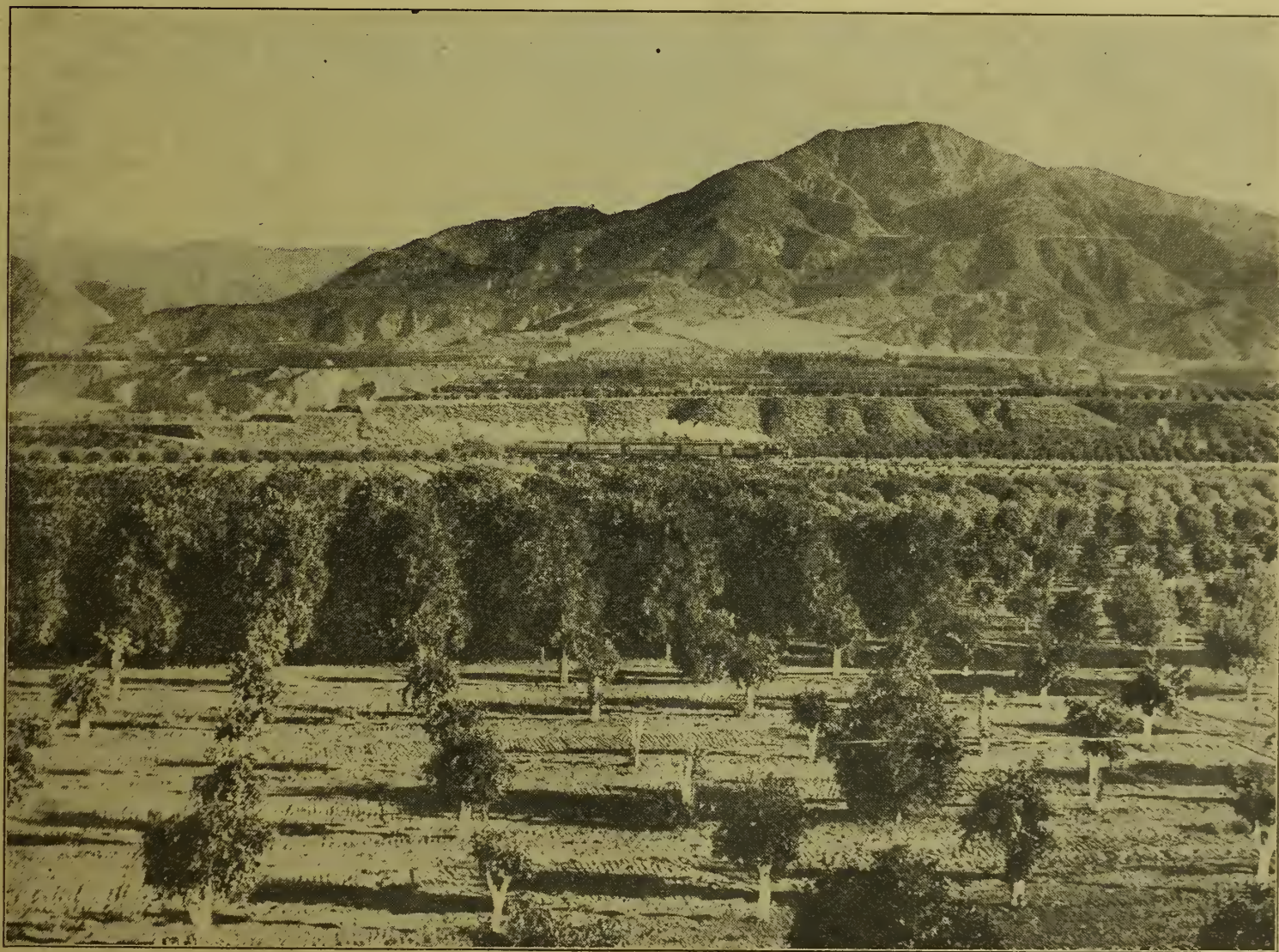
San Francisco

Vol. LVIII

April 1, 1922

No. 13

In San Bernardino County Foothills



Mt. Harrison near old Grayback, with East Highlands orange groves in the foreground. The train in middle of photo is on the San Bernardino-Redlands loop. Photograph taken many years ago. Mesa in middle distance is today covered with bearing orange groves.



Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916

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No. 13

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C. B. Messenger, Editor.

Ernest Brautson, Associate.

R. P. Royce, Livestock Editor.

Jack Klein, Associate.

C. L. Hughes, Associate.

Jean A. Koethen, Poultry Editor.

Ruth P. Dougherty, Household Editor.

Regular Contributors

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The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, April 1, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

One of California's most charming foothill and mountain outlooks is given on the cover. The San Bernardino mountains are in the background, East Highlands mesas in the middle distance, while the foreground is filled with lusty young orange trees. This is one of literally thousands of California's scenic beauty spots. Are not we who are permitted to live in such surroundings the blessed of the earth?

The government printing office at Washington has done some most creditable work in getting out the complete Report of the National Agricultural Conference which was held in late January. There are something over 200 pages in the report, and it gives in full the addresses and reports of various committees together with full list of all the delegates attending. We are not certain, but it is probable that readers of the Cultivator may secure copies of this report by writing the representative of their district.

The California Almond Growers' Exchange is mailing some 20,000 checks to members to cover payments for

almonds in 1919-20 and 21. These checks took to the growers something over a quarter of a million dollars, making a total of \$6,000,000 for the crops of the three years. The reorganization, or rather, signing of the new five year contracts, is arousing enthusiasm among almond growers.

After the farmer has spent the day hunting down coyotes, mice, hawks, rabbits, sparrows, bobcats, mountain lions, thistles, flies, moles, mealybugs, gophers, sowbugs, army and cut worms, ants, more ants, cockroaches, bud moths, tuber moths, nematodes, wireworms, centipedes, rusts, mildews, blights, and then ends the day with an attack on Johnson and devil grass and then spends the evening discussing the weather, he assured he can turn in and sleep soundly.

Those who are anticipating securing loans from the War Finance Corporation must bear in mind that according

tion by the class and a pageant will be given in the university grounds." We want our youngsters to be graceful and have all the accomplishments possible but, seriously, "taxes is high."

MADDOX RESIGNS

Harry Maddox, chief of the division of markets, has tendered his resignation to take effect May 15. The state law which brought about the consolidation of various commissions and bureaus having to do with state encouragement of agriculture stipulated that the headquarters for the director of agriculture and all of the divisions of the department should be in Sacramento. The consolidation was never fully effected, at least the division of markets has continued its office in San Francisco. Mr. Maddox has felt that the work could better be directed from the San Francisco headquarters, but in order that the consolidation may be secured he has ten-

R. CRUSOE—AN ADVERTISER GOT RESULTS

One of the most persistent advertisers in the history of success was Robinson Crusoe. He knew what he wanted—a ship—so he put up an ad for one. He flung a shirt on a pole at the top of his island; that, in the language of the sea, was plain to every seafaring man. The circulation was small—there was no other medium—but Crusoe kept at it, despite the fact that he got no inquiries for a long time. He changed his copy as one garment after another was frayed out—and in the end got what he wanted. Suppose Crusoe had taken down that signal after a time and declared "Advertising doesn't pay." Where would he and his story be now?—From Cooperation, Detroit.

to the terms of the law creating the corporation no money can be advanced after July 1, 1922. Therefore any application for funds should be made at once or as soon as possible. The application should be made through the local banker. It is possible congress may extend this time but it can only be done through the action of congress. The corporation announces that 2,201 advances have been made to farmers. The total amount loaned through the loan agency at Los Angeles has been \$5,000,000. There are 33 such agencies in the United States.

The University of California has succeeded in separating the fat from the milk of the goat. Careful tests have shown that 34 per cent of cream was secured while the skimmed milk tested only .015 per cent fat. The cream was then churned in an ordinary hand churn and the university reports "It broke readily and produced a high grade of butter."

There is a movement over the Middlewest which it is claimed is "spreading like a prairie fire." In effect the movement aims to eradicate the one room school house. Good roads, school busses and public sentiment are combining to consolidate many districts into one. In Iowa 3,300 one room schools have been abandoned, in Indiana 4,000; North Dakota has taken over 25,000 children out of one room schools; Texas reports consolidations of 144 districts during the past year.

The University of California officially announces that a lady "who for two years directed the famous Marion Morgan Dancers has been engaged by U. C. to give four courses, etc." One of these courses, entitled Social Dancing, is designed primarily for those interested in the improvement of conditions influencing the social life of high school and college students. Good form and style on the dance floor will be taught and also combinations of steps and figures suitable for group dancing. "A festival of dance pantomime is to be chosen for produc-

tion by the class and a pageant will be given in the university grounds." We want our youngsters to be graceful and have all the accomplishments possible but, seriously, "taxes is high."

SALMI AND SALAMI

The Cultivator is rather proud of the service it is rendering through its household department. Presumably some of the mere man readers do not know that there is such a department, but there is, and it is exactly in the middle of the paper.

Recently one of the home makers who depend upon that department to give them help wrote to the Cultivator for directions for making salami, an Italian sausage. Another, perhaps with French inclination, wished to know regarding roast or stewed game and she asked as to salmi. The best information procurable was at once furnished and in addition help was asked of other readers of the department. Since then salmi and salami recipes have been pouring over the editorial desk, and our home makers have had opportunity to learn as to dishes with real French or Italian flavor.

Then another had the old song running through her head, "Bury Me Out (or Not) on the Lone Prairie." The household department ransacked one of the best libraries on the Pacific Coast but could not secure the words. We asked for help from the always helpful, and from people's memories and scrap books we received literally dozens of replies. With them came the reason why the poem had not been found because the real title of the song was "The Dying Cowboy."

Then such sordid affairs as burned lard and other perplexities have been brought to the household department and all, so far as possible, have been given help and comfort. Often these requests for information test our ingenuity but the passing of the problem to the readers results, as in the case of the French and Italian recipes, in real help from those who know. The fact is made plain that the Cultivator family is a real helpful bunch.

WE NEED STOCKYARDS

A Chicago dispatch states that: "Farmers living on hard roads within a hundred miles of Chicago are evading high freight rates by sending their livestock to the Chicago Union Stockyards in rubber tired vehicles. The practice is steadily growing with the development of the good roads movement and the auto truck industry." Further that: "The trucks are stopped at the main entrance to the yards, their contents counted, and yardage fees collected. Then they are driven direct to the sales pens of a commission man for unloading. The livestock commission houses have helped promote this form of marketing by taking as much pains with a few head as with a full carload."

California stockmen are not worrying over the type of truck to buy to carry their stock to the market for California has no stockyards. There are possibilities of California becoming one of the greatest livestock states in the Union. This will not be until marketing conditions change. Marketing conditions will not materially change until we can have stock yards.

SECURING FEDERAL FUNDS

The procedure in making application for a loan has been made conveniently simple. If a bank, banker, or trust company has made or contemplates making loans for agricultural or livestock purposes, that is, for any purpose connected with growing, harvesting, preparation for market and marketing, it may receive from the War Finance Corporation an advance of money upon the putting up of such paper or any other paper that they wish to submit which shall prove acceptable. Associations of growers holding produce in their possession for marketing may receive advances from the corporation upon a basis similar to that applied to banks.

The money loaned is for various periods, none longer than one year. The banking or loan concern making the application is allowed for its expenses and guaranty of the paper a margin of two per cent in excess of the rate of interest charged by the corporation at the time the loan is made.

Application forms may be obtained by banks and loan concerns from any federal reserve bank or branch bank, from the War Finance Corporation, Washington, D. C., or from the Los Angeles Agricultural Loan Agency of the War Finance Corporation, the headquarters of which are in the Pacific Electric Building in charge of DeWitt Knox, room 390, while applications to be made by cooperative marketing associations are to be obtained from War Finance Corporation direct.

REDUCING CORN ACREAGE

As a rule American farmers have been rather backward in entering into any agreement to reduce acreage of any one crop. It has been practiced to a limited extent in the South in the effort to get a living price for cotton. But with the great carryover of corn since the biggest-ever crop of last year the question will bob up "Shall corn acreage be reduced?" In discussing the question from a purely financial standpoint Prof. Boss ends a rather extended article with "To be sure the grasses and clovers can well be substituted for a part of the grain or corn crops, but these are feed crops and must be converted into cash through the medium of livestock. Livestock needs supplemental feeds and of these corn and oats are in greatest favor. Think this over before cutting down the corn crop."

California Cultivator

Vol. LVIII, No. 13

Los Angeles, April 1, 1922

One Dollar Yearly

IN comparison with most deciduous fruit orchards and with vineyards fig orchards are notably irregular in size, shape and condition of trees.

Weak trees alternate with vigorous trees; sunburned trees grow next to low branched healthy trees; large trees are found in close proximity to small stunted trees.

The reasons for this spotted condition are various. Probably the most common cause of irregular fig plantings lies in the variable condition of the nursery stock. Fig trees are universally propagated from cuttings taken from all sorts and conditions of trees. Some are short, some long; some from one year old wood; some from two year wood or older; some are from healthy wood; some from weak or sunburned wood. They cannot be expected to give uniform results or send out a uniformly vigorous set of roots. The root system of one year old fig trees is tender and can be easily injured by careless digging or handling. Due to scarcity of nursery stock, growers have been in the past practically compelled to plant trees as received. Many are planted with well branched and abundant root systems. Many, however, have had the roots torn off in digging and are nothing more than a stick with a straight top and no roots. Such trees cannot be expected to grow as rapidly or develop into as vigorous trees as those with good root system to begin with.

Another reason for variable conditions in the young orchards is the frost injury to the trees in severe winters. Young fig trees of all varieties are quite tender and should be protected by wrappings of cornstalks or other wrappings.

Watch Nursery Stock

Fig nursery stock is very susceptible to drying out and the poor condition of some orchards is undoubtedly due to improper handling of the young trees whether in the process of digging from the nursery or in handling

Planting Fig Trees

By I. J. Condit, California Peach and Fig Growers

them at the orchard. The roots are succulent and tender and should not be exposed for any greater length of time than is absolutely necessary. It is a wise precaution to puddle the roots in mud at the time of planting or to keep the trees in a barrel of water which can be hauled through the orchard at planting time.

Young fig trees are also very susceptible to gopher injury, as most growers have learned through bitter experiences. The succulent roots seem to attract gophers and constant vigilance must be used to prevent serious loss.

Whether one or two year old trees should be planted depends upon the variety, the condition and the handling of the tree. Since the Kadota develops so rapidly and usually bears some figs the second year in the orchard, one year trees of that variety are preferred.

As a general rule two year old Smyrna and Adriatic fig trees are preferable to the one year old since the wood is more matured, they are less likely to have been damaged by frost, and they will withstand hardships that one year old trees will not. One experienced grower states that the roots "that grow on the base of the fig cutting the first year are very tender and careless digging or handling after digging will break the bark at the point where it joins the cutting, rendering it worse than useless. When the trees have grown two years in the nursery this union becomes strong."

Spacing Trees

The subject of distances to plant fig trees is one open for discussion. On account of their low spreading growth, Kadotas can be planted more closely

than most other varieties. One experienced grower outlines two plans for spacing Kadota trees:

The first at distances of 20 by 20, the second 25 by 25. Subsequent removal of trees which are on the diagonal would leave them spaced at 28 by 28 and 26 by 36. Since Kadota fig trees come into bearing early, this close planting is advantageous and thinning out will not be necessary before several profitable crops are secured. The usual spacing of Calmyrna fig trees is 30 by 30. The distances for planting will naturally vary with the character of the soil and the vigor of the trees. Many of the older orchards have been planted entirely too close with the result that the figs sour for want of sufficient light and circulation of air.

Adriatic trees have naturally a more spreading habit of growth and will require more space than Calmyrnas. In some soils 30 feet may be sufficient for them, but in most soils 32 to 36 feet will provide none too much room when they come into full bearing. The problem of spacing the Mission fig trees is the most difficult of all since this variety grows to immense size in deep soils. Mission trees planted 40 by 40 in the Sacramento Valley seem to be too close. Even some 55 by 55 are crowding. It seems therefore that young Mission trees should be planted 20 to 25 feet apart with the intention of thinning out the trees whenever they begin to crowd. It may be possible to keep the trees in bounds by proper pruning, although it is doubtful whether such a practice can be continued indefinitely.

Time of Planting

Rooted fig trees may be planted at

any time while dormant if the soil is sandy. If on heavy soil it is better to wait until the middle of February or even until March. The trees are just as well off in the orchard planted in a sandy or sandy loam soil, well drained, as they would be in the trench where they have been heeled in. In heavy, poorly drained soils early planting is usually impossible and the young trees might be injured by standing water.

The planting of a fig tree differs very little from the planting of any deciduous fruit tree. Greater care, however, should be taken to avoid exposure of the roots to dry air or to sunshine. Since the trees are not propagated by budding, they may be planted somewhat deeper than budded trees, with good results. Previous to planting the roots should be trimmed with a pair of sharp shears and all mangled roots cut back to vigorous wood.

The necessity for the irrigation of newly planted trees depends upon the season and the condition of the soil. In most cases it is necessary to follow up the planting with a small stream of irrigation water or with a tank wagon from which three or four gallons of water can be taken to settle the soil around the roots. Postponement of irrigation for an expected rain is a dangerous practice and is very likely to result in a loss of trees. It is a wise precaution to whitewash the newly planted trees in order to avoid sunburn.

Planting Cuttings

In some cases a good stand of fig trees has been secured by planting large cuttings directly in the field. Two or three cuttings are set in a place and covered almost completely with soil. They are kept watered frequently during the season and also cultivated. Most growers, however, prefer to set the cuttings in nursery rows and grow them for one or two seasons in such rows before planting out. It is very difficult to properly care for cuttings when scattered over a large area.

A Timber Line Poultry Plant

By William M. Bristol

THE CONDITIONS which have made possible the unique venture I am going to tell of do not exist outside of Southern California and are at their best in our own beloved San Bernardino mountains. Because the development has taken place partly on my own foothill property, where the picturesque East Highlands mesa laps onto Mt. Harrison, I have watched it, first, with incredulity and skepticism and then with mingled interest and admiration, as it grew into a practical and profitable success.

Several years ago I purchased a half section of land from the Southern Pacific Railroad Company immediately adjoining on the uphill side my orange groves on the mesa mentioned. Only a small portion of the land is tillable, the remainder consisting of rather open canyons and intervening ridges, all facing in a general southerly direction. Unlike most of the southern exposure of the San Bernardino mountains this tract has a gentle slope, too steep for cultivation, but still having

There are dreamers and dreamers, and the improbable, even impossible, dreams which have been worked out to a practical accomplishment and betterment of conditions for the human race continue to come and astonish us more and more each year. Here is one more such dream—or is today the first of April? In any case California is in a measure today accomplishing in the most practical way some of the things Mr. Bristol has dreamed. Hundreds of carloads of December eggs are being sent every year to the New York markets. The airplane may not enter into this commercial transaction very largely but the eggs are being produced and command the money. Who knows but the snowbanks of the peaks of Harrison, San Bernardino and San Geronimo may yet offer opportunity to so condition pullets that they will produce a still greater number of California December eggs.

a considerable covering of soil formed by the decomposition of the soft underlying bedrock and the sagebrush of the centuries. I have told in the horticultural journals of hauling out vast quantities of this virgin soil for fertilizing the orange groves below. It has required only a small portion of the tract, relatively, to supply the fertilizer demand, and the question of making profitable use of the remainder arose very soon after the property was acquired. There is more or less bunch grass and other forage in all these foothills, and this inevitably leads one to think of goats. But goats require either fences or herders; and furthermore, goat raising is a business

of itself, perhaps not beneath the dignity of the orange grower who is always in quest of fertilizer, but certainly encroaching too much on his pretty well occupied time and attention.

It is not strange, therefore, that when two years and a half ago William Styles, who had made a success of poultry at Petaluma and had sold out his plant there at a round profit, came looking for a place to re-enter the business in our warm southern foothills, some one advised him to see me. In view of the fact that I had already offered the use of an unlimited area, supplemented with some prerequisites for poultry raising, to

anyone who would give me the resulting fertilizer in return, it was natural that we soon got together on terms. There was no thought at the outset of the spectacular thing that has happened in connection with the venture—that came some time after when the unusual climatic conditions of the region impressed themselves upon the man from Petaluma.

I suppose everyone who has raised more than enough eggs for the home table has wished for some formula by which hens could be made to lay most of their eggs when eggs are highest in price. It is true that cold storage keeps them well enough for scrambling or cake making and that the water glass process answers very well for home use for some months. But when it comes to the delivery of the perfectly fresh article to exacting customers there is no substitute. Perhaps it was because Styles, an Englishman by birth, had come to California by way of Australia and had therefore had impressed upon him the fact that

(Continued on Page 354)

Agricultural News Notes of the Pacific Coast

Northern California

Sacramento holds its "Days of '49" celebration May 23-28.

Sheep shearing has started in Humboldt and Nevada Counties.

Sonoma County's tractor school will be held at Santa Rosa, April 24-29.

Six home evaporators were built last month by members of the Napa County farm bureau.

May 20 is selected for the annual farm bureau picnic in the Paradise section of Butte County.

Northwestern apples sold in California must conform to California standardization requirements.

H. S. Maddox has resigned as director of the state marketing division, his resignation to take effect June 1.

The United Chambers of Commerce of the Sacramento Valley has a membership of 23 chambers in the valley.

The present is the latest asparagus season in ten years according to Sales Manager Hoar of the California Vegetable Union.

Grape buyers are already talking contracts to the growers. Some contracts for Zinfandels reported at \$75; Muscats \$60 and \$65.

The Tehama County supervisors are planning to put the Red Bluff-Susanville highway in best of condition to carry the heavy summer travel.

A federation of poultry producers' marketing associations of the Coast is proposed. The plan is to establish sales agencies in eastern markets.

The Mt. George meat ring in Napa County won prize for best exhibit of ham, bacon and sausage in the contest at Davis during Stockmen's Week.

Much of the celery on the delta lands which was thought lost because of frost killing is growing out from the heart and gives promise of producing at least 200 carloads.

The cereal nursery work of the United States department of agriculture, formerly conducted at the plant introduction garden at Chico, has been transferred to the university farm at Davis.

The federal power commission has granted to the El Dorado Power Company license for the development of a 100,000 horsepower project on the south fork of the American River near Placerville.

The San Francisco chamber of commerce reports 263 new factories established there in 1921. It is estimated that the number of factory employes in San Francisco is more than 85,000.

The Northern California Counties Association with membership in Modoc, Lassen, Trinity, Siskiyou and Shasta Counties is devoting much of its energies to Lassen Volcanic National Park.

The Tehama County farm home department reports 90 demonstration meetings in February with an attendance of 910. At these meetings 116 dress forms and 24 arm forms were made. There were 13 demonstrations in use and care of the sewing machine and attachments.

A series of agricultural conventions will be held at Sacramento, May 29-June 2; County Horticultural Commissioners, May 29-30; Nurserymen, June 1; Federal Horticultural Board, May 31; Western Plant Quarantine Board, June 1-2; Western Directors of Departments of Agriculture, May 29-30.

Central California

There are now 1,100 acres being planted to alfalfa at Delhi.

Merced County last season shipped 725 carloads of sweet potatoes.

A tractor extension school will be held at Watsonville, April 10-15.

The Sun-Maid Growers will erect a \$500,000 packing house at Dinuba.

Kern County's fair will be held at Bakersfield the first week in October.

Tulare County creamery paid in cream checks during February \$168,156.67.

An experimental planting of peanuts will be made on the state settlement at Delhi.

Strathmore, Tulare County, shipped over the Southern Pacific last year 259 carloads of fruit.

Heavy plantings of sweet potatoes will be made in the Livingston section of Merced County.

C. H. Moore of Lindsay reports successfully keeping pomegranates in sand for the late trade.

Tentative requirements for state barley grades have been issued by the state bureau of standardization.

The eastern part of Stanislaus County had a snowfall March 10 which froze over the orange blossoms.

Tulare County, cooperating with the state highway commission, is maintaining inspection of trucks on highways to prevent overloading.

A state marketing organization for the olive growers is planned. The Fresno County chamber of commerce has voted \$500 to assist organization.

A sweet potato growers' organization was formed at Caruthers last week. It is planned to form a pool to market through the Turlock headquarters.

The first of the two bridges being built over the Kings River channel on the valley to coast highway near Lemoore will be thrown open to travel within a few days.

Fresno County is planning a peach growers' contest similar to that inaugurated in Sutter County. Units in the contest will be entire orchards in commercial production.

Demonstrations of evaporation of fruits and vegetables will be given in Fresno County from April 17 to 21 and 24 to 26 by Miss Lillian D. Clark, assistant state home demonstration agent.

Final payments for the 1921 crop of Navels have been made to growers shipping through the Terra Bella and Grand View Heights Citrus Associations of Tulare County. Average price per packed box, \$3.00.

The farm home department of the Kings County farm bureau shows registration of 279. The nutrition project will be taken up during May, June and July. The school lunch work along with the weighing and measuring of the children is being carried on in three schools.

Over 14,000 sack of beans are being prepared by the Modesto Bean and Grain company for shipment from San Francisco early in March to Russia. This is one of the largest individual orders received since the war and will clean up all the old bean crops in California. The shipment is made up of teparies, damaged old crop beans and recleaned screenings.

Southern California

Beekeepers are preparing for an unusually heavy honey flow.

Express shipments of asparagus are going forward daily from Brawley.

Escondido is making plans for its Grape Day celebration, September 9.

Escondido, San Diego County, has had a seasonal rainfall of 29.05 inches.

Graders are at work on the state highway between Banning and Indio.

The Riverside district shipped over 2,000 cars of citrus fruit by the end of March.

Date growers of the Coachella Valley are considering standardization of their fruit.

The orange products plant at San Dimas is handling 55 to 60 tons of fruit daily.

Imperial Valley towns are collecting funds for the county fair to be held November 23-28.

Pomona is protesting increase in water rates authorized by the state railroad commission.

Thousands of sheep are being brought into Riverside County from Utah for range feeding.

R. W. Schoonover, citrus expert for the university extension, will conduct survey of Riverside County.

The Deglet Noor Date Growers Association will build a fireproof packing house on its property at Indio.

The Southern California Purebred Stock Association will hold auction at Imperial County fair grounds April 18.

Frost protection of walnut and citrus groves will be discussed at the April 4 meeting of the Covina Men's Club.

The one week tractor school conducted by the agricultural extension service in Los Angeles County was attended by 69.

There will be a junior short course in agriculture at the Southern California fair at Riverside; also a junior judging contest.

Fillmore, Ventura County, held its second annual orange and avocado show March 11-18. Many high class exhibits were made.

A field day for peach growers of Riverside and San Bernardino Counties will be held early in April. Thinning methods will be studied.

Federal road funds will enable building of 1000 miles of new roads and improvement of 700 miles of existing roads in Southern California.

San Bernardino County beekeepers say that 2500 stands of bees have been shipped into the county from Idaho and Utah to take advantage of the spring flow.

Several steamers have been loading at Portland recently for Europe, carrying large blocks of dried prunes and some heavy shipments of fresh apples in refrigerated storage.

The need of a water conservation district for the Perris Valley is being urged by the local chamber of commerce. The plan is to conserve flood waters of the San Jacinto.

The report of the state division of viticulture on the grape growing possibilities of the San Fernando Valley is now ready for distribution. Copies may be secured at the office of the Los Angeles County farm adviser.

The Coast and General

Growers of some 4,000 acres of watermelons in Texas have formed a marketing organization.

Cotton growers of the Salt River Valley of Arizona have decided to stay by Pima as the only long staple raised in the valley.

The Willamette Valley Berry Association has closed its No. 1 pool for dried loganberries, on a basis of 27.17 cents a pound.

The Gillispie diversion dam of the Gila, about 55 miles southwest of Phoenix, Arizona, is now supplying water to 100,000 acres.

Manager Knox of the Arizona Cotton Growers' Association says the association will not only employ but handle its labor, regulating pay and housing.

Poultry producers of Linn County and of adjacent territory in Benton County, Oregon, have organized under the Pacific Cooperative Poultry Producers at Albany.

Maple sugar producers of New York have organized a cooperative marketing association. There are 500 members. A subsidiary organization will handle by-products.

Governor Morrison of North Carolina is calling "food and feed" community meetings over the state to encourage diversification—less cotton and tobacco planting.

Commercial auto buses and auto trucks operating over the highways of Arizona and Oregon will hereafter be required to come to a complete stop before crossing railroad tracks.

Plant quarantine conference at Washington, D. C., May 15. This meeting was postponed from April 19 because nurserymen could not leave their business at that busy time.

Northwest fruit growers realize the necessity of forestalling heavy losses on fruit received on markets in poor condition. To correct this effort is being made to institute inspection at shipping point.

A department of agriculture expert has been stationed at Roseburg, Oregon, to study problems of the Umpqua broccoli growers who find sales slowed up in the East by browning of outer leaves of their crop.

Manager Ward of the Pacific Cooperative Wool Growers has mailed checks for first payments on wool pools. The association sold for 31 cents a pound for three-eighths comb fine 24.15, medium 22½, coarse 21½.

Senator Claypool of Arizona has asked the Arizona delegation in congress to take steps to secure a strip of land along the northwestern boundary of the state of Sonora to give the United States access to the northern end of the Gulf of California.

The Wasco County plant of the Oregon Growers' Cooperative Association which was wrecked under the weight of snow during the height of the winter's storm, will be reconstructed with greatly increased floor space and the addition of a cold storage plant.

The Skookum Packers Association of Northwestern apple growers has withdrawn from the Northwestern Fruit Exchange because it has come under the control of the American Fruit Growers Inc. Former officers of the old exchange have incorporated the North American Fruit Exchange of the Pacific Coast.

April in the Vegetable Garden

Southern California

By D. F. Reichard

AFTER a winter full of weather, we are now hopeful and have good reasons to believe that our spring garden operations may proceed uninterrupted except for a timely shower once in a while to freshen things up a bit. This is usually counted on as being our third planting month in Southern California but for many this year it will be the first month of real activity. Things that have been planted during the past two months have made very little progress on account of our abundance of "weather," so that stuff planted now will be ready for use almost as soon as that put in a month or six weeks ago.

Having had plantings delayed so there has been ample time to get the ground in shape by deep working and thorough pulverizing, our seedbeds should be in fine shape. This means a great deal toward the success of one's garden. If the ground is in a fine moist condition cover seed only four times their diameter but if soil is a little cloddy and drier on the surface it will be necessary to plant a little deeper so that the seeds are in contact with damp soil all the time.

During April all manner of stuff may be planted with the possible exception of main crop and late peas, as only the early quick maturing varieties will come to maturity before the hot dry weather stops their growth. Put in sweet corn, bush and pole string beans; Lima beans, cucumbers; muskmelons and watermelons; potatoes, summer and winter squash. Besides these tender things put in such of the hardy vegetables as one cares for during the summer months. Set plants of tomatoes, sweet potatoes, eggplant, pepper, celery, cauliflower and cabbage.

If rains are not forthcoming it will be necessary to irrigate—do not allow the young plants to want for moisture. After each irrigation be sure to work up the soil to keep a mulch and kill any young weeds that might be starting.

Northern California

By A. R. Gould

WE can safely sow and plant the more tender beans, corn, tomatoes, cucumbers, squash, etc., in a temperature which will encourage rapid growth. The man with the hoe will also get all the exercise he needs as the weeds will be making headway after the rains and need attention at once. The crops will also need cultivating very frequently, and you will be surprised how this will help the growth. Then the man with the fork and spade will find considerable to do, and all plots should be well dug and manured, and always keep in mind the fact that to plant in poor wornout soil is waste of time and money, and, as we have often said before, buy the best seed from the reliable seedsman whose reputation is at stake and whose life is given to producing and selling the best. There are several such advertisers in the Cultivator who have helped in the development of the state and their seed ranches extend over thousands of acres. These firms study the grower and it is important that you appreciate this by

using this high grade seed—it will save you time.

Peas

This crop has been greatly benefited by the heavy rains and yields are likely to be large. As usual, Hayward and San Leandro sections have large plantings and around Mayfield extended plantings have been made. It is from these localities that most of the early peas are secured. Aphis is just at this time likely to become troublesome and severe attacks will injure the peas. They may be sprayed with black leaf 40, which will hold them in check. The tall growing varieties must be given support by wire or stakes. Sowings for succession may be made of Little Marvel, Yorkshire Hero and Alderman and the edible podded pea Melting Sugar. You can hardly grow too many peas as it is possible to use them all for after they are dried they will keep for winter use.

Potatoes

These must now be planted and if they were started in boxes as we advised last month they should be selected and the large tubers cut so that each section has two or three eyes. Before planting dip in formaldehyde or a solution of "Qua Sul," a sulphur compound which will be a protection from fungus disease and also nematodes. No use to take any chances. The "sets" or seed tubers should be planted 12 inches apart in rows at least 20 inches apart.

Early varieties are Rose Improved and British Queen, and main crop varieties to plant at the end of this month are Burbank, American Wonder and White Rose.

Lettuce

If sown last month as advised will need thinning, and this should be done without delay or weak plants will result. Allow a space of at least six inches apart for proper development in the rows, and the strongest seedlings should be used if required for transplanting.

Onions

Thinning of the main crop varieties should have been completed ere this. All plots should be kept clean weeded between the rows and the soil well cultivated.

Turnips

Make another sowing of Early Snowball. This variety matures quickly and will repay for extra care. Thin out those previously sown to at least six inches apart and cultivate between the rows frequently.

Tomatoes

About the middle of the month it should be safe to plant out tomatoes on the plots previously prepared, and the preparation should certainly be done before planting as these plants respond to a little manure and finer fruit will be secured. The plants should be placed four feet apart each way if they are to be allowed to ramble at will on the ground. If the single stem system is to be adopted plant 18 inches apart and stakes should be given them for support. Secure strong plants of such varieties as Ponderosa, Stone, Bonny Best, Early Jewel and San Jose Canner.

Squash, Muskmelon and Watermelon

These may be sown three or four seeds to a mound, which should be previously prepared with a little ma-

nure. These mounds should be four feet apart each way and should be kept fairly moist until seeds germinate. The method of cultivation of squash and melons is practically the same. The varieties we advise planting are: Squash—Early White Bush Scallop, Boston Marrow, Hubbard and Perfect Gem. Good pumpkins are California Field and Morse's Marrow, a real giant among pumpkins. The Vegetable Marrow is well known in Europe and is getting popular here, both green and yellow varieties. For muskmelons grow Honey Dew, Persian and Rocky Ford, while Golden Beauty is the best casaba. Best watermelons are Georgia Rattlesnake, Kleckley's Sweet and Chilian.

Cucumbers

These are not difficult to grow. Follow the same cultural directions given for squash. The best varieties to grow are White Spine, Long Green and gherkin, the last named used for pickling. The Lemon is also a fine flavored variety and has become very popular of late years.

Corn

Sow towards the middle of the month, three seeds to each group, which should be three feet apart each way. Field corn may be grown under the same conditions as sweet corn. Good varieties of the last named are Golden Cream, Golden Bantam and Country Gentleman. Best field corn is Yellow Flint, Leaming and Golden Dent.

Eggplant and Peppers

Sow seeds of Improved New York and Black Beauty eggplant in boxes of sandy soil and place in a warm situation; also pimiento, Chinese Giant and red chili peppers.

Beans

The more tender varieties of these may be sown in rows 20 inches apart but not before the 15th of the month. The best dwarf varieties are Golden Wax, Stringless Green Pod, Refugee, Davis White Wax and Early Mohawk, which is best for early planting. Good pole varieties are Horticultural, Kentucky Wonder, Golden Cluster and Scarlet Runner.

Celery and Leeks

No garden should be without these as they are invaluable and will keep after maturity several months. They are grown in trenches which must be first prepared with manure dug in several inches deep at the bottom, and this work must be done at once. The trenches should be 20 inches deep and placed at least two feet apart. Seeds may be sown in boxes of Golden Self Blanching and White Plume celery, also American Flag and Musselburgh leeks. Keep these boxes in a warm situation and fairly moist.

Raspberries and Strawberries

Chief work for this month is cultivating to encourage steady growth. Be careful not to damage any young shoots showing through from the crowns of the raspberries while engaged on this work.

Southern Arizona

By M. E. Bemis

TOMATOES may be planted in the early part of April, for there should be little danger of frost from now on. These may be planted in the ground where they are to grow or the plants may be set out. Dwarf Cham-

pion is an old standby, although some new varieties are being grown successfully.

In April seed and plant variety begins to narrow down from the list which the gardener may specialize on in February and March. The Early White Spine cucumber seems to be best adapted to this section, and although it is a little late for cucumbers, the early part of April will do very nicely for a general crop. These plants should be set six feet apart. All varieties of summer squash do well here, but winter squash should be planted earlier. At this season of the year two desirable kinds of peppers for this district are the Mexican chili and the Giant bell, which may either be planted where they are to grow or set out. And considering that many gardeners prefer to plant in a permanent place rather than to transplant, these may be, like the tomatoes, planted where they are to grow. However, either peppers or tomatoes which are already in the beds prepared for transplanting will probably be slightly earlier than those planted in the ground. Those who prefer may put peppers out any time in April, 24 inches apart in the row, and the rows three feet from each other.

Watermelons and cantaloupes should be planted in March for a general crop. It is not too late for a succession of such popular varieties as the Tom Watson or Black Seeded Chilian, both being suitable for later planting. For cantaloupes to be planted late in the season the Netted Gem and Rocky Ford are best. As to pumpkins, the early part of the month is the best time for planting. The Chinese pie pumpkin has proved itself a good variety. There is not much advantage in planting smaller root crops at this season, with the exception of radishes (White Icicle being good for late planting) and onions to be pulled for green onions. Eggplant may also be put out now.

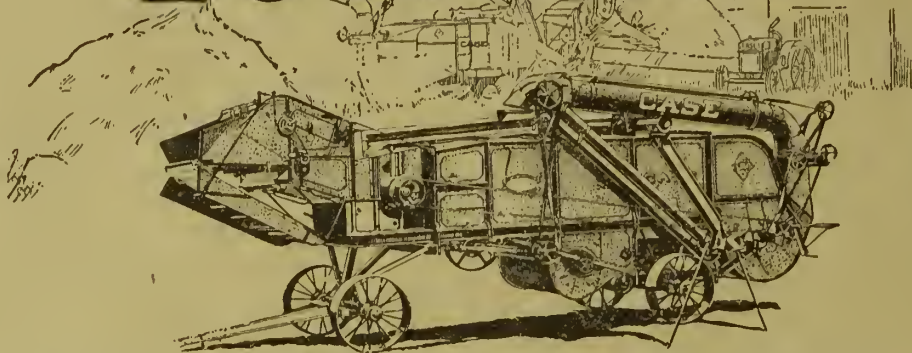
The good gardener who is looking ahead and making plans for the fall garden will begin to prepare the land now. Before the weeds get too much of a start at least a ton of stable manure should be plowed into the land which has been in lettuce, cabbage or other winter growing crops. This land should be occasionally irrigated and harrowed throughout the summer at least often enough to prevent growth of weeds. It has been found advantageous to grow a crop of cow peas to be turned under.

In order to keep a dust mulch on the surface of the ground to prevent the soil from baking irrigation of all growing garden crops has to be rather frequent from now on, and each irrigation for the best results should be followed by thorough cultivation. It has been found that frequent cultivations not only save irrigation but produce better plants.

PHILIPPINE AVOCADOS

The last issue of the Philippine Agricultural Review, an official government publication, says: "The avocado, a fruit of exceptional value from the American tropics, is gradually gaining prominence and small orchards are being planted as rapidly as plants are available from home grown and imported seeds, and the people are beginning to like this, one of the best gifts received from America."

ECONOMY



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The University of California has issued Bulletin 111, "The Use of Lime and Gypsum in California Soils," by J. W. Nelson, from which we quote:

"Lime materials have the power of improving the crum structure of clay and making it more pervious to water and air. Therefore lime makes clay and clay adobe soils looser, tends to prevent packing and baking, makes plowing and cultivating easier, and, in general, makes the soil physically a healthful medium for plant growth.

"Lime materials tend to make 'sour' soils 'sweet.' Speaking more correctly they tend to change an acid soil condition to a less acid one. Acidity of soils is detrimental to the best growth of many agricultural crops.

"Lime materials are necessary for the growth of beneficial bacteria and other micro-organisms of the soil. Lime furnishes the element calcium, which is as essential to them as to the higher plants. It promotes a slightly alkaline condition, which is probably ideal for their development. By its physical effect lime produces favorable air and moisture conditions for bacteria, as described above.

"Lime materials promote the normal decay of organic matter in the soil through their effects on the agencies of decay described above. The normal decay of organic matter in soil prevents the accumulation of certain poisonous materials that are detrimental to plant growth.

"Lime will not neutralize the toxic effects of sodium carbonate or black alkali."

GRAPE CONTRACTS ALREADY BEING MADE

While the season is early there is much interest in the grape market and crop for 1922, with a number of the larger buyers talking contracts. This is according to information given out by G. Walter Reed, Los Angeles representative of the United Chambers of Commerce of the Sacramento Valley, who has been advised that some contracts for the oncoming season's Zinfandels call for \$75 per ton; Muscats from \$60 to \$65. No prices have been given on black varieties. Conditions in the Sacramento Valley are reported to be very favorable for a big grape yield this year, as there have been no late frosts so far to kill off the young and tender shoots.

CHANGES IN HORTICULTURAL COMMISSIONERS

Former Commissioner Chas. F. Collins, who has moved to Oakland, has been succeeded by Frank R. Brann, for a long time Mr. Collins' chief deputy. The place of Commissioner Fred G. Stokes of Lake County, deceased, has been temporarily filled by the appointment of his brother, Earl Morris. Orange County's commissioner for many years, has been succeeded by A. A. Brock, former commissioner for Ventura County. D. D. Sharp of Riverside has been succeeded by A. E. Bottel, for a long time with Commissioner Ryan of Los Angeles County. K. L. Wolf of San Fernando, former U. C. boy, is now on Commissioner Ryan's staff, specializing on nematodes.

VACUUM FUMIGATION

Vacuum fumigation has been perfected until it succeeds in killing the bug in the center of a bale of cotton and destroying another insect's life in the center of cured fruit. It also has succeeded in making safe the planting of trees, the roots of which are infested with nematodes or other insect pests. This not only experimentally, but, as in Ventura County, a commercial working installation has been made. D. B. Mackie of the state department of agriculture was in Ventura County last week supervising final installation of Ventura County vacuum fumigator of a size sufficient to take in bundles of nursery trees, so that regardless of condition of the stock they may be taken from the fumigator and planted in clean soil with perfect safety. Unfortunately

hydrocyanic acid gas has but little effect upon root knot or other fungous troubles but insect life has to yield to the gas when there is no air to dilute it.

APPLE MARKETING COMMITTEE AT WORK

The committee of 16 apple growers representing the principal apple districts of Southern California appointed as a result of a mass meeting of apple growers held in Yucaipa in February, met in Los Angeles, March 15 for the organization and outlining of a concrete plan for studying the apple marketing problem of Southern California. The name of the committee as finally determined on is the Apple and Pear Growers Committee of Sixteen of Southern California. An executive committee was selected to supervise the activities of the committee at large and of the various sub-committees appointed on by-products, publicity, storage, marketing, and market information.

DESERT WINDBREAKS

In February, 1921, a Cultivator representative visited the Coachella Valley and among other items of general interest published one on the value of the evergreen tamarisk, *Tamarix articulata* of the botanist. It is the most wonderful combination of ornament and utility yet tried in very hot dry sections also restricted in plant growth by cold snappy winter nights. It has been tried in the Antelope Valley with equally good results and seems to thrive in all soils, under all conditions, from the desert to the sea. It certainly is transforming trackless sandy wastes of drifting soil into attractive well behaved landscapes of greatly enlarged commercial activities and possibilities. As seen on the Narbonne, Postlethwaite and other ranches in Coachella Valley it presents a pleasant change of view from the sandy waste.

PRESERVING ADDRESSES

The Placer County farm bureau and horticultural commissioners unite in printing a series of addresses made before the Placer County fruit growers convention held last October. It is a very valuable publication and contains drawings to make clear some of the points of the speakers. It would prove invaluable to fruit growers.

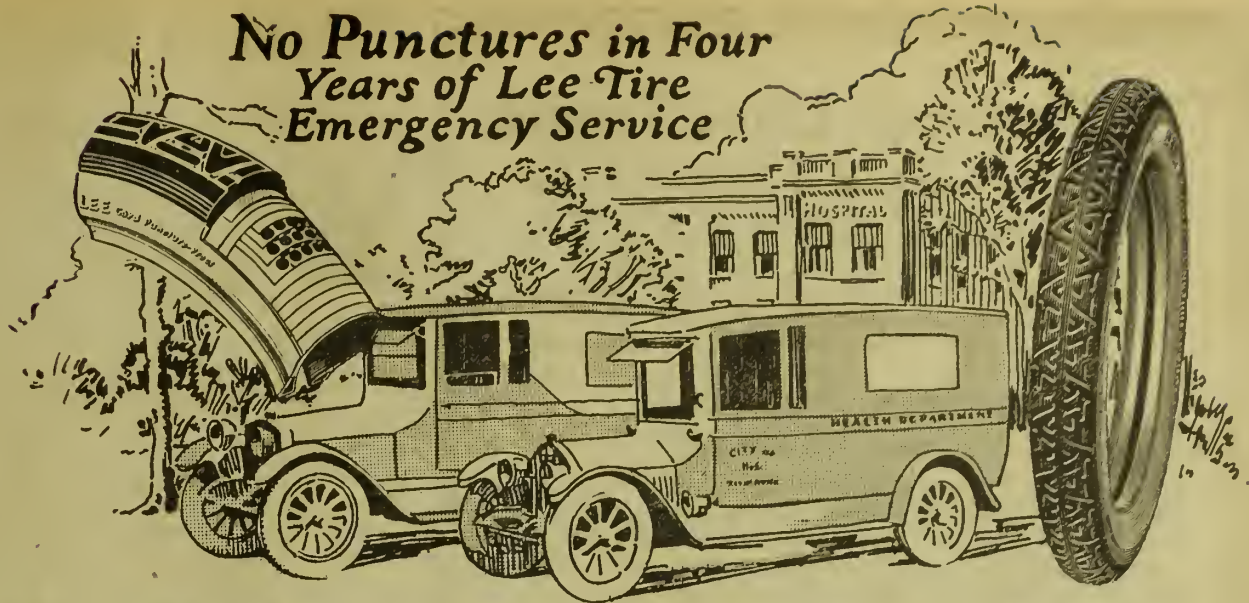
JAPANESE PLUM POLLINATION

Early blooming varieties of Japanese plums are usually deficient pollen producers and therefore unreliable for cross pollination, according to A. H. Hendrickson, assistant professor pomology of the University of California agricultural experiment station. Later blooming varieties are satisfactory pollen producers and may be inter-planted safely. These facts have been brought out by a recent study of plum pollination conducted in Santa Clara County. Results for the season of 1921 indicate that Formosa and Gaviota are apparently intersterile. This is the first time that intersterility has been reported as existing between two plum varieties of the same species. There is apparently no intersterility existing between European plum varieties and all those which blossom at the same time cross pollinate effectively.

KEEP COMPOST PILE FLAT

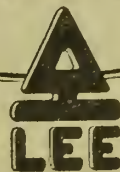
"It is of the utmost importance," says The Flower Grower, "that the top of the pile be kept hollow or at least flat, so that rain will keep the material wet and prevent burning and loss of fertility. Don't let the pile get rounded on top under any circumstances, as it should absorb the rainfall and not shed it, and, therefore, the nearer level it is kept the better job of composting will result."

The proceedings of the 54th convention of the California Fruit Growers and Farmers, held at Los Angeles, October 24-26, 1921, published as the October Monthly Bulletin, have now been received from the printer and copies may be had upon application to the director, California Department of Agriculture, Sacramento, California.



LEE Puncture Proof Tires

From the Isolation Hospital, Milwaukee Board of Health, comes the following: "We have used Lee Puncture-proof tires for the past four years—used the first Puncture-proof Cords in Milwaukee. We have never been laid up on account of punctures and have always received exceptional mileage."



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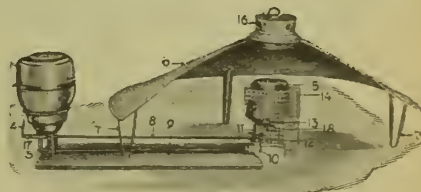
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Since retiring from the field a good many growers continue to come to me for this information, so I have decided to devote all my time to the work.

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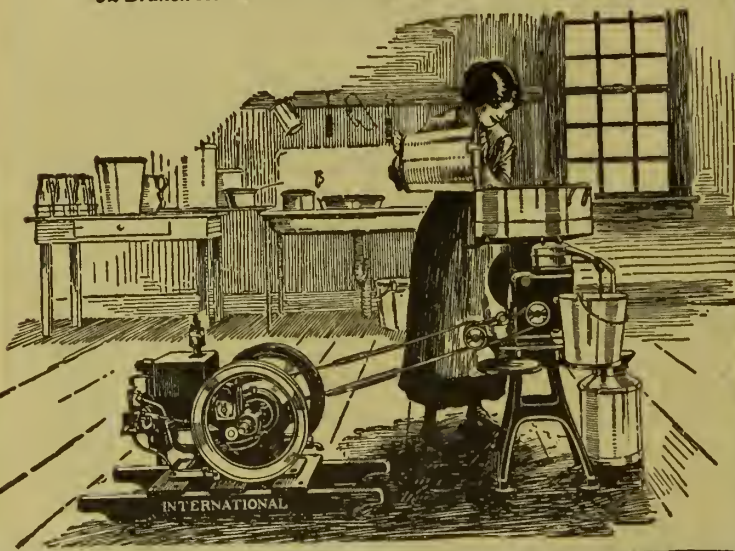
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April in the Ornamental Garden

Northern California

By A. R. Gould



HERE has been considerable interruption in the work of planting this season owing to the unusual weather. Some plants you will find, although severely hit by frost, will need close inspection before you dig up or destroy. Among these are heliotrope, plumbago, calceolaria, lantana, hypericum and eugenia.

Growth has been very slow. Seeds have been slow to germinate and the damp may have ruined many of them so that it will probably be necessary to re-sow. The work of putting in new lawns should now go forward rapidly before the very warm season. I would advise those who are really looking for a good lawn to use the best grade of seed and a fine mixture of grasses. Australian rye, although very hardy, is inclined to get rust. Kentucky blue and the fescues are excellent for lawns. See that all the weeds are up before sowing the seed as this will save considerable trouble and expense for weeding. Have the ground well dug and use a commercial fertilizer to rake in the surface, and if the lawn is being replanted use a little lime to sweeten the soil. After the seed is sown rake in well and apply a thin covering of sand.

Selecting Shrubs

This is not an easy task for those who are garden making as in the first place there are so many which are really beautiful that one gets the desire to select more than space will allow. However, there are several important points to consider and chief is, "Will it be suited to our location?" Then, "Does it require more water than we can spare?" Trees which may be used as single specimens are cedar, pine, picea, cryptomeria, sequoia, cypressus, araucaria, casuarina, camphor and magnolia. Garrya elliptica, the silk tassel shrub, is very beautiful and has not been so widely planted as it should be. It has drooping flowers often a foot long. Among the distinctive shrubs are cytisus andreana, flowers yellow and brown, and C. monosperma, with slender drooping white flowers. Carpenteria californica, or tree anemone, is a native with large white flowers with a yellow center. Chorizema has small orange colored pea shaped flowers and dark green foliage. The sweet smelling Daphne may also be secured in its variegated form. The berberis of which there are now quite a number, crataegus and coloneasters also make effective groups and you will not go far wrong in your choice of any of the above.

The Perennial Border

Work of subdividing the clumps of those subjects which have overgrown their quarters may still continue and also transplanting. Hardy asters, oriental poppy, German iris, geum, campanula, delphinium, phlox, gaillardia, pentstemon, peony and helianthus may all be planted now, and the borders generally rearranged.

Dahlias

Tubers of all the best varieties may be secured this month of the types you admire the most. Space forbids mention of the many varieties but a careful survey of the growers' lists will give some idea as to the colors, etc. Seed may be sown in boxes of single

and collarette types and the resulting plants will flower this season.

Gladiolus

Still time to plant these and there are some beautiful shades to select from.

For Summer Flowers

To secure these sow at once seeds of aster, stock, zinnia, cosmos, ageratum, nemesia, lunaria, phlox drummondii, lavatera, clarkia, larkspur, godetia, marigold, balsam, schizanthus, celosia and candytuft, all very free flowering annuals, and they will provide a constant display until late in the fall. Sow the seed in boxes of sandy soil or on a well prepared border.

The Rose Beds

Planting of these should be completed this month and the beds well mulched with manure. Secure the best varieties to add to your collection Hadley, Columbia, Hoosier Beauty, Los Angeles, S. K. Rindge, W. F. Dreer, Madame E. Herriot, Ophelia, Golden Emblem, Miss L. Armour and Mrs. Stevens are all worthy roses.

Southern California

By Ernest Branton



UP to time of writing we have had no summer or strong "growing weather." In 3 years' residence in Southern California the writer cannot recall a winter and spring having such a low total of heat units. We still are in February so far as real tropical vegetation is concerned. Of course hardy plants, especially those used in eastern states, will grow when proper time comes, regardless of California weather. Therefore, while much more advanced gardening work may not safely be done, we may still sow and plant in February and March. Beware the expected hot spell for will no doubt soon arrive.

Sowing seeds out of doors at this season invites close daily inspection subsequently, for hot weather is sure to come and Old Sol quickly dries the surface soil, and sprouted seeds of seedlings quickly perish from heat and drought. Among the hardiest seeds, those that resist hot spells well are: Alyssum, balsam, calendula, cockscomb, coreopsis, centaurea, candytuft, marigold, mignonette (shade), larkspur, nasturtium, poppies of all kinds, portulaca, snapdragon and zinnia. More care, or little shading, will benefit: Aster, pansy, petunia, pink, phlox, lobelia, foxglove, daisy, gaillardia, hollyhock, penstemon, scabiosa and verbenas. These seeds are generally sown in seed beds, to be later transplanted when two or three inches high, and are not sown where expected to grow permanently. It is good practice to lightly sprinkle the beds in early morning so soil may drink moisture before the sun begins to pull on the surface water supply.

Under the stimulus of warm weather, coupled with good water supply, plant life delayed in development by cool weather will fairly leap forward. The soil will likely be hot and moist and you may almost see plants grow. Therefore, when watering irrigate thoroughly, do not superficially sprinkle. If you wish to sprinkle and spray it is the best time of the year to get after garden insect pests. Aphids are likely to appear on a

plants subject to their visits, and they multiply amazingly. If you get to work exterminating while numbers are few, you win. Early use of tobacco dust is often sufficient. Watch rose bushes and sweet peas closely.

Some plants need cool soil and should be mulched if possible. Pansies are a marked example. Also keep the soil about pansies loose on the surface before mulching or if grown without mulch. Around amaryllis and other bulbs stir the soil more deeply. Many plants coming from seeds will need care; thin and throw away the weaker ones. If transplanting is done use only the strongest. Weaklings seldom become vigorous. When thinning do not forget thickly matted clumps of perennials. They produce much better in thinned spots. Dig out with garden trowel sections from the thickest and transplant elsewhere, filling the holes in clumps with very rich soil. Even the tropicals, such as cannas, elephant ears, etc., may be planted or divided now. Bananas handle better now than at any other season, and tropical tubers such as dahlias should be planted at once. It is as well to caution all who garden in April not to have many "don'ts." Dare to do almost anything and dare to do it now.

FROST INJURY TO YOUNG WALNUTS

In an effort at ascertaining the extent of injury occasioned by the November frost to the young walnut orchards of Los Angeles County, the agricultural extension service, assisted by the field department of the California Walnut Growers Association, has recently completed a survey of the walnut districts. In certain sections trees up to three years of age were found to be frosted back badly, many clear to the ground, and in practically all parts of the county considerable frost injury was found on young trees. In some districts the injury does not seem to be confined to any particular variety but, in the San Fernando Valley at least, the varieties coming out early in the spring and going dormant early in the fall were found to have practically escaped frost injury. In all districts trees which were excessively sappy and still carried a portion of the leaves were badly injured.

As in the case of citrus, growers are advised to delay pruning back the young trees until new growth has started with the one exception that where the trees are found on examination to be killed back to or below the graft union it is recommended that they be cut off and crown grafted immediately. Experience indicates that badly frosted walnut trees may usually be saved by permitting a vigorous sprout to grow and remaking the tree from this sprout. There are many orchards which in their life history have been frosted back to the ground at least once and some several times and still the orchards have been brought out successfully.

During April and May several field meetings will be conducted at which there will be demonstration of recommended methods for treating walnut trees. Dr. H. S. Fawcett of the citrus experiment station is expected to conduct the disease demonstrational work. The schedule for these meetings is: April 5, 10 a.m., El Monte, place of E. A. Hayes; 2 p.m., Whittier, place of Ralph McNeese; April 7, 10 a.m., West Covina, place of Robt. Feely, 2 p.m., Rivera, Tom Gooch's walnut grove.

FOURTEENTH UNIVERSITY FARM PICNIC

April 29 has been announced as the date of the 14th annual picnic day at the university farm, and the committees to handle the tremendous amount of work entailed in putting over an event which is second to the state fair only as an attraction for farmers, has

been appointed. This action on the part of the university authorities puts at rest the various rumors which have been afloat recently to the effect that the big event would be discontinued this year. It is the opinion of the university authorities, in fact, that this year, even more than any of the preceding years, sees a real need for a

better understanding by the farmers of the problems confronting the college of agriculture and by the college of agriculture of the problems confronting the farmers. Picnic day goes a long way toward promoting such an understanding so that every effort is being made this year to make the big annual event even more of a real farmers' day than ever.

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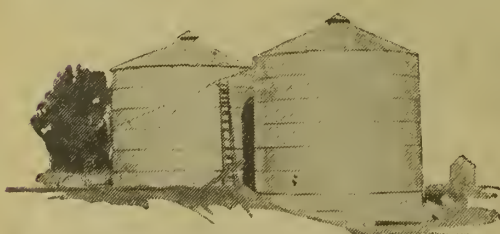
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305-16

A TIMBER LINE POULTRY PLANT

(Continued from Page 347)

the northern and southern hemispheres do their producing at opposite seasons of the year that he hit upon the idea he has put into successful operation here.

Soon after Styles had established himself in my foothills, late in the fall of 1919, I visited him one day and found him busily engaged in clearing brush on the sunny slope of the canyon he had chosen for his headquarters. Using that characteristic Anglicism which the native of the mother country seldom drops, he said to me, "Do you know, I've an idea."

"Let's have it," I replied, seating myself on a convenient bank to rest after my long tramp.

"I'm tremendously impressed with the warmth of these slopes at this season of the year. Here it is almost the middle of December," he continued, "and yet it is as warm as April."

"It's almost always warm here except when it happens to be snowing on the mountains," I replied, somewhat vaguely and apologetically; for I was in doubt as to whether he was finding fault with our boasted climate or was leading up to a commendation thereof. "But go on with your idea," I said.

Briefly, his plan was to capitalize the warmth of the southern slope of which I feared he was preparing to complain. Said he, "If winter in these sunny canyons is like spring elsewhere, and if I can take my hens about the time they quit laying and begin to moult to a colder climate, make them think that winter has come, and bring them back here in October when eggs begin to climb in price I have solved the problem of making them lay when eggs are worth money. I couldn't transport eggs laid in Australia in November quickly enough to sell them here in your autumnal November as fresh. But," pointing to Mt. San Geronio, 12,000 feet high, on the eastern horizon, he said, "I can take my hens by airship to the north slope of that mountain in April and have them ready by September to come back here and lay."

I scanned the Englishman's face closely to see if he was jesting. Perhaps if I were not something of a dreamer myself I should have pointed westward toward Patton and suggested that the course of empire lay in that direction. But having, in my relatively brief life of three score years, seen the telephone and the phonograph and the wireless and the X-ray and the automobile and the U-boat all come true, I restrained myself with the remark that if he could make his airship scheme work out all right I had no objection at all. In fact, now that the plan has rounded out one full cycle successfully and 3500 healthy hens are just slowing down in their production after laying during the fall and winter as if it had been springtime, I am willing to confess that I myself put a few dollars into the venture—just to make it more interesting.

My readers will be interested, perhaps, in knowing something of the other end of the venture, the winter quarters on Mt. San Geronio. It was Style's good fortune to be able to purchase from the war department for a song a dirigible airship of medium capacity. He has made six trips to his Greyback station, which is just at timber line on the northern slope. Of course it is not genuine eastern winter there at the time his flock is quartered there—that is not necessary. The sequence of the seasons is preserved and hastened sufficiently to produce the desired results. It goes without saying that there is no wagon road to that elevation, and even if there were it would not be passable at the early date when the spring trip must be made. It was my good fortune to accompany him on a trip he made in July last and to spend a week at the "station." With the help of a son, he has built on a little flat commodious houses of stone and logs for himself and for the hens. To the suggestion that it was the life of an exile, both father and son agreed that the relatively short time spent there precluded any such feeling; and as for the hens, whose actions spoke loudly for themselves, Styles said they seemed to enjoy the whole thing and that the two changes in climate per year must be responsible in large measure for their health and the financial success so far at-



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The manufacturers of this remarkable, true Virus are making a special introductory offer of two regular, full sized (double strength) \$1.00 bottles of Imperial Virus for the price of one. One to rid your own place of the pests, and sell the other to a neighbor thus getting yours free. As this offer may not appear again, you should act at once or clip for future reference. Special inducements to represent the If more convenient, send no money just your name and address to Imperial Laboratories, Dept. 104, 2110 Grand Ave., Kansas City, Mo. Pay the postman \$1.00 and a few cents postage when the package containing two bottles arrives. You need not hesitate accepting this liberal offer, as Imperial Virus is guaranteed to do the work your entire satisfaction within three days, or your \$1.00 will be cheerfully refunded.

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tained. He had no difficulty in leasing from the forest service the necessary land and is planning to enlarge his rustic cabin enough to accommodate his entire family and the occasional friends who are fortunate enough to be invited to make the trip.

MORE ABOUT HEGARI

Regarding hegari illustrated in a recent issue of the Cultivator, I would say that this has been tested at the experimental station and found to possess several objectionable features. First it grows so high that it is impossible to harvest it with heading machinery and is like feterita in that respect but is less valuable than feterita because of its later maturity under California conditions. Moreover it has a heavy stooling habit which results in much irregularity of height, which is also objectionable from a machine harvesting standpoint. Any variety which stools as much as milo or hegari is bound to be irregular in

growth because the late formed tillers (stools) produce heads at a low level. These late formed stools also produce later maturing heads, which is also objectionable from a machine harvesting standpoint and necessitates a much longer period of drying before threshing can be accomplished.

This variety planted May 14 at Davis and, irrigated on June 23 and July 18, was only 80 per cent ripe October 10, and the immature heads were those on the later developing lateral stools. Certain individual hegari plants appeared to possess more desirable characteristics than the others, these having been isolated for "plant to plat" planting during the coming season with a view to improving the variety in field characteristics.

In working with grain sorghums for a period of ten years at the university farm I have been impressed with the importance of developing types which lend themselves to machine harvesting. This I believe is the most important consideration in the development of this crop. The expense of hand picking heads has, in my judgment, been the principal obstacle in the way of extending the acreage of grain sorghums in California, and I believe that the introduction of dwarf uniform varieties which carry their



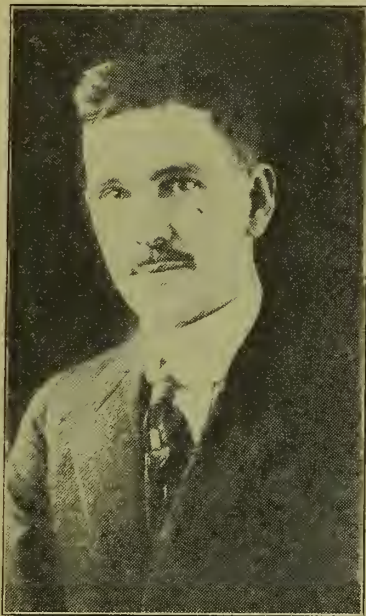
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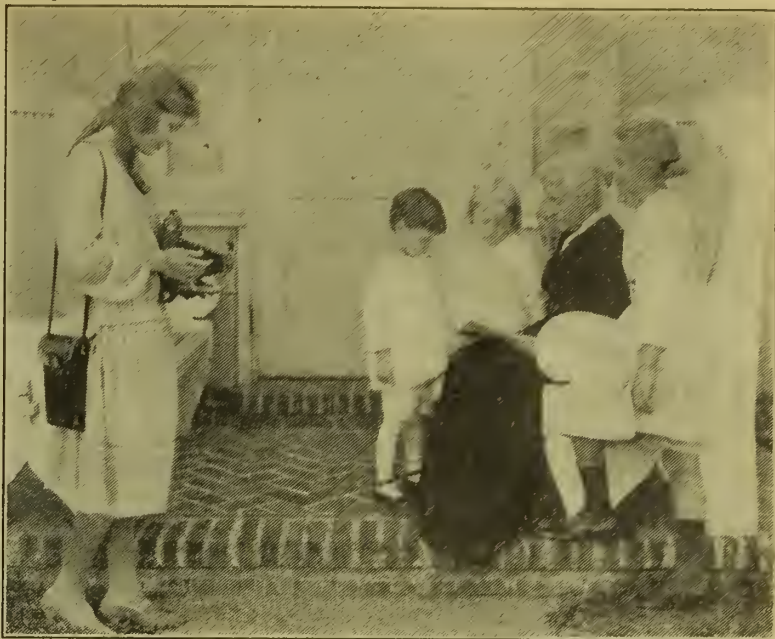
C. B. Hutchison

Prof. Hutchison of Cornell University will have charge of college of agriculture activities and will be dean of the university farm school at Davis.

heads on a straight stem will go far toward making grain sorghums a more popular field crop in this state. The kafirs, as you know, have become enormously popular throughout the dry sections of the Middle West and I think that this has been in large measure due to the characteristic straight head growth which adapts them to rapid and cheap machine harvesting. If the kafirs had been adapted to California conditions it seems probable that the expansion of grain sorghum acreages in this state would have paralleled that of the Middle West, but unfortunately the kafirs react unfavorably to our cold nights and require so long to mature that they cannot be produced in this state. The variety "White Yolo" approaches more nearly the ideal type of grain sorghum than any which we have yet observed adapted to California conditions. It has undergone a gradual improvement through five years of selection at Davis, and this selection is still being continued and we hope to gradually improve this strain until it is even better than in its present form. We have been on the lookout for many years for a new type of grain sorghum to serve as foundation stock for the development of a variety especially adapted to our state, and as yet nothing has come to our attention which is superior to this dwarfed hybrid strain, which we have named "White Yolo."

By addressing The College of Agriculture, Tucson, Arizona, you may obtain a copy of Arizona Circular No. 33, "Hegari in Arizona."—Geo. W. Hendry, Assistant Professor of Agronomy, University of California.

Our apple trees they do not pay,
We realize it well.
But if we'd all pitch in and spray
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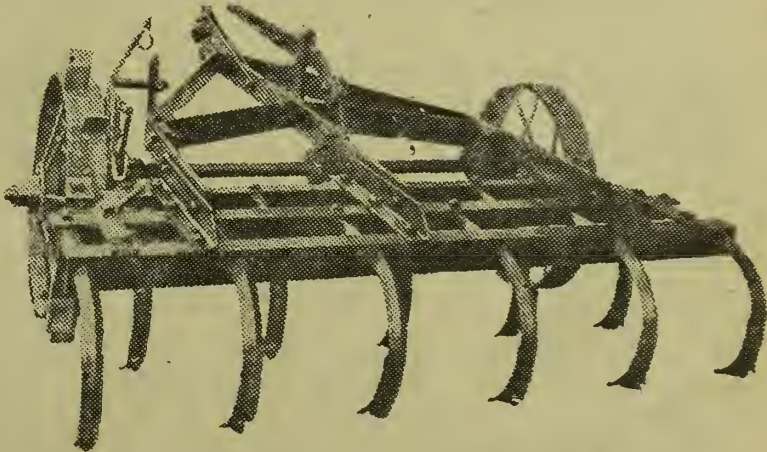
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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

City Dump

Some time after purchase of our farm the city established near by a dumping ground and sets fire to the material periodically. The stench is unbearable, also we are infested with flies, rodents, cats and dogs, both living and dead. Is there any relief? —Subscriber, Bakersfield.

Unquestionably this dumping ground constitutes a nuisance and an injunction will certainly prevail. Another method would be to take the matter up with the supervisors and have an ordinance passed forbidding the maintenance of this nuisance. The same situation some time since caused considerable trouble in the vicinity of Los Angeles, and the latter method was adopted.

Old Water Right

I have land under an old riparian water right, which has been irrigated each year. Last year several other water users established a concrete diversion dam. Have they the right to take out any water? Can they interfere with my right to take out water? Can they run a ditch through my land? There is no organized system, company or district, but the arrangement is an entirely voluntary one among several water users. —Subscriber, Exeter.

Apparently your right to divert water from the stream has for a long time been actively used and the water applied to a beneficial use. Such being the case your rights can in no wise be invaded by others, especially such a voluntary organization. You are entitled to receive water to the amount, at the point, and for the use which you have heretofore received it and applied it to a beneficial use. The parties installing this dam could be enjoined from interfering with this use and could also be restrained from running water through ditch across your land, unless this right had in some way been acquired long before. In fact, it is probable that by reason of the change to the concrete diversion dam you could restrain them even from diverting water through a ditch which had been established for a brush dam, as the use would be different.

Depth of Lots

Five years ago I purchased four lots by number but was told that the lots had a frontage of 100 feet and were 150 feet deep. A surveyor employed by a party who has purchased property in the neighborhood now stakes out these lots as only 130 feet deep. Which is right? —Subscriber, Delano.

The true dimensions of the lots are set forth upon the map of the tract recorded in the office of the county recorder. The surveyor is merely a private individual and his statements in respect to the lots are of no more value than those of any other private individual. If, however, you find that the party who sold you the lots was in error as to the depth you might still have a right of action against him for the difference in the value.

Lots Not as Represented

Six months ago I bought lots described by number, block and tract, according to the map on record. I built, and now find that statements contained in the map which the agent showed me at the time of sale do not correspond with map on record. What redress have I? —Subscriber, Medlow Park.

You are entitled to bring action against the vendor of the property for the difference between the actual value of the property and its value as represented. In such action you may also recover for the depreciation in the value of any improvements which you may have placed upon the property, or you may rescind the contract and, in addition to the recovery of the consideration for the property which you paid, obtain judgment for any special damage you may have suffered.

Vacating Streets

A town was laid out in lots. Streets and alleys surrounded them. Some of the streets are retained but many have never been used and the residents have farmed right up to the division fences in the center of the streets. Is it risky to buy a farm under such conditions? —Subscriber, Ramona.

There are measures which may be taken in any town or city by the trustees to vacate public streets and alleys as laid down upon the dedicated map. In such case the property reverts to the owner of the land under which the easement for street purposes was originally granted. It is probably true that unless such proceedings are taken the streets will remain dedicated public streets. It certainly would be highly risky to purchase any farm enclosing such streets without a very thorough investigation of the title.

Willing Property

A widower with children marries but there is no issue of the second marriage. Is all property acquired during the second marriage community property? He dies leaving a will. Does a will distribute all property or only what is left after the widow's share is deducted? If that is the case what proportion is subject to distribution by will? —Subscriber, Los Angeles.

All property owned by the husband before marriage and that acquired afterwards by gift, bequest, devise or descent, with the rents, issues and profits thereof, is his separate property; all other property acquired after marriage by either husband or wife or both is community property. It will therefore, have to be determined in this case if the property acquired during the second marriage resulted from rents, issues or profits of the separate property. If so, it would remain separate property. On the death of the husband the community property is subject first to the payment of debts and expenses of administration, then one-half of the community property must be distributed to the widow. Over this portion the husband's will has no effect. The only property which the will can affect is separate property, and the other one-half of the community property.

Support of Wife and Daughter

Is a husband obliged to support his wife and daughter of 19 years of age? There is community property. The parties have separated. Is the husband obliged to divide this property at the request of the wife? —Subscriber, Arcadia.

The parental authority and corresponding liability for support of the child ceases upon the child attaining majority unless the child is unable to maintain itself by work. Insofar as the wife is concerned the husband may be required by order of court to furnish such support for the wife in the court's discretion may be deemed best. But unless there is decree of divorce the wife is not empowered to have the community property divided, much less is the husband required to divide the community property.

munity property without order of court.

Disposition of Homestead

A homestead is taken out after marriage. What share does the wife obtain in case of separation? If the husband should die in such case without leaving a will and without children what share of the homestead would the wife obtain?—Subscriber.

If the selection of the homestead was made by a married person from community property or from the separate property of the spouse making the selection, or joined therein, the land so selected on the death of either of the spouses vests in the survivor. This disposition of the property cannot be affected by will, and the fact of the presence or absence of children has nothing to do with it. But in the case of a mere separation without any decree the parties are left to their own arrangements as to possession of the homestead. In case of a divorce the court may in its decree determine to whom the homestead shall belong. Neither of the parties can convey the homestead or abandon it unless he joins with the other in the deed of conveyance.

Abuse of Child

I have placed my little boy with a party to keep for me. A man who lives in the house abuses the child quite roughly. Could he be punished for such action?—Subscriber, Meridian.

Generally speaking no other than the parents or person in whose custody the child is placed has any right to chastise a child, and it is probable that the party in this instance might be subject to prosecution for assault and battery.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Eastern Black Stock for Walnuts

Can you tell me if the Eastern Black is a good root stock for walnut trees? I set out 20 acres this year to walnuts and am following method that I thought would give me a good tree, but since planting I see you write so much about the Northern California Black walnut for seed. I staked off my land with five foot stakes and at each stake planted three to four Eastern Black walnuts and later in the season I will pull out what trees I do not want and leave just one at each stake. Now in case some of the nuts should sprout I have several young trees in nail kegs to plant in their places. In this way I have a tree that has its root system untouched and when it is about five years old I will have the top worked over. I want to know if the Eastern Black walnut is a good root tree. My trees are in a deep sandy loam. — Subscriber, Guadalupe.

The "California Walnut," issued by the California Walnut Growers' Association, says under the section of the book devoted to root stocks: "The Eastern Black (*Juglans nigra*) is little used since it produces a less vigorous tree than the California. Some nurserymen advocate use of the Royal Hybrid, the name commonly given to the cross between the Eastern Black and the California. This stock gives a strong growing tree supposedly resistant to excessive soil moisture and other unfavorable conditions." The same book also says: "The Northern California Black (*J. hindsii*) is the most favored. It produces a strong vigorous tree which will withstand adverse soil and moisture conditions to a profitable degree. This species is a native of Northern California and easily obtained." The plan which the

subscriber is following will result in a more or less spotted appearance of the orchard. That is, there are sure to be variations in stock and in scion and in rapidity of growth. This is true also with trees in the nursery row but in nursery row there is possibility of selecting and rejecting trees not uniform in habit. However, there are other advantages in planting in orchard form, especially that of economy, and in the extra time required which will permit selection of varieties in grafting which may be developed during the coming five years.

Time for Planting Cots

I am going to plant an apricot orchard. What month would be best? If there should be any hardpan how deep down would it have to be not to affect the trees? If I should need to blast it what way is the best or easiest?—Subscriber, Ripon.

Plant at once or if impossible to

secure trees planting may be made next season any time between the first of January and, say, the last of March. They are already started and as soon as out of the nursery and in orchard form the better. The most popular apricot in California is the Royal. However, in your section the Tilton, Blenheim and some others are proving satisfactory. The best time for blasting hardpan soil is in the fall. When ground is dry it breaks or shatters much more satisfactorily than when wet. Unless soil is at least four feet deep above hardpan the breaking up of the hardpan is best.

Duty of Tree Inspector

What is the duty of a fruit and tree inspector? Is it to look at outside of bundles of wrapped trees or is it to open them?—Subscriber, Eureka.

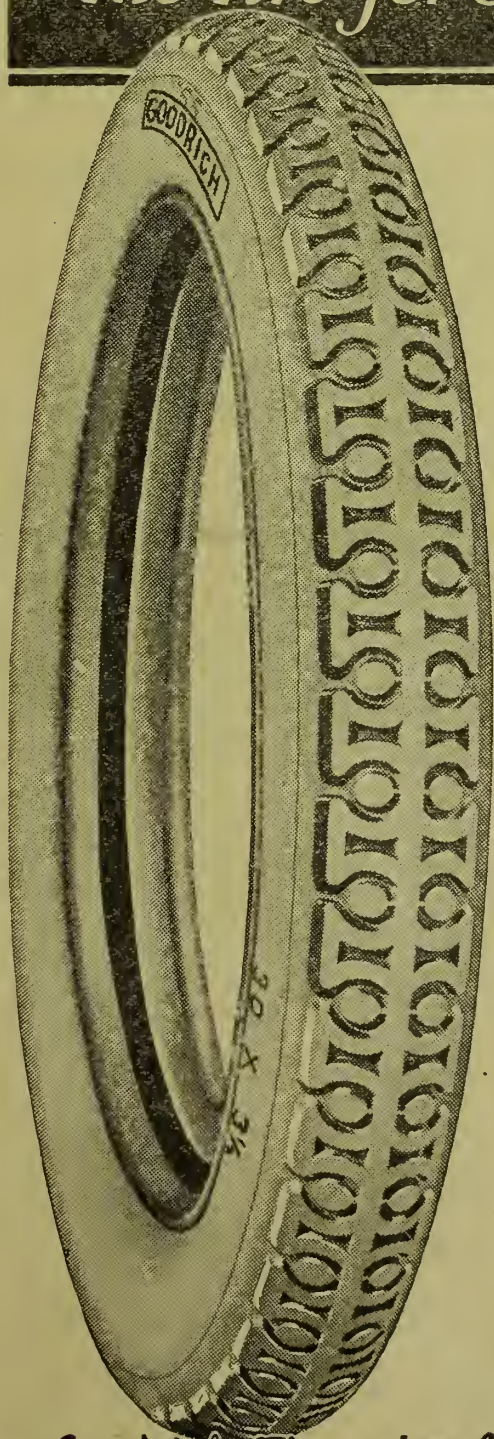
Horticultural commissioners and their inspectors have a serious problem in this matter of inspection. To

observe every technical point in our laws and regulations to the very letter of the law would require a force of inspectors vastly increased. Of course, the inspector should be satisfied and, if conscientious, will be as to the contents of a package. In the first place he informs himself as to the section from which the shipment has been made. He knows from information in his possession for many months the general conditions and the efforts of the inspector who works in the shipping community and at first glance forms an opinion as to infestation. If, for instance, a bundle of grape vines is coming from a phylloxera infested area, naturally the bundle will come apart and careful inspection be made. On the other hand, if none is known nor other serious pests of the vine, it would be foolish to jeopardize the best interest of the receiver by inspection of every vine

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\$10.90 will buy the Goodrich "55"—the new tire for the popular light cars. The splendid construction is made better yet by the thick anti-skid tread of scientific safety design, made of specially toughened rubber.

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 Akron, Ohio

HOME OF THE SILVERTOWN CORD

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or bundle of vines. Likewise, our state maintains quarantine officials at harbors. A shipment from Honolulu is very liable to carry Mediterranean fruit flies in the fruit in the handbag of a passenger, hence, careful inspection is made. If the ship comes from a Mexican port where the orange maggot is known to exist, equally careful inspection is made of

the ship, passengers and their baggage. If, on the other hand, a vessel comes from New York or Liverpool without touching a tropical port, the force is saved for more important labor on other vessels which are perhaps waiting in quarantine. So inspection does not necessarily mean examining under a microscope or glass every item in the package or every root on every plant. However, more efficient inspection is the aim of the greater number of officials and as a result California possesses the finest inspection service in the world.

Artichokes should not be largely planted for commercial purposes in Southern California because of climatic insufficiencies, first of which is, no doubt, lack of humidity. The fruit buyer for one of the largest chains of retail stores took us into the warehouse and opened several boxes of artichokes from various points, one being from your own shipping station, Arroyo Grande. He showed us in what respects those from the Half Moon Bay section, near San Francisco, were superior to others. They contain more edible matter, are firmer, less fibrous, more tender, better flavored and more uniform in quality size and form. The buyer said he would strongly advise against local planting for the reasons given; the demand is good but the supply is equally good. He ascribed the inferiority of the southern "choke" to climate; said that Arroyo Grande was considered as good as any section of the south but the product never commands the prices obtained for the Half Moon Bay brands.

{Quick Death to Fruit Pests}



Nicotine Dust Insecticide

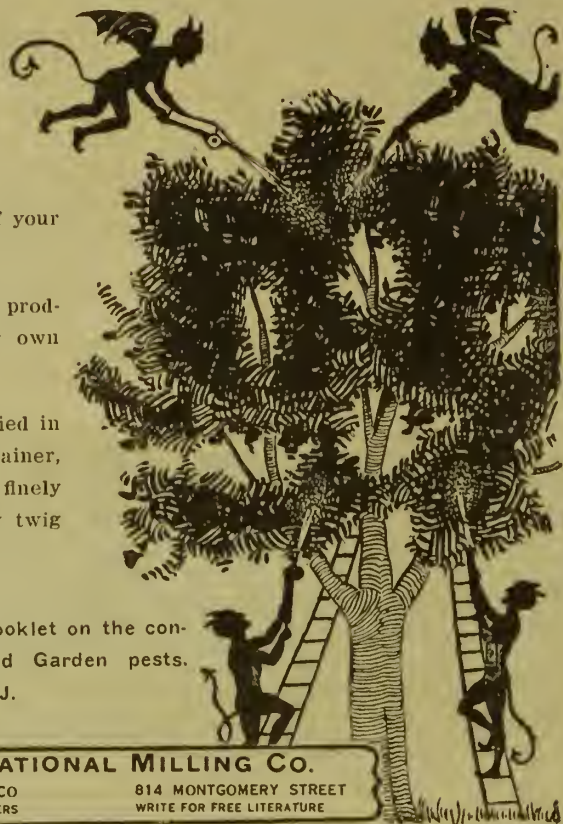
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THRIPS
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Spray for Lemon Trees

Please give spray for lemon trees. I have 400 trees seven years old and there is considerable black or brown scale on them. The fruit becomes dirty and the body and limbs of the trees very dark.—Subscriber, Oakland.

One of the best sprays for black and brown scale is the old time rosin, or sometimes called Martin, spray. This is composed of rosin, 20 pounds; caustic soda, six pounds; fish oil, two and a half pints; water, 100 gallons. However, it is so dependably made and sold in small drums or kegs ready to use that it will probably be more satisfactory to buy the commercial product. The best treatment for this pest is fumigation where available. Information as to mixing sprays and fumigating may be had from the California Cultivator of September 24, 1921.

Globe Artichokes

Is it advisable to plant 15 or 20 acres to artichokes for the Los Angeles market, here or elsewhere in Southern California? What is the present supply and demand? Are the plants grown commercially in Southern California?—Subscriber, Arroyo Grande.

Gopher Control

We have so many requests for information as to gopher control that we have written to W. C. Jacobsen, superintendent of rodent control, asking especially as to the use of smoke or noxious gases. Mr. Jacobsen writes:

"In regard to suffocating and controlling gophers and other underground pests with a blower which carries poison gas into the burrows will say that as far as poison gases are concerned they are only about 50 to 60 per cent effective for gophers owing to the fact that gophers have a decided habit of blocking their tunnels against anything in the way of a noxious gas, oncoming water, or natural enemies. The pocket gopher may be said to be very businesslike in his makeup in that at the first sign of danger his means of defense, namely, blocking up his burrows, is resorted to almost immediately. Unless gopher tunnels are comparatively short and confined to rather moist ground there is danger that gases pumped into or blown into the tunnels will leak out into some of the unseen openings which come close to the surface of the ground and which are constructed by the pocket gopher while feeding. As far as squirrels are concerned, suffocating gases are very satisfactory, carbon bisulphide and chlorine gases perhaps being the most effective. Compounds containing sulphur, gasoline or distillate generally are not so effective as the two previously mentioned. I do not want you to gather from this letter that gases are altogether ineffective against pocket gophers, but certainly no gas method should be recommended over poisoning and trapping until some better gas is evolved than we have at the present time."

Transplanting Grape Vines

Is it possible to transplant grapes during their dormant season?—Subscriber.

Yes, by all means plant grape vines only when they are dormant. Likewise, cuttings must be taken off at dormant season. They may be ten or 12 inches long and are usually calused by being tied in bundles and put in a trench with butts up, but covered with four or five inches of moist earth.

Old Bordeaux Mixture

I have a jug of Bordeaux mixture which has been in the jug for two years. Is it safe to use?—Subscriber, San Diego.

We question whether it would be of any value if one wishes to use it for spraying curl leaf or similar trouble.

Pruning Strawberries

Should strawberries be topped now?—Subscriber, San Diego.

The cutting of the runners on strawberry vines depends on whether one is growing for fruit or for new plants for additional planting. If for fruit keep runners reduced at all times.

Mineral Specimens

Where can one get mineral specimens assayed?—Subscriber, Watts.

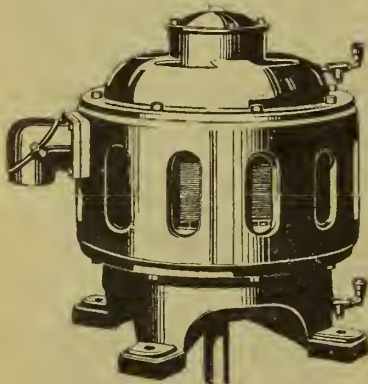
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And you're feeling rather blue,
It is like the sun of summer
When Harriotte passes through.
For she's always got a jest,
Or she's always got a smile,
To drive away the shadows
And make life worth while.

So the fellow that can win her
Will surely get a pearl,
For she's just a bit of sunshine
And a true-blue girl.

When the road is rough and rocky
And life meets you with a frown,
She will get you safely over
With her sunny eyes of brown.
You will muster up your courage
And you'll have another try,
For you can't resist her chatter
And the laughter in her eye.

If a man was worthy of her
He would have to be an earl,
For she's sure a bit of sunshine
And a true-blue girl. — D. Lamont Smith.

NAN'S OPPORTUNITY

By Elizabeth MacKinnon Schatz in
Lutheran Young Folks

NAN REYNOLDS belonged to that class in school life, fortunate or unfortunate, known as the girl without a chum. No group had yet drawn her into its midst though she was now entering her sophomore year.

Nan herself could not understand why she had not been drawn into the magic circle. The girls were kind to her, gave her offices in the Y. W. C. A. and literary society which she filled creditably—no doubt the reason she was continually chosen for said offices. She was a splendid student and all-around good athlete.

The girls did not hesitate to ask Nan's help in regard to their studies. Her busy sign on her door was constantly ignored. They thought she didn't care for the lighter side of college life, but they didn't know the heartache which she bravely hid when spreads were talked of in which she was not included, when parties were planned and she was practically the only girl in her class not consulted, nor did they note the wistful smile which followed them when they passed her out walking in groups and issued no invitation to join them.

Nan was simply not in the inner circle—the social circle of college life which keeps the studious girl from getting narrow, for it is in this circle that the girls rub elbows and learn to live together.

Nan thought of all these things one evening as she sat alone in her room. She wished she could do something about it. If only opportunity would knock at her door, hand her a pink scented envelope which would contain the longed for invitation to enter the magic circle. Even as she smiled at her fancy a subdued rap sounded upon the door.

"Someone for help with her lessons," murmured Nan resignedly as she rose slowly and proceeded toward the door.

Before she could reach it she heard steps retreating down the long hall. Nan opened the door hastily and discovered to her surprise a folded slip of paper on the floor. Not a pink scented note, but it might have held all the perfumes of Araby if one could judge by the look of delight which came over her face as she read the few words written upon it.

"You will sing first soprano in the Glee Club. Report at four o'clock tomorrow at my studio. (Signed) Miss Hilton, Voice Teacher."

Nan clasped the little note tightly to her. The one thing she loved to do most in the world and the thing for which she had had the least time and opportunity was now open to her. Truly opportunity had knocked and she was quite ready.

She had hardly hoped that she would be admitted to the glee club. So many good voices had been tested. Her mother, a singer in her youth, had taken great pains to develop Nan's one talent. Well, her mother's efforts had not been in vain. She would write immediately and tell her of the happiness which had come to her.

Folding up the note carefully, Nan wrote her letter. She did not note the passage of time until the light's warning wink reminded her that only ten minutes remained to prepare for

retiring. She arose hastily and made her bed. Then slipping on her bathrobe and slippers she hurried to the bathroom. As she neared the open door the sound of her name spoken in an unfriendly tone arrested her footsteps.

"She's given Nan Reynolds a first soprano part and left Pearl Myers out. That spoils our bunch entirely." The voice belonged to Eunice Caldwell, a girl whom Nan very much admired.

"We'll see if Miss Hilton won't change her," observed another voice.

Nan waited to hear no more. She retreated to her room quickly, positive that the girls had not heard her felt slippers upon the hall floor. Her little castle of dreams lay in ruins at her feet. She saw that this golden opportunity to enter the glee club, instead of bringing her into a closer relationship with the girls, would only estrange them the more. Should she refuse the coveted place?

Nan could not help but notice a coolness in the manner of the girls toward her on the following day. She had braced herself to meet it and tried to be as cordial as usual. She found it hard to meet them on the same ground when she knew the thoughts which were passing through their minds. She wondered uneasily if they would have enough influence with Miss Hilton to put her out of the club.

As she drew near the studio Monday afternoon for the first practice she heard Eunice Caldwell's voice talking earnestly to the voice teacher.

"Please, Miss Hilton, don't break up our bunch of girls. Pearl has as good a voice as Nan. Nan is the only outsider in the glee club," pleaded Eunice.

Nan's heart seemed to stand still as she waited breathlessly for Miss Hilton's reply.

"Pearl's voice is not nearly as good as Nan's. If Nan could afford to take lessons she would make a splendid soloist for the club. I cannot put Nan out just because you girls wish to keep your clique intact." Miss Hilton's voice was firm and a trifle impatient.

"Well, our fun will all be spoiled if she goes on our tours with us," sighed Eunice.

"Why will it?" demanded Miss Hilton. "There isn't a nicer, brighter girl in the whole school than Nan. Why don't the girls take her in?"

"She hasn't any spunk. She lets the girls walk all over her. She's too anxious to be liked and shows it," explained Eunice.

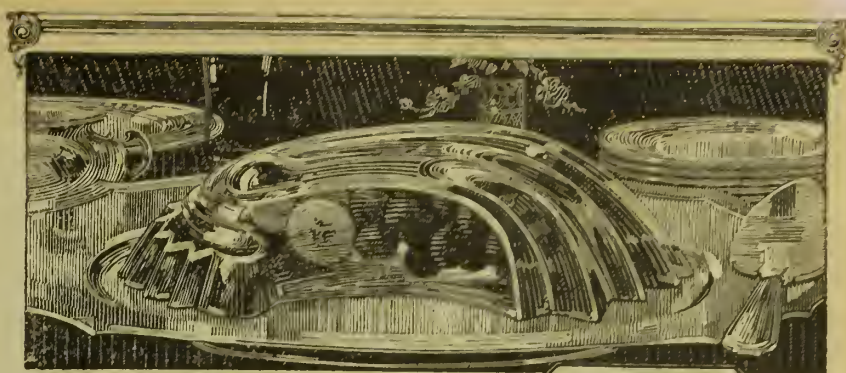
Nan had heard quite enough. She almost stamped on the hall floor to make them hear her approach. Their voices died away. Nan's color was high and her eyes were bright as she neared the studio door. She knew now that nothing would make her give up her rightful place in the glee club. At first she had thought that it might make them like her better if she gave up her place to Pearl Myers. How foolish she had been to think of such a thing! Why, judging from Eunice's remarks, the girls would hold her in still greater contempt. Spineless, they would call her. This once they would see that she couldn't be walked over as Eunice had just expressed it.

Her heightened color as she entered the studio revealed the fact that she had heard the conversation. Eunice looked decidedly uncomfortable. Miss Hilton refrained from making any comment when Nan remarked quietly, "I couldn't help hearing what was said. Your voices carried clear down the hall."

Nan's lips were trembling, but she quickly gained control of herself as other members of the glee club entered the room.

Though the girls were courteous to her, especially at practice, Nan felt like an alien. If she had only known that Eunice secretly admired her for not throwing up her place in the glee club it would have comforted her quite a little. She had half expected Nan to do so and had expressed this hope to the girls. But their expectations were shattered in this direction, for Nan went serenely on her way. A time would come, she felt, when she would prove to the girls that she was worthy to be taken into their magic circle.

Meanwhile a conscious change had come over Nan since the afternoon of



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DSSERT is the climax of a meal and should be chosen with such care that one rises from the table with the delightful feeling of having dined perfectly.

When the appetite has been satisfied with the meat and vegetable courses, bring on a dainty dish of fruit Jell-O with cream to add a last fillip, and to bring luncheon or dinner to its ideal conclusion.



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Safer, cleaner than city gas, wood or coal. } Agents Wanted
No roar, no soot. Big saving over wood. }

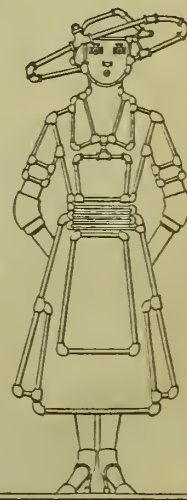
WONDERFUL, steady baking heat. Fits any cook stove, parlor heater, etc. No cleaning; no stopping up; built to last. It's new; it's different; it's better. Free literature. Address Department C.

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Wise Mrs. Jones How She Got the Farm Hands to Eat Her Left-over Bread



Here's another fine desert for hard-working men. Full of the raisin's energizing nutriment. Digestible because the raisin's pure fruit-sugar is in practically predigested form.

Raisin Bread Pudding

$\frac{3}{4}$ cup Sun-Maid Seeded Raisins, 2 eggs, $\frac{1}{2}$ teaspoon salt, butter size of an egg, $\frac{1}{2}$ cup sugar, cinnamon to taste, $\frac{1}{2}$ large loaf of stale bread, 2 bananas or apples.

Soak the stale bread over night in water. When time to make the pudding press as much water as possible from the bread so that the bread is about the same consistency as dough, then take a fork and get all lumps out. Do not leave the crust if it cannot be mashed to the same consistency as the bread. Add well beaten eggs, salt and stir. Add raisins mixed with the butter. Put into dish in layers, covering each layer with sliced banana, sugar and cinnamon. Bake in slow oven until brown. Serve with whipped cream.

All measurements for this recipe are level.



Blue Package (seeded) best for pie and bread.

MRS. JONES, a thrifty woman, once wasted much left-over bread, which annoyed her. She wondered how to save it.

One day she saw a recipe—"bread pudding with raisins."

"The raisins make it taste mighty good," said she.

Next day she tried it on the farm hands. They ate all the pudding—asked for more.

Now she serves it twice, and frequently three times a week—and has to bake bread especially for bread pudding.

Jones' farm is now known for "the food the farm hands get" and Jones never lacks good workers, even when help's scarce.

Thus two problems, and not unimportant either, were solved by Mrs. Jones.

Try it. See what you can do with raisins.

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Prepared and packaged in a great modern glass-walled plant in a famous California valley, they come to you immaculate, wholesome and always good.

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the first practice. A reserve had crept into her manner. The knowledge of the reason for the girls' lack of interest in her served to change her attitude toward them. They still held aloof, however, and Nan wondered if anything would ever happen to change their relations.

A musical contest between five girls' glee clubs from different colleges had been arranged by the heads of the voice departments. Miss Hilton worked hard and diligently with the girls and they in turn would have practiced morning, noon and night to win the medal which was to be presented to the glee club which gave the best rendition of a number selected by a committee. Hillsboro, Nan's college, had been chosen as the best location for the concert.

It was the first thing of its kind that had been given in that section of the country. No wonder the girls were on tip-toe with excitement. Nan forgot the girls' animosity and they in their turn were too interested in the success of their glee club's efforts to think of their petty selfishness.

Faye Moran, who carried the solo part of the selection, was constantly admonished by the girls to do her self proud—for a great deal depended upon the soloist.

Nan, in her spare moments, would practice the entire selection. Her voice was singularly beautiful. Miss Hilton realized this more and more as she heard her sing with the other girls. She felt in her heart that Faye's voice did not possess the quality that Nan's did. It was a rule, however, in Hillsboro College that only a girl from the music department could carry a solo part in their concerts. As far as the committee was concerned this was immaterial. Miss Hilton appreciated the value of the rule, but for this one affair she wished it could have been set aside.

The night of the contest an excited group of girls gathered in Miss Hilton's studio. Five studios belonging to the department of music were located at the rear of the big auditorium. On this night a college glee club occupied each room.

The girls looked like so many butterflies as they flitted about the studio, humming snatches of their song. Nan stood among them conspicuously, a white butterfly. She would be very noticeable in the front row among the many blues, greens, pinks and yellows, thought Miss Hilton. The girls also looked at her dress askance.

As if divining their thoughts, Nan whispered to the voice teacher, "I'll change places with Amy Wells tonight and go in the second row if you wish."

"Nan, you are sweet to think of it, but you shall not do anything of the kind," answered Miss Hilton, ashamed of her momentary wish.

"All ready, girls," she called.

The girls stopped chattering and fluttered toward the door, arranging themselves in the order of their parts. Two glee clubs had already finished their parts on the program. Hillsboro came third. After the five selections had been rendered, miscellaneous numbers were to be given by each glee club.

"Come and trip it as ye go," hummed Faye as she ran up the steps which led to the hallway near the auditorium.

The next moment she did trip and fall, twisting her ankle under her. The girls ran to her and helped her to her feet, but her face had grown very white and she could not walk.

"Nan, tell them to go on with the program while we see what can be done to adjust matters and help Faye," requested Miss Hilton with admirable calmness.

Nan nodded and slipped away. She briefly explained the circumstances to the waiting glee clubs, then hurried from the building to her room in the dormitory. Back she flew with bandages and liniment, which she presented to the grateful voice teacher.

"We have telephoned for the doctor, but these will help," said Miss Hilton as Nan knelt and deftly bound the injured ankle. Faye smiled at her wanly.

"You're a dear girl, Nan," she said huskily.

Nan smiled at her brightly, then turned quickly as she heard Miss Hilton say: "We will have to withdraw from the contest, I'm afraid."

A wail of protest came from the girls. "Oh, Miss Hilton, why?"

"Well, Faye is the only one who

has studied that solo. This shall never happen again. We shall always have a substitute in the future."

Nan came toward her swiftly. Her college was to be thrust in the background by this untimely accident. It was not to be thought of! Timidly she had shrunk before from thrusting herself forward, but now there was no hesitating—the honor of her glee club was at stake—for Nan well knew it was an enviable honor to be chosen for the medal which was to be awarded.

"Miss Hilton, I have practiced Faye's solo many times in my room and I know I could sing it if you will try me," she offered eagerly.

"That is fine, Nan, but you cannot take the part. It is against the rules. You are not in the department of music," said the voice teacher hopelessly.

Gloom settled over the girls. It was a shame after they had worked so hard and hoped so much to have to give up this chance at the last minute. Miss Calhoun, the president of the college, who had been informed of the accident, entered at this crisis.

"Well, Faye, this is too bad," she murmured to the injured girl. "I'll stay with her and you go next on the program," she added turning to the girls.

"We can't," cried Eunice, "unless you let Nan take Faye's place."

Then Miss Hilton explained the situation in as few words as possible. Time was flying and this question must be decided at once.

"Certainly, let Nan take her place if she can do it creditably. That is a good rule, but no rule is very good unless an exception can be made to it sometimes," announced the president decidedly.

Now that the question was settled, Nan experienced a nervous sensation. Suppose she should break down—the girls would never forgive her. She had offered her services and she must render full value.

As the girls filed in upon the brightly lighted stage, Miss Hilton felt glad that Nan's dress made her conspicuous. Nan, on her part, felt relieved that part of the chorus singing in the selection came first. It gave her time to get her bearings.

The glee club held its breath as the slender white gowned girl arose and stepped a little in front of the chorus. Nan's manner suddenly filled them with confidence. Then she sang. Her voice, bell like and clear, filled the big auditorium. People who had settled in their seats with bored expressions upon their faces roused themselves with interest. As the last notes died away she slipped into her place again. Miss Hilton's face glowed with pleasure.

The four other contestants filed in upon the stage. While the judges were out deciding upon whom to bestow the medal, college songs were sung. The Hillsboro College girls were surrounded by congratulating friends a few moments later when they were presented with the medal which they might have lost had it not been for Nan. A happy Nan was later surrounded on the stage by her own glee club.

"All ready, girls," cried Eunice, and the girls yelled with all their might: "Rah, rah rah—rah, rah, rah—rah, rah, rah—Nan, Nan, Nan!"

Nan had entered the magic circle at last.

HOUSEHOLD QUERIES

Peanut Brittle—French Bread

Please give me recipes for peanut brittle and for French bread.—Subscriber, Corona.

Peanut Brittle—2 cups sugar, 2 cups shelled peanuts. Melt sugar; when a golden brown add chopped nuts; pour into hot buttered pan, crease and cool.

French Bread—Pare and cut two medium sized potatoes and cook until very soft in three cups water. When cooked rub through sieve and cool. There must be two cups of this. When it is about 80 degrees Fahrenheit pour in mixing bowl and add 1 yeast cake crumbled in, $\frac{1}{2}$ ounce (1 tablespoon) shortening, 1 ounce (2 tablespoons) sugar, $\frac{3}{4}$ ounce (2 teaspoons) salt. Stir to thoroughly mix, then add 8 cups flour. Work to a smooth dough then knead 10 minutes. Place in well greased bowl, turning dough over to thoroughly coat. This prevents a crust from forming. Cover

bowl and set aside to rise for 3½ hours. Now lay over the dough by pulling in toward center, the sides and ends of the dough, until it forms a compact mass. Turn over the dough, cover and let rise for 1 hour. When ready for the pans cut or divide into 6 pieces and mold into loaves 3 inches thick and 12 inches long, rolling loaf on board, making pointed at ends. Place clean cloth in deep baking pan and sprinkle cloth with cornmeal. Place loaf of dough on cloth and sprinkle lightly with cornmeal. Now lift cloth up close to dough, making cloth partition between each two loaves. Let loaves rise about 45 minutes and when ready to bake lift dough carefully from cloth, lay on a baking sheet and gash slightly with sharp knife. Wash with egg and water and bake 45 minutes in hot oven, adding small saucepan of boiling water to provide steam to keep loaf moist while baking. One-half this quantity for small family.

Curing Pork

Please give method of curing pork so it will keep either as bacon or salt pork. Meat which we have cured has had the fault of getting too salty as it dried.—Subscriber, Sonoma County.

The saltiness of your pork can be greatly reduced by parboiling. For sugar curing we use 10 quarts salt, 3 teacups black pepper, 3 tablespoons cayenne pepper, 5 pounds cane sugar. Put in large pan and heat; stir while warming. When thoroughly warmed rub into meat. Use clean boxes or barrels and allow to remain packed for at least five or six weeks. Take up and dip in boiling water and then lay meat on table to dry. When thoroughly dry rub with powdered borax and black pepper, equal parts. If desired the pork may be smoked after this treatment. Fuller directions for handling all kinds of meat may be had in Farmers' Bulletin 1186, which you can get by writing Department of Agriculture, Washington, D. C.

Steam Pressure—Fireless Cooker

Can you tell me anything about steam pressure cookers? Are they complicated? Would they be hard for an older woman to learn to use? Are they expensive? Which is the best and easiest, a steam pressure or a fireless cooker, and what is the difference in price?—Subscriber.

We have never seen anyone who has used a steam pressure cooker who was not enthusiastic in its praise. They are not in the least complicated; anyone can easily handle them. As to expense it costs a little more to buy a pressure cooker than a fireless of the same cooking capacity. In one well known make of pressure cooker 12-quart size costs \$29; 25-quart, \$41; fireless, 12-quart, \$19.75; 20-quart, \$32. The great recommendation of the pressure cooker is saving of time—beans, for instance, cooking in 40 minutes, a ham in 50 minutes. The fireless saves fuel, heat and labor of watching. Both are invaluable to the busy housewife, and especially in the hot days of summer when canning time means weary flesh and bones unless one or both of these aids are at hand. Pressure canning makes easy preserving of meats and vegetables as well as fruit.

We have merely touched here a few outstanding points. Now we would like to hear from those who have tried either or both of the cookers as to their actual experience. Is a pressure cooker or a fireless cooker worth buying, and why? For answers received at this office by Saturday, April 8, we will be glad to give subscription credit to the California Cultivator for one year. Address Household Department, California Cultivator, 317 Central Avenue, Los Angeles, and with your letter send name and address of one to whom you wish subscription credited.

Corned Beef

Please give me directions for making corned beef.—Subscriber.

Cool carcass thoroughly and cut in pieces five or six inches square. The heavier cuts, such as plate, rump, cross ribs, brisket, are generally used. Corned beef is better than too lean. To each 100 pounds meat allow eight pounds salt. Sprinkle ¼-inch layer of salt in bottom of barrel. Pack meat as closely as possible, making five or six inches thick. Put on layer of fat, following with alternating layers

of meat and salt. Have thick layer of salt over top. Let stand over night, then add for each 100 pounds meat four pounds sugar, 2 ounces baking soda, 4 ounces saltpeter, dissolved in 1 gallon tepid water. Three gallons more cold water should be enough to cover this quantity. Put loose board over meat, weighting with heavy stone to keep under brine. If brine becomes slimy or ropy make new brine of 8 pounds salt, 4 pounds sugar, 2 ounces baking soda and 4 ounces saltpeter dissolved in 4 gallons water. Pour off old brine and wash meat thoroughly. Add new brine. If meat is kept a long time brine should be changed occasionally. The meat will usually be corned and ready for use in six weeks.—From Cruess' "Home and Farm Food Preservation."

HINTS FROM HOUSEKEEPERS

Candied Orange Peel

Save up the orange rinds for two or three days, keeping them in a cool place. When ready to use cut them in narrow strips with scissors and put on to cook in cold water to barely cover. Bring to boiling point, discard water, and then repeat the process. Do this three times, then measure the orange peel and add an equal quantity of sugar, together with water to cover, and simmer the whole gently until the peel is translucent. Drain, roll pieces in granulated sugar and let them stand exposed to the air for a few hours to dry. This may be used in fruit cake, as a garnish in a

plain cake with an orange filling, or a little may be lightly sprinkled over a sponge cake before it is baked. Can be kept a long time in glass jars.

Oatmeal Raisin Cookies

1 tablespoon Crisco, ¾ cup granulated sugar, 1 egg, 1 cup cooked oatmeal, 1½ cups flour, 1 teaspoon baking powder, ½ teaspoon cinnamon, pinch salt, 1 cup raisins cut in small pieces. Cream sugar and Crisco, add egg and oatmeal and beat well. Sift together flour, salt, cinnamon, baking powder. Add to first mixture, with raisins on top. Mix all together and drop from a teaspoon on greased pans three inches apart. Bake in moderate oven ten minutes. This makes 36 cakes and they are fine. We enjoy the Cultivator very much. Can hardly wait until it comes each week.—Subscriber, Alhambra.

Some Good Recipes for Every Day

Good Bread.—In the evening soak 1½ cakes Magic yeast in ½ cup warm water ½ to 1 hour. Add 3 to 4 teaspoons salt, 3½ cups warm water and 1½ to 2 quarts flour and make smooth sponge. Cover and set away till morning, then add 2 tablespoons sugar, 2 tablespoons melted lard and enough flour to make nice elastic (non-sticky) dough (about 1½ to 2 quarts). Let rise to twice its bulk and knead down. Let rise again and then put in bread pans. This makes two good sized loaves. Bake in hot oven 45 minutes, or till bread is done. Taking milk in-

stead of water and adding seedless raisins (about 3 cups) makes a very nice raisin bread.

Raisin-Nut Cake.—One cup sugar creamed with ½ cup shortening. Add 2 eggs, 1 at a time and beat well. Gradually add 2 cups flour with 2 rounded teaspoons baking powder and pinch of salt alternately with ½ or ¾ cup coffee. Flour ½ cup seedless raisins and add also ½ cup almonds or other nuts. Bake in a tube pan and cover with this icing: One cup powdered sugar with enough lemon juice added to make it spread.

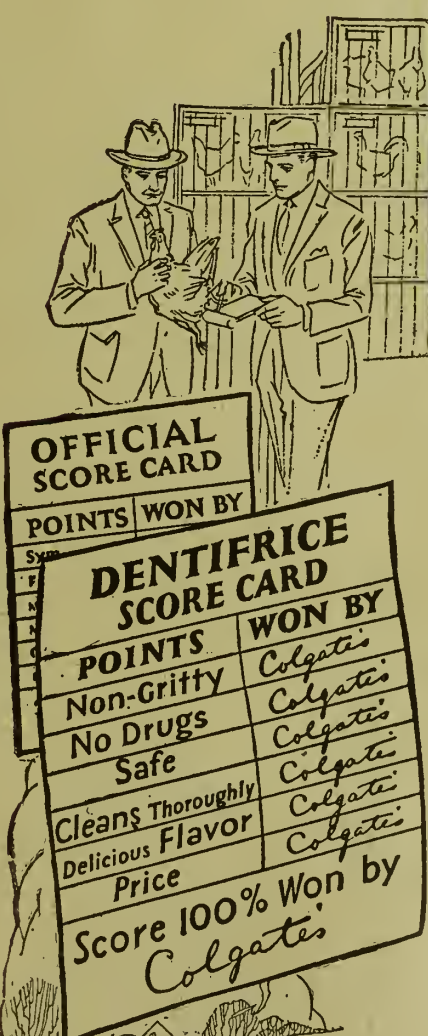
Orange Layer Cake.—Cream ½ cup shortening, 1 cup sugar and add 2 well beaten yolks of eggs. To this add pinch of salt and a little grated rind of the orange. Sift together 1½ cups flour, 1½ teaspoons baking powder and ¼ teaspoon soda. Add this alternately to the other mixture with a ½ cup orange juice. Add the stiffly beaten egg white and bake in layers in a hot oven. Icing and Filling: One cup powdered sugar, a little grated rind of orange and enough orange juice to make a paste to spread.

This cake is very good and refreshingly flavored.

Potato Doughnuts—Pumpkin Pie

I am sending recipe for potato doughnuts and pumpkin pie which I have never seen in print and which we consider the best of any we have used.

Potato Doughnuts.—One cup sour cream, 1 cup sugar, 1 cup mashed pota-



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YOU know the score cards used by the agricultural college people for judging poultry, livestock, or home products.

Were you—or a group of dentists—to make a score card to help select the best tooth paste for the whole family, you probably would make one like the "Dentifrice Score Card" shown here. And when you compare the various tooth pastes you, like most dentists, would give the high score to Colgate's.

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toes, 3 eggs, 4 cups flour, 4 teaspoons baking powder, 1/2-teaspoon soda, 1/2-teaspoon salt, 1/2-teaspoon vanilla, 1/2-teaspoon lemon. The fat for frying should be not less than three inches deep in kettle and hot enough so doughnuts begin to brown as soon as they come to the top, but do not have the grease hot enough to smoke. Turn doughnuts as soon as they come up

Drain on soft paper and when cold roll in powdered sugar.

Pumpkin Pie.—One cup pumpkin, 1 tablespoon flour, 1/4-teaspoon salt, 1 cup sugar, 1/2 teaspoon ginger, 1 teaspoon cinnamon. Mix all together thoroughly, then add 1 cup rich milk or cream. Bake in quick oven.—Mrs. Otis O. Carpenter, Earlimart.

HOUSEHOLD QUERIES

Canning Artichokes

I would like to know if you can give me any information in regard to the canning of artichokes, also how to tell when the artichoke is ready for picking. Have been a subscriber of your paper for a long time and have found some very interesting and useful articles in it.—Subscriber, Los Altos.

Gather as soon as the flower buds are well formed and before the scales begin to open. As to canning, Cruess in "Home and Farm Food Preservation" says: "Trim off hard tips and stems and outer leaves. Parboil or blanch in boiling water five to ten minutes. Chill slightly in cold water, pack into jars or cans, whole if possible. Cut to fit can if necessary. Fill with boiling hot brine, three ounces salt per gallon, and four fluid ounces lemon juice or very strong vinegar per gallon. Seal and sterilize by keeping one hour in boiling water if in tin and one and one-half if in glass.

YOSEMITE NATURE GUIDE SERVICE

Yosemite national park nature guide service will be maintained this season. Last year 52 lectures and campfire talks and over 100 field trips were given, and there was a free wildflower show in Yosemite village throughout the entire tourist season, as well as sleeping bag trips into the high Sierra back of Yosemite. The 1922 program will be on a still wider plan and will include lectures and field trips at the back country lodges, such as Tuloume Meadows and Merced Lake. The California Nature Study League will continue to furnish modest nature study libraries. Anyone puzzled regarding birds, animals, insects, wildflowers or trees found along Yosemite national park trails may obtain information about these without charge at the office maintained by the national guide service in Yosemite village.

TO KEEP YEAST

The following plan has been found successful in keeping yeast where a fresh supply cannot be secured daily. Put an inch of salt in a Mason jar, a cake of yeast wrapped in tinfoil, a half-inch of salt, another cake of yeast and so on until the jar is full. The top layer should be an inch or more of salt. Screw on the cover and place in icebox or cool place. It will keep two weeks or more.

WE'RE A-PULLIN' THROUGH

Times a-changin'—
New work to do,
Brand new future
That's callin' you,
And the sky looks stormy
When you prayed for blue,
But, somehow, brother,
We're a-pullin' through!

Storm's a-weavin'
Of a rainbow true,
An' it's made of stars
That are far from view;
Oh, we'll glimpse the glory
Of the mornin', too—
Somehow, brother,
We're a-pullin' through!
—Frank L. Stanton.

THE SEASONS—BACK EAST

When it comes to the end of the Winter,
I'm glad for the joys of the Spring,
And then I begin to remember
The treasures that Summer will bring.

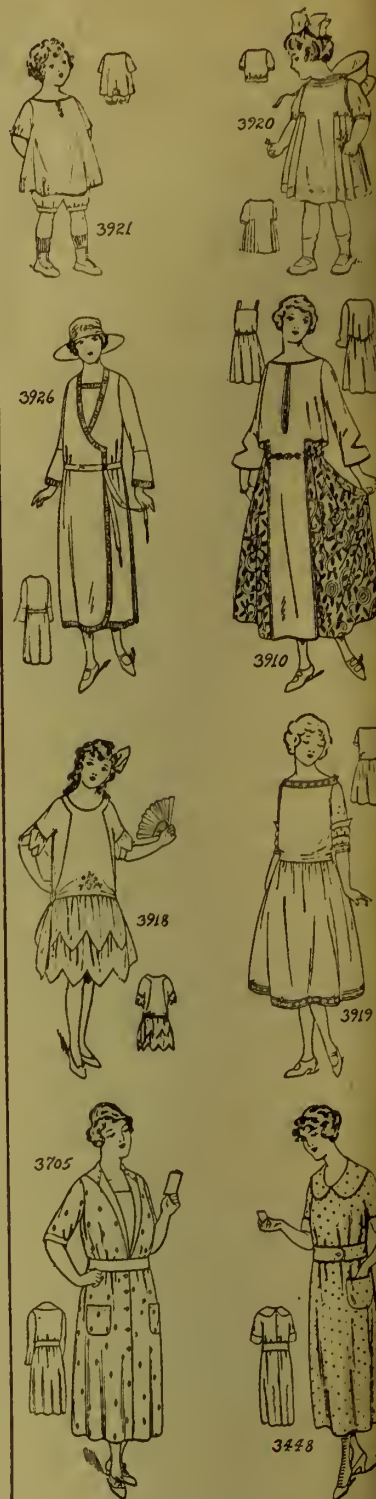
And when I've been cooked to a grease spot,
Or choked by humidity haze,
I pine and I long with affection
For medium-done Autumn days.

And then when the beautiful fall
Has cooled off my mid-summer brain
I think of the snow and the ice,
And wish it was Winter again.

I greet every season that comes,
And like it; but isn't it strange,
That half of the joy of the year
Is knowing the seasons will change?
—Nan Terrell Reed.

You never heard the bee complain,
Nor heard it weep or wail;
But if it wish it can unfold
A very painful tail.

The Cultivator Patterns



3921—Child's Play Dress. Cut in 4 sizes: 1, 2, 3 and 4 years. A 2 year size requires 2 1/2 yards of 36 inch material. Price 10 cents.

3926—Misses' Dress. Cut in 3 sizes: 16, 18 and 20 years. To make the dress for an 18 year size requires 4 yards of 44 inch material. The width at the foot is about 2 1/2 yards. Price 10 cents.

2918—Girls' Dress. Cut in 4 sizes: 8, 10, 12 and 14 years. A 10 year size requires 4 1/2 yards of 36 inch material. Price 10 cents.

3705—Ladies' House Dress. Cut in 7 sizes: 28, 40, 42, 44, 46 and 48 inches bust measure. A 38 inch size will require 6 1/2 yards of 27 inch material. The width at the foot is 2 1/4 yards. Price 10 cents.

3920—Child's Dress. Cut in 4 sizes: 2, 4, 6 and 8 years. A 6 year size requires 2 1/4 yards of 36 inch material for the dress and 1 1/2 yards for the gumps. Price 10 cents.

3910—Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. The 34 inch size requires 3 1/4 yards for the slip of 44 inch material and 2 1/4 yards of 40 inch material for the bolero. The width at the foot is 2 1/4 yards. Price 10 cents.

3919—Junior's Dress. Cut in 3 sizes: 12, 14 and 16 years. A 14 year size requires 3 1/2 yards of 40 inch material. The width of the skirt at the foot is about 2 yards. Price 10 cents.

3448—A Pleasing Apron. Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. To make the design for a medium size will require 4 1/2 yards of 36 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Do not expect patterns under Two Weeks from date of order.

CATALOGUE NOTICE

Send 12c in silver or stamps for our Up To Date Spring and Summer 1922 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker. Also colored plates.

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
April 5, Guaranty Sale, Rhoades & Rhoades, Pavillion, Hynes.
April 12, T. J. Gist & Son, Tulare.
April 26 and 27, Fred H. Harvey, Galt.
May 11, E. R. Stalder, Nuevo.
May 24, J. S. Gibson Estate, state fair grounds, Sacramento.
June 1 and 2, Burr Farm, Los Angeles.

Milking Shorthorns
April 19, Harrison, Lynch, Roberts and Heckley, Santa Rosa.
May 5, J. D. Rowe & Sons, Davis.

Shorthorns
May 4, Ormondale Ranch, Redwood City.
May 25, Caledonia Farms, West Sacramento.

Guernseys
May 17-18, Walter H. Dupee, Hynes.

Jerseys
May 9, Geo. H. Thomas & Son, Hynes.

Herefords
April 20, H. M. Barngrower, Stockton.

Berylwood Stock Farm, Hueneme, reports sale of Ormsby Douve Romeanna, a yearling bull by Sir Ormsby Skylark Rauwerd, out of Douve Pontiac, a three-year-old who stood ninth last year in the 30 day butter fat competition. The seven nearest dams of this young bull average nearly 29 pounds for seven days, his dam making nearly 800 pounds in 305 days as a three year old and his great granddam 925 pounds in 365 days. This youngster went to head the splendid little herd of A. R. Buttels at Wasco, the consideration being \$1,000.

G. L. Strobeck, owner of Edgemoor Farms, will hold complete dispersal sale at public auction, Hynes, within 50 days, of 120 head of Guernseys, 40 in milk; 60 open and bred heifers and 20 bulls, all tuberculin tested and guaranteed in every way. C. L. Hughes of California Sales and Pedigree Company will handle the sale.

The executive committee of the Kern County farm bureau dairy department has decided to hold a "Dairy-men's Day," to take the place of the county fair scheduled for October. Dairy products will be exhibited; good dairy stock will be shown, and the day will be generally devoted to the dairy industry.

The announcement this week of the dispersal sale of the famous Ormondale Ranch herd of Shorthorns will prove of more than passing interest to the cattlemen of the West who have come to regard this herd as one of the leading collections of Shorthorns owned on the Pacific Coast. The herd was established a number of years ago, and through the service of the bull, Golden Goods, Jr., at once attracted

attention by the character of its productions. It was on this ranch that the famous cow, Little Sweetheart, that was shown to the American championship by T. S. Glide, was dropped. She was a daughter of the bull mentioned above, and the herd at present contains many of her half sisters. The sale is made necessary in a reorganization of the plans of the owners, who will probably subdivide the ranch. About 60 lots will be cataloged and will represent many of the popular Scotch families as well as the better known American tribes. A considerable part of the offering will consist of the get of the \$12,000 imported bull, Boquian Guinea Stamp, and the real feature of the sale will be the crack young bull, The Caledonian. The sale will be under the management of C. L. Hughes of the California Breeders Sales & Pedigree Company, Sacramento, and will be held at the ranch near Redwood City on May 4.

A draft sale of Herefords will be held at Stockton, April 20, by H. M. Barngrower. Mr. Barngrower, who has been closely identified with the Hereford development in this state, was formerly located at Santa Clara and for a number of years has maintained a large herd on his mountain ranch in Plumas County. He recently transferred his headquarters to Stockton, and he states that the coming sale will be the first of what he hopes to make an annual event. About 40 bulls and ten females will be offered and it is expected that range men will take advantage of the opportunity to secure what bulls they will need this season.

For the first time in nearly two years California buyers will have an opportunity to attend a public auction of milking Shorthorn cattle when a combination sale is held at Santa Rosa, April 19. The forthcoming sale will include representative cattle from the herds of Thos. Harrison and R. Heckley of Santa Rosa, the John Lynch Ranch, Petaluma, and W. T. Roberts of Penngrove. This strain of Shorthorns is rapidly gaining in popularity throughout the country, and there is developing an active demand in this state. The sale will be under the management of Thos. Harrison, who is one of the pioneer breeders of the West.

J. E. Thorp of Lockeford, well known Jersey cattle breeder, and L. K. Marshall have purchased a 370 acre ranch from the Locke estate, which they plan to develop into a fruit and stock farm.

The most recent livestock organization for California was organized March 17, when a number of Rambouillet breeders met at the home of Professor Gordon H. True, Davis, and launched the California Rambouillet Breeders Association to promote the interest of that breed, and particularly to develop an advanced registry record for wool production. The plan for providing a registry for wool production is new to the industry, but it is expected to stimulate breeders to make more careful matings, to the end that the average production of the breed will be raised. Minimum requirements for advanced registry are: Ewes, 5.25 pounds of scoured wool for 12 months, or 3.5 pounds for eight months; rams, 7.7 pounds for 12 months and 5.14 pounds for eight months. Ewe fleeces must at least grade "fine medium" and ram fleeces as "half blood." Other requirements are that 12 month fleeces must measure 2.5 inches and eight months' clips 1.67 inches. Advanced registry ewes that have two or more offspring to qualify will be entered on the roll of honor, and rams can achieve like honor when ten or more of their get are admitted. The conduct of the new work will be in charge of Professor J. F. Wilson.

The Long Beach polytechnic high school junior farm center is starting its pig club on a feeding contest. At the end of the contest in May a fair will be held and prizes awarded for the best work. The Southwestern Berkshire Congress is offering a silver trophy to the winning boy in the pig club contest regardless of what breed of pig he wins on.—Geo. A. Stingle.

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500	12	5	5	3 11	440	\$24.00
750	18	5	9	4 11	580	30.75
1,000	24	6	6	4 11	655	35.25
1,500	36	7	1	5 11	830	45.00
2,000	48	8	1½	5 11	975	52.50
2,500	60	8	4	6 11	1,145	60.75
3,000	71	9	1½	6 11	1,270	69.00
3,000	71	8	5	7 11	1,290	69.00
4,000	95	9	10½	7 11	1,555	87.00
4,000	95	9	2½	8 11	1,580	87.00
5,000	119	10	11	7 11	1,745	98.25
5,000	119	10	3½	8 11	1,790	98.25
6,000	143	11	4	8 11	2,010	111.00
7,000	166	12	1½	8 11	2,160	118.50
8,000	190	12	3	9 11	2,375	130.50
10,000	238	13	7½	9 11	2,770	150.00

We will allow 5 per cent for cash with order or 2 per cent discount for cash in 10 days from invoice date.

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Use the sprinkling can about your premises—the dipping tank where the occasion demands. For your hogs, a wallow is the most convenient, and quite effective. To every 70 to 100 gallons of water add one gallon of Dr. Hess Dip and Disinfectant. Then your premises—the cow barn, the stables, the pig pen, the poultry house, the sink, drains, closets, cesspools—everything, everywhere, will be pure and healthful.

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The registered Percheron Stallions offered are an exceptionally fine lot of high-class young horses, of great size, style and quality, from two to five years old.

The Jacks are the big-boned, rangy kind so much desired and sought after by the discriminating breeder who likes to breed and raise a big work mule.

The Jennets are young and mostly all in foal to King Bersheba.

The registered Holstein-Friesian Bulls are twelve to eighteen months old, sired by Prince Walker Cornucopia and out of high yearly-record dams.

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A SPLENDID WHITE YEARLING BULL READY FOR SERVICE

Out of a cow that made better than 100 LBS. OF MILK PER DAY ON OFFICIAL TEST. Last month she made 79 lbs. of fat, her 6th month after calving, averaging 3.4% fat. She is one of the nicest young cows you ever saw, 75% white, with a perfectly balanced udder and a good disposition. She is strong and rugged and so is the calf. Priced so low you cannot afford not to take him. Others from \$100 to \$500.

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HOLSTEIN *Fred Hartsook* **CATTLE**

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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**Calkins No Longer Fears
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Every cow-owner knows the strain of calving on a cow's system. Kow-Kare is so widely used by dairymen before and after calf-birth to strengthen the genital organs and avoid disorders, that we receive yearly thousands of letters from grateful users. G. H. Calkins, Ione, Oregon, writes:

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Kow-Kare is equally sure as a remedy for Barrenness, Abortion, Scouring, Bunches, Milk Fever, Loss of Appetite, etc. All of these ailments result from sluggish genital or digestive organs. It is these organs that Kow-Kare is quick to strengthen and build up.

At a cost of only a penny a day, Kow-Kare is used in many of the best dairies to offset the severe strain of winter confinement and rough or concentrated feeds. This aid to digestion and assimilation keeps milk production at top notch and avoids breakdowns.

Kow-Kare will help you to bigger dairy profits; try it. General stores, feed dealers and druggists sell it at the new reduced prices—65c and \$1.25

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The Name "Cutter's"
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Facts, Lies and Theories

By A. L. Spellmeyer



LIVESTOCK men ask what is the matter with cattle, sheep, and hogs, editors of papers as well as farmers ask what is the matter with agriculture, and the consumers ask why should these farmers be suffering when we pay such high prices, while people in general ask what is the matter with the country and the world.

If the answer to these queries was easy it would soon bring about corrections. Men may assume a theory and be right or wrong, but to even commence the formation of any theory one must have actual facts, and today there is so much fog about the farmer that one may find generally accepted statements have no basis as truth.

There is one truth beyond a question, and that is we are all tiding over for better times, and when the move upwards to a normal prosperity does commence we wish to ride the tide with it. The past two years have been the day of the pessimist and destructionist. The constructive man was in a pit and his efforts to get out brought him nothing but gravel unless he had the financial wings to soar out, and used them like Henry Ford and Hugo Stinnes have used theirs in these last two years.

In this article there is no attempt to answer questions as to economic illness but merely to spike a few false ideas that are generally prevalent as relating to agriculture and livestock.

The actual price at which a commodity sells is the market price and that may be more or less than the natural price. The natural price is the cost plus a fair profit. Monopoly may keep the market price above the natural price, but the market price can seldom continue long below its natural price. The person whose interest is affected feels the loss and withdraws either so much land, so much labor, or so much stock, quantity on the market lessens and the commodity rises to its natural price. This reasoning assumes there is perfect liberty. As the above is part of the foundation of all political economy presumably it is true.

Lie number one I wish to spike is that livestock prices are low today "because the people are not eating meat." While per capita poundage has decreased as it always does when millions of workers are idle, total slaughter numbers are today greater than the average pre-war numbers. My authority for this is actual federal inspection and government statistics which can be easily verified.

Lie number two is: "There are more cattle and sheep than demand can use." There are millions less total dairy and beef cattle in this U. S. A. than in the pre-war period when packers advertised national shortage. The slaughter is millions greater each year than the average slaughter of the years that caused our number depletion.

Lie number three is: "Farm products are low in price because there is no export trade." This is a lie used by bankers and politicians to lead us to a wonderful acclaim of foreign entanglements, as our cereal exports are for 1921 triple the average of the years from 1910 to 1914, dairy products 12 times pre-war average and meat products almost 30 per cent greater than the pre-war average, 1910 to 1914, and only 20 per cent less than when we fed the allied armies during the war period. Truly no greater lies exist than

that lack of exports are responsible for low farm product prices.

There is considerable alarm shown because in 1820 some 87 per cent of the people were engaged in agriculture, whereas in this year of 1921 it runs about 30 per cent, but considering the tremendous advance in farm implement facilities during the past few years this alarm is unfounded. In 1880 44 per cent of the people were so engaged; in 1900, 39 per cent, and in 1910, some 32 per cent. When one figures what a tractor does and what improved machinery accomplishes it is evident our production capacity is much greater than a generation ago.

The conclusion suggests itself that if this is the case in general farming there should be more livestock to consume surplus grains and forage, but again this is impossible, upon present livestock margins.

Another evident conclusion is that if 30 per cent of our people can grow a greater quantity of general agricultural products than needed it must either be exported or our people go into other lines of work.

How are they going to do this when manufacturer is idle? It is plain that the manufacturer of goods must be linked closely with capital advances. With the banks swollen with tight held money surplus manufacturers must close down if an immediate market is not available for the cash purchase of their goods. Goods that people must have are as much actual national wealth as stores of gold, providing they do not deteriorate in style or quality.

The financiers advise all to work hard and better times will arrive. Some 5,000,000 men in this nation have been willing to work, and did work during the war, but have nothing to work at except for a price that lowers their market. Unorganized labor, like cattle, is on a market price basis less than natural price of living expense. The prosperity of a country does not depend upon all men laboring but upon the proportion of employed and unemployed, gauged by the quantity of production. If the banker and the financial captains who urge men to work, loosen up the locks on the bank vaults to production these men will work.

We think of this as a country overflowing with potential wealth, and it is so in a measure. However, we cannot afford the luxury of impoverished soil in congested population districts, abandoned farms, and Orientals exhausting our rich land and moving to new leases. This country is already cultivating one-third of its total productive land. Great Britain today cultivates only 14,000,000 acres of a possible productive 47,000,000. France, Germany and other European countries only cultivate about half of their possible productive acreage, and they have gone the limit. Japan itself cultivates less than a fourth of its total productive land area. The two countries that have weathered the European storm, Denmark and Switzerland, show decidedly opposite methods. Denmark cultivates two-thirds of its total productive acreage and Switzerland, the land of hotels, exiles and tourists, cultivates but a twelfth. Acreage cultivated runs about 20 acres to the man in this U. S. A. and about ten acres in France and Germany.

Some of the above facts, all of which you can verify from official sources, will surprise many folks.

These free booklets on Farm Sanitation

tell you how to prevent disease among livestock and poultry and describe in detail the many uses of

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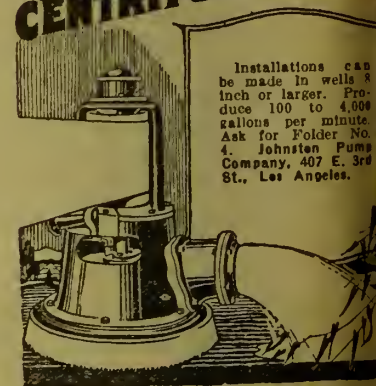
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Made of a SPECIALLY PREPARED METAL and in SEVERAL SIZES

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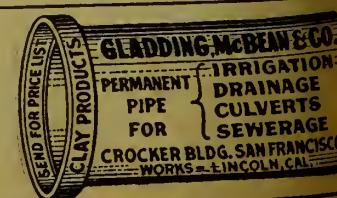
Buy them from your dealer or send \$2.00 for No. R. B. 3, which is our large size, postpaid. **Wagner Specialty Company** Dept. W. Burlington, Wisconsin

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have sold more than \$500,000 worth of registered stock in our sales, under the most stringent regulations laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company

C. L. Hughes, Sales Mgr. Sacramento, Cal.



GLADDING, McBEAN & CO.
PERMANENT PIPE FOR IRRIGATION, DRAINAGE, CULVERTS, SEWERAGE
CROCKER BLDG. SAN FRANCISCO
WORKS - LINCOLN, CAL.

When Writing Advertisers Please Mention Cultivator

Rice and Rice By-Products for Fattening Swine

By E. H. Hughes, University of California

California in 1921 ranked as third state in quantity and value of rice products. Because the state produced such a vast amount of rice, because of the frequent damage to the rice crop, rendering harvesting impossible, because of the comparatively low price of rice, and in view of the fact that many inquiries have been received concerning the value of these products as a swine feed, and because of the absence of reliable information concerning the value of these products, experiments to determine the value of rice and rice by-products were begun at the university farm in October, 1921.

The original plan called for 16 lots, ten hogs in each lot. However, the equipment at the university farm made it impossible to feed more than eight lots with ten hogs in each lot. In the first test, which began October 10, 1921, eight lots were self fed the following rations in dry lot: 1, rolled barley and tankage; 2, rough rice and tankage; 3, rice polish and tankage; 4, rice bran and tankage; 5, rice bran, rice polish and tankage; 6, rolled barley, rough rice and tankage; 7, rolled barley, rice polish and tankage; 8, rolled barley, rice bran and tankage.

In the first test the hogs were fed for 63 days, were marketed by lots, dressing percentages obtained, fat samples taken and are being tested to determine the melting point of the fats, the proportions of olein, stearin and palmitin in the back fat and leaf fat of the various lots.

these tests were hogs produced in the university farm herd and were uniformly well bred hogs.

WOOL STOCKS LOW

Many of the wool importing countries of the world have regained normal prewar consuming bases and are converting raw stocks into finished goods at almost the prewar rate, the department of agriculture announces. The supply in the principal consuming countries is less than has been recorded for some time and is insufficient to meet present demand, inability to obtain stocks being ascribed to unsettled economic conditions throughout the world.

In the United States stocks are probably lighter than in a decade. Manufacturers are operating about on a normal basis as indicated by the monthly rate of consumption.

Stocks in Great Britain, France and Germany are also estimated as lighter than in the last ten years and mills are running to capacity.

Although demand for wools increased after 1913, world production was not increased in the same proportion and the present sheep population of the world is only about 90 per cent that of 1913.

Production in the United States, exclusive of pulled wool, decreased from 250,000,000 pounds in 1919 and 224,000,000 pounds in 1921.

ASSESSMENTS ON AGRICULTURAL PRODUCTS

The state association of county assessors has adopted schedule of as-

Test No. 1

Lot No.—	1	2	3	4	5	6	7	8
Ave. initial wt.....	120.73	115.43	113.87	114.31	115.47	118.92	130.83	102.60
Ave. final wt.....	235.87	199.76	238.21	221.94	201.67	233.74	262.29	230.87
Total gain.....	115.07	82.43	125.34	107.63	96.73	115.02	131.46	124.38
Ave. daily gain..	1.826	1.29	1.974	1.707	1.765	1.621	2.087	1.952

Feed Required for 100 Pounds Gain

Lot No.—	1	2	3	4	5	6	7	8
Barley.....	428.00					364.00	328.50	322.56
Rough rice.....		356.60				53.86		
Rice polish.....			306.78				84.96	
Rice bran.....				347.85	58.51			73.90
Tankage.....	35.20	132.20	47.51	65.36	15.10	32.84	20.04	18.70

Total feed for 100 gain.....	463.20	488.80	354.28	415.00	374.41	450.70	433.50	415.10
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Dressing percentage (head off, leaf fat out)....	78.9	76.5	79.0	77.22	73.9	79.9	79.6	78.0
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An exact duplicate of the first test was begun December 31, 1921, and these hogs have been on feed for seven weeks. The results obtained thus far are presented below:

Ave. beginning wt.	87.00	89.6	90.73	88.93	88.07	87.60	88.87	88.20
Ave. wt. Feb. 18, after having been fed seven weeks.....	158.6	139.0	162.6	141.2	153.2	161.0	163.8	155.6
Feed consumed for 100 lbs. gain.....	494.80	479.70	481.00	415.7	388.3	463.3	410.6	469.0
Ave. daily gain.....	1.45	1.07	1.45	1.06	1.32	1.49	1.52	1.37

The following is quoted from a report made by J. O. Snyder of the Western Meat Company:

"Lot 4 killed out soft, but not soft enough to be classed as oily, but what we regularly term as soft. Lot 5 could hardly be classed as really hard hogs or as expressed medium to hard. Lots 1, 2, 3 and 6 killed out hard. Lots 7 and 8 seemed much harder than the others."

The following facts are significant in the first test: The average daily gains were greater than those in the second test. No doubt weather conditions have had something to do with the greater gain in the first test than those in the second. The gains are unusually large when it is considered that they have been fed in dry lot. In addition, gains were made in each case on less than 500 pounds of feed for 100 pounds gain. Pigs used in

essments for 1922: Sheep, \$3 per head; registered milk cows, \$60 per head; common milk cows, \$35 per head; range cattle, \$20 per head; work horses, \$40 per head; work mules, \$75 per head; chickens, \$5 per dozen; turkeys, \$12 per dozen. Rates on grain were fixed as follows: Rice, \$25 a ton; wheat, \$20 a ton; barley, \$12 a ton, and grain, \$15 a ton.

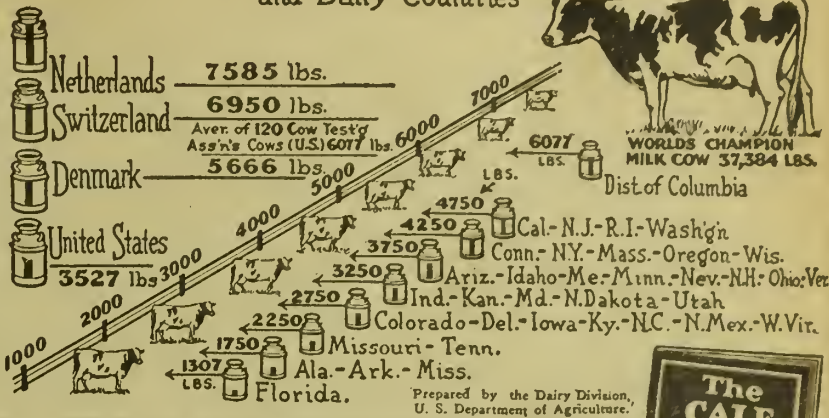
The assessment on automobiles, trucks and tractors will be one-half of the retail prices; one year old, one-third of the cost price.

CHEESE FACTORY FOR GOATS MILK

Humboldt County has long maintained its reputation as a great producer of dairy products. H. A. Snively of Ettersburg has recently added to the number of dairy enterprises in the county by starting a fully equipped cheese factory for goats milk.

PRODUCTION of MILK

Of the Average Cow in the United States and Dairy Countries



Not More Cows—But Better Cows

Compare the average yearly milk production in the United States, of 3,527 lbs. per cow, with that of other countries shown above. You will see at a glance that one of the greatest means of increasing dairy profits is in obtaining better cows.

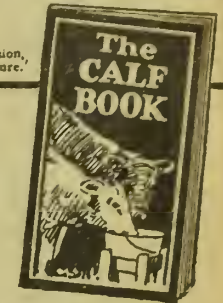
The cheapest and best way of getting better cows is to raise them. Use a good bull, keep the best calves from your best cows and raise them on De Laval skim-milk, which is a splendid feed when properly fed. In this way you can improve your herd at very little cost.

A De Laval Separator is valued chiefly because it separates cream—a cash crop—better, quicker, cheaper and without waste. But of almost equal importance is the skim-milk it gives, which will replace your present cows with better cows; or as Pren Moore of the University of Idaho says, "when fed to laying hens will bring you as much money as the original butter-fat," while it is without equal for growing pigs.

Milk, butter, eggs, poultry and pork, the best paying crops—a De Laval helps make them possible and more profitable.

DE LAVAL PACIFIC COMPANY
61 Beale Street San Francisco

Sooner or later you will use a De Laval Cream Separator and Milker



FREE! This little booklet tells you how to raise fine calves on De Laval separated skim-milk. It is simple and practical. Sent free on request to your nearest De Laval office.



The original cream separator. Over 2,500,000 in daily use; about as many as all the rest combined. Has won 1,091 grand and first prizes at every important exposition. Skims cleaner, turns easier and lasts longer than any other. The world's standard. Pays for itself. Sold on easy terms. See your De Laval Agent or write for information.

THE 1922 GUARANTY SALE

"THE PACIFIC COAST HOLSTEIN CLASSIC"

65 Selected Registered Holsteins 65

Hynes, California (at Rhoades & Rhoades Sale Pavilion)
Wednesday, April 5, at 9:30 A.M.

CONSIGNORS:

AGEE BROTHERS, Rivera; C. W. ANDERSON, Burbank; MANUEL AZAVEDO, Patterson; H. G. BALL, Tulare; E. D. BARRY, JR., Covina; DEAN BEEMAN, Woodland; BLENKIRON, PHILLIPS & DONDEERS, Fresno; BRIDGEFORD HOLSTEIN CO., Patterson; BURR FARM, Los Angeles; MRS. ANNIE DONDEERS, Fresno; FRED HART-SOOK, Lankershim; FRANK M. HELM, Fresno; W. J. HIGDON, Tulare; THE McLEOD RIVER LUMBER COMPANY, McLeod; A. W. MORRIS & SONS CORPORATION, Woodland; CARL RAY, Lankershim; HARRY L. REDD, Corcoran; J. L. SEBASTIAN, Wasco; TOYON FARM ASSOCIATION, Los Altos; E. J. WELDON, Sacramento.

This offering affords one of the most remarkable opportunities for selection of high class registered Holsteins ever presented in the West, including

The highest record cow ever offered in a Pacific Coast public sale.

Daughters and sons of California's most famous sires out of correspondingly great dams.

Females bred to the greatest list of high record bulls yet presented in a Western sale.

Every animal guaranteed to be a breeder, tuberculin tested, and sold subject to 60 day retest by the buyer.

Be sure and attend this sale. It is the Fifth Annual Guaranty Sale in California, and the cattle are equal if not superior to those in any previous like offering.

CATALOG AND CIRCULAR OF SALE FREE ON REQUEST

Auctioneers:
COL. BEN. A. RHOADES
and HAROLD B. RHOADES
Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

Care and Handling of the Milk Goat

By J. M. Holcomb



IN feeding the milk goat the same principles apply which govern the feeding of dairy cattle. As a rule some concentrates are fed, such as barley, oats, wheat, dried beet pulp, coconut meal, etc. The quantity varies, heavy milking does receiving as much as two pounds per day, rarely more. Alfalfa hay is well liked and when supplemented with a little grain hay occasionally they do not tire of it. Succulent feeds such as roots, silage, etc., are highly desirable. A large pasture over which the goats may roam will tend toward contentment, giving them a chance to get the variety which they so enjoy. Well kept goats are particular in regard to the cleanliness of their feed and water. When in milk the goat should be fed twice daily in clean convenient troughs, the hay being fed best in a rack. To prevent waste chain the goat to the stanchion.

The buck should not be allowed to run with the herd as if he does the milk will acquire a goatly flavor and does may be bred too early and it will be difficult to keep an accurate record of the breeding dates, which

tends to prevent necessary attention being given at kidding time. Keep him as far as possible from the does, in good condition throughout the year, and during breeding season feed some grain. A well conditioned, robust buck should breed around 50 does.

The doe may be bred at six months of age, but this early breeding may result in dwarfed stock and mediocre milkers. Does bred at about 18 months of age will come fresh at two years; the period of gestation being about 152 days. If possible pregnant does should be alone for two or three weeks prior to kidding. A warm bran mash given at kidding time is a good laxative. When kids are to be hand fed they are usually left with the does for five or six days to give them a good start.

Where the ground is soft the feet need considerable attention. Much trouble may result from ill kept feet.

Houses are of all styles and sizes but should be well ventilated and easy to clean and disinfect. The yard should be well drained and both the lot and house cleaned frequently. Goats do not care a great deal for lit-

ter, a sprinkling of sawdust to absorb the moisture being sufficient.

The milking rack should be apart from the barn on account of odors and dust and dirt which the other animals stir up. Twice a day milking is usually sufficient; but with heavy producing does three times will not only relieve them but may increase the milk flow. Lumps which sometimes appear in the udder after freshening may cause the doe uneasiness at milking time. Gentle rubbing of the udder with a lard and turpentine salve will help to reduce swelling and relieve soreness. If promptly cooled to below 60 degrees the milk can be kept for several days.

states. The Southern California Holstein Breeders' Association has mapped out a plan to show visitors some of the great Southern California Holstein herds following the sale, with W. R. Harriman, superintendent of Los Angeles County farm, in charge of the program. On Saturday, April 8, it is expected that many of the visitors from other sections will visit River-side, where Dairy Day will be in progress, and it promises to be an event well worth staying over to attend. The board of directors of California Holstein-Friesian Association will meet on the evening of April 4 at the sale headquarters, Angelus Hotel, Los Angeles, and altogether it promises to be a real Holstein week.

GUARANTY SALE OF HOLSTEINS

Catalogs for the 1922 guaranty sale have been distributed and the committee of selection for the California Holstein-Friesian Association has done its work well from indications of the pedigrees. It is also claimed that the entire offering of 64 head will present the most attractive average type yet found in the annual California state sale. The preliminary announcements of this sale brought forth the heaviest inquiry for catalogs ever made for a California sale, and the demand covers practically every section of California and several from outside

HOLSTEIN BREEDERS' TRAVELING INSTITUTE

The Southern California Holstein Breeders are to act as hosts to Holstein breeders of the northern end of the state in meetings and luncheons on April 6 and 7. In fact, the meetings may well be termed sessions of a field institute. There will be a general mingling of pleasure and profit.

On the mornings of April 6 and 7 at 9:30 the Holstein men will gather at the Angelus Hotel, Los Angeles, and the first day will visit Burr Farm, Earl Graham, County Farm for luncheon, Agee Brothers, Pellissier and

50 REGISTERED HEREFORDS 50 Public Auction, Stockton, Calif.

(Sale at Fair Grounds)

Thursday, April 20, 1922

40---Serviceable Bulls---40

The
Rangeman's
Opportunity

The
Better
the Bull—
the Better
the Steers.

Herefords
are:
Thick-fleshed,
Hardy,
Rustlers,
Early Maturing,
Profitable.

This offering of bulls should prove a real opportunity for the range man. They are the right kind—short legs, blocky, mountain raised and range fed. The kind that produces real steers and makes money for the buyer. This sale will be the last opportunity for California cattlemen to buy Hereford bulls at auction this spring.

10—Cows and Bred Heifers—10

The females have been selected with care and are just the sort for the beginner or the man wanting to establish a herd for the production of registered cattle. They are a splendid lot.

I have recently located in Stockton and this will be my first annual sale in the San Joaquin Valley. Come and get acquainted with my cattle.

H. M. BARNGROVER

Bank of Italy Building Stockton, Calif.
Jno. A. Marconi, Auctioneer

THE SALE YOU HAVE WAITED FOR!

60 Registered Milking Shorthorns

SANTA ROSA STOCK FARM

Santa Rosa, Cal. Wednesday, April 19

FROM THE FOLLOWING HERDS:

Santa Rosa Stock Farm, Santa Rosa; John Lynch Ranch, Petaluma; W. T. Roberts, Penn Grove and R. Heckley, Santa Rosa.

40—FEMALES—40

All the mature cows have records of milk production and the heifers are from dams of proven production. As a whole or individually they are a superior lot of correct type and producing bloodlines.

16—YOUNG BULLS—16

The bulls comprise as strong a lot as were ever offered in the West. A number of herd bull prospects of high order and all are capable of implanting increased milk production in your herd.

The sale will feature the get and services of the noted bull, Count Tickford, champion at many shows and counted one of the best bulls of America.

For any information write

Thos. Harrison, Sales Manager, Santa Rosa Stock Farm
Santa Rosa Calif.

SEMI-DISPERSAL REGISTERED 60 HOLSTEINS T. J. GIST & SONS HERD TULARE, CALIF. Wednesday, April 12, at 10 A.M.

T. J. Gist & Sons will sell in this sale all of their milking females and bred heifers, retaining only their open heifers and heifer calves for foundation of another herd.

THERE ARE A LARGE NUMBER OF HEAVY PRODUCING FRESH COWS IN THIS SALE, MANY WITH OFFICIAL RECORDS UP TO OVER 26 LBS. BUTTER IN 7 DAYS.

This well known herd represents most substantial breeding, the females are practically all young, and they will be presented in excellent physical condition.

35 COWS AND HEIFERS IN THE SALE ARE BRED TO KING SYLVIA SEGIS COLANTHA, A GOOD SON OF THE \$106,000 BULL CARNATION KING SYLVIA.

The sale will be held on the T. J. Gist & Sons Farm, about five miles north of Tulare. Every animal guaranteed to be a breeder; no tuberculin test certificates.

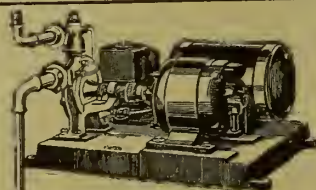
TERMS OF SALE: Responsible parties may arrange terms, if done before sale, of one-third cash, balance in three, six, and nine months with note bearing eight per cent interest. Applications for credit should be made to sale managers.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneer: Col. Ben A. Rhoades, Los Angeles



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"How Things Have Changed"

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Los Angeles

Water direct from well to drinking cup

Anita Baldwin. The second day's trip, starting at same time and from same place, will include visits to the ranches of Charles Anderson, Fred Hartsook, where luncheon will be served, Carl Ray, Maxwell Farm, L. A. Creamery San Fernando Valley Farm and Sunshine Ranch.

These field days are to follow the great guarantee consignment sale at Hynes on April 5, when 64 top registered Holsteins will be disposed of. These animals are consigned by a score of California's best breeders. Wm. R. Harriman of L. A. County Farm is in charge of the two days' program and it will be one long to be remembered by Holstein breeders.

CALIFORNIA HOLSTEINS SENSATION OF BRENTWOOD NATIONAL

Bridgford Holstein Co., Patterson, were the sole consignors from California to the Brentwood National sale at Philadelphia, March 20-23, and furnished the real sensation of the sale. In the show which preceded the sale, with four entries in a class of 25 heifers Bridgford won first, second, fourth, and fifth. The daughter of King Segis Alcartra Prilly out of Adironac Wietske Dairy Maid topped the females at \$4300. The cow Gerben Colantha Parthena was first in the mature class in the show, and reserve champion, and sold in the sale for \$3100. She is the dam of the great young bull consigned by Bridgford Holstein Co. to the 1922 Guaranty Sale at Hynes on April 5. The entire Bridgford consignment of 17 head averaged \$1385 at Philadelphia, and the daughters of King Segis Alcartra Prilly made an average of \$2070. The above mentioned son of this sensational sire, and a yearling daughter of a 32 pound granddaughter of Colantha Johanna Lad will appear in the Guaranty Sale at Hynes on April 5. Something of the quality of the Bridgford cattle when brought into competition with the tops of the entire United States is evidenced by the top average in the Brentwood sale, by the winning of four out of the first five places in the big heifer class, and by the fact that they were the only exhibitors in the show to win more than one first prize.

Over 50 Berkshire breeders and their friends were entertained with a chicken dinner by Secondo Guasti, Jr., manager of the Italian Vineyard Company, at Guasti, on March 24 in honor of Mr. and Mrs. John Fritsch of Pennsylvania. Mrs. Fritsch is one of the most prominent breeders of Berkshires in the East and since she was unable to arrive in California in time for the American Berkshire Congress at Riverside this means was taken to show her some of the enthusiasm felt for the Berkshire in Southern California. Alex. Wilson, superintendent of the livestock department of the Italian Vineyard Company, acted as toastmaster and a delightful time was the result.

The animal husbandry division of the college of agriculture has received an oil painting of the world champion fat heifer, Lulu Mayflower, that was shown at the last International. The painting, presented to the institution by John Clay of Chicago, head of the commission firm that sold her, is the work of the famous animal artist, N. A. Troop.

VETERANS IN THE HARNESS

"Horse Profits" is the title of one of the most attractive booklets we have seen. The cover has for decoration an old time combined with its 21 horses just coming over the hilltop in a field of oats. The title is "Veterans in the Harness." No movie star ever played the part better. Inside the booklet there is "a discussion of plain horse sense facts, revealing the reasons for a farmer's everlasting faith in animal power." There are tables and text giving a fund of information as to the earning power of brood mares, rations for them and their colts, statistics as to the number of animals in California, and, finally, discussion of "Facts About Harness" and the making of a good harness.

There are illustrations of ordinary team harness, chain trace harness, butt chain harness, single and express harness. In saddles there are illustrations sufficient to drive a California

cowboy wild with delight. It is not so much a catalog of harnesses as a few well gathered facts regarding the horse and his equipment. It is published by the Lichtenberger-Ferguson Company, Third and Los Angeles Streets, Los Angeles. We presume every horseman who writes to the Lichtenberger people may secure a copy of the booklet.

FOURTH ANNUAL BELGIAN HORSE SHOW

The fourth annual international Belgian horse show will be held September 25 to October 1, 1922, at Waterloo, Iowa. This exhibition is unique in that it is the only single breed horse show held in America. Its rapid growth during the past three years has done much for the development of the draft horse industry and especially the popular breed of horses which it fosters. Last year there were more than 250 Belgian horses exhibited.

1922 DAIRY CATTLE CONGRESS

September 25 to October 1 are the dates of the thirteenth annual Dairy Cattle Congress to be held at Waterloo, Iowa, the show's permanent home. With the remarkable increase in attendance last year, when practically all shows and fairs suffered a large decrease in comparison to 1919 and 1920, the management is beginning arrangements for this year's show under very encouraging conditions.

With the dairy cow converting low priced grains and hay into milk and butter fat, at good values, the farmers of the Mississippi Valley are rapidly turning to dairying as the one sure way to success. Hundreds of communities in Iowa, Missouri, Nebraska, Kansas and the Dakotas are cooperatively purchasing grade and pure bred dairy cattle in large numbers. Creameries are being built in many localities which heretofore have been considered beef producing strongholds.

"The Tavern of the Ocean" is the old name given to Capetown. What a suggestive name and how welcome it must have seemed to ocean voyagers on the long sail from Europe to the Indies!

MR. FARMER:—

You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now? Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs. of butter in 7 days, included in this offer. Call or write at once.

BURR FARM

26th and Downey Road, Los Angeles
RFD 2 Box 120



horse profits



No. 1 of a Series

Published Monthly in the Interests of Better Horses and Better Harness

Louis Lichtenberger, Editor

HORSES HAVE NEVER FAILED THE FARMER

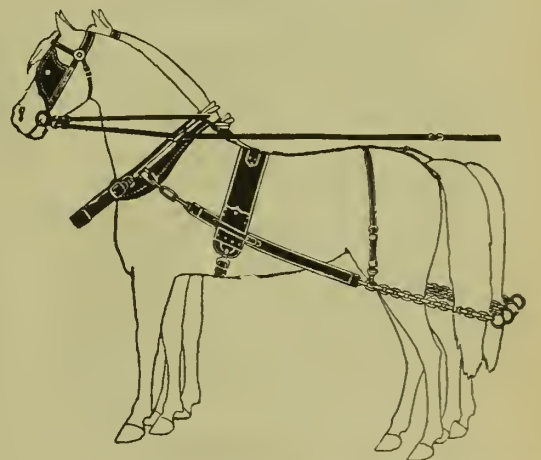
The future of the Horse on the farm is established. The Farmer today, more than ever before, has unstinted faith in his Horses—convinced by observation and comparison that his Horses can do the work cheaper, more efficiently than other forms of power. The U. S. Dept. of Agriculture, in a recent Bulletin, states that the average cost of feeding a horse is 45c per day—actually less than the depreciation on a power machine alone. The majority of farmers who have used both machine power and horses unhesitatingly give preference to horses.

465,826 Horses and Mules on California Farms

There is an average of almost five head of horses on every California farm serving perhaps 90% of farm power requirements. The average number of horse working days in California is 275 days. There are more than 26,000,000 work animals in the U. S.

16 HORSE SENSE FACTS

1. Horses are never second-hand.
2. Horses have a steady market value.
3. Horses average 15 years of service.
4. Horses never require "overhauling."
5. Horses consume the cheapest fuel.
6. Horses never break down when treated humanely.
7. Horses do not require high-priced operators.
8. Horses furnish the only successful power for uneven contoured land.
9. Horses do not cause formation of hard pan.
10. Horses cost less the more they are worked.
11. Horses contribute fertilizer to the farm.
12. Horses (mares) produce replacements and earn extra profit.
13. Horses give the most flexible power.
14. Horses do not "rust out" when idle.
15. Horses cost a fraction of power machines.
16. Horses furnish over 95% of the field power on American farms.



SUPERIOR BRAND HARNESS Meets California Conditions Best

With an average of 275 horse working days per year in California, or twice that of eastern States, it behooves every Farmer to select the finest and most durable harness for economy's sake. Superior Brand Harness is backed by a reputation of 25 years standing and has proven its merit. Ask your dealer to show you Superior Harness—accept no substitutes.



We have just published an interesting book entitled "Horse Profits," which gives information regarding horses and harness. Send for a copy.

REQUEST CATALOG

Lichtenberger-Ferguson Company

Los Angeles Street at Third Los Angeles
MAKERS OF FINE HARNESS SINCE 1900

Famous Pike's Peak "Road to the Clouds"

In the service of Watkins Dealers, Watkins "Big W" Tires are daily subjected to the roughest of mountain roadways.



ONE of the hardest tests on tires is day-after-day use over roads of every kind. Watkins "Big W" Tires have successfully withstood this test in the service of Watkins Dealers and thousands of other users. You get more mileage and greater satisfaction from Watkins "Big W" Tires. Ask about the "Big W" guarantee when your Watkins Dealer calls; or write for booklet about them, and the other Watkins Auto Supplies.

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"A Store at Your Door"

Your Watkins Dealer brings you more than 150 quality products. Next time he calls ask to see them all. Stock up well with those you need. It pays. The quality of Watkins Products has been established throughout 54 years. The Watkins "store at your door" means convenience, economy and liberal credit. Twenty million people use Watkins Products today; 5,500 Watkins Dealers are kept busy supplying the demand. Hold your order for the Watkins Dealer. If one has not called recently, write us; we will see that you are supplied.

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THE WATKINS Extra Heavy Brown Tube has the greatest tensile strength of any inner tube ever produced. Try it!



The Watkins Spark Plug means sure-fire, insuring better performance from your motor.



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THE AUTO-OILED AERMOTOR

A Real Self-Oiling Windmill

Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

Write today for Circular.

AERMOTOR CO. Chicago Des Moines
Kansas City Minneapolis Oakland

A year's supply of oil is sent with every Aermotor

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Write Today for Your Copy Of This FREE Book Telling How and When to Plant

— SEEDS — PLANTS — TREES — SHRUBS — CALIFORNIA WILD FLOWERS

Eighteenth Annual Catalog, Illustrated

Theodore Payne 345 So. Main Street Los Angeles

Winning at the Fair

By H. L. Musser

Mr. Rancher, do you stop to consider that your organization is not up to the standard of stockmen and fruitmen in your exhibits at the county fair? The stockman begins to grow his prize heifer long before it is born by mating prize parents, and from the time of its birth it receives scientific attention. If the young heifer is born physically perfect it must win a prize. This is not only true in the case of a heifer but in all lines of livestock, from the thoroughbred horse to the Guinea pig and from the turkey to the bantam. The result of this scientific forethought is that prize stock and the offspring of this prize stock are sold at prices much in advance of common stock.

The fruitmen have not yet attained the point reached by the stockmen, but they are much in advance of the grain rancher and the vegetable grower. Have you observed at your county fair that the exhibits of grain are largely freak plants, or abnormal growth brought there either by some real estate interests or simply because it is a freak? Have you also noticed that the vegetable exhibits are mostly abnormal? And, too often the judges award the prize to this class of exhibits.

Mr. Grower, follow the example of the stockmen. First consider well your local climatic probabilities for the season, nature of the soil, its chemical needs and physical condition. Determine what class of vegetation will best thrive with your conditions, whether corn or other grain, melons or other vine crops, potatoes or berries.

Whatever you may decide upon, consider next the time to plant in order to attain the highest perfection when the fair is on.

Seeds, you will readily concede, are the most important. Good seed is the parent of the crop, just as is the registered stock parent to the prize heifer. When selecting your seeds let me suggest some prize winners. Should you decide you will grow corn for grain, the Orange County Prolific has not been excelled, but it is rather late to mature, therefore it may be better to grow King of the Earliest. If you are a dry farmer, this variety will bring you a prize because it will win with less moisture and mature in less time than other varieties.

With normal conditions corn will mature within 90 to 110 days, according to variety, but the time varies so much with climatic and cultural conditions that no certain number of days may be depended upon.

If you will determine to grow corn for the silo, the Eureka or Mexican June will give more tonnage, but in quality the Orange County Prolific again wins and is not far behind in quantity.

For sorghum of quality for the silo, grow Texas Seeded Ribbon Cane; Honey Sorghum is a close second. For syrup, select Silver Tip.

Dwarf Milo Maize has the record for tonnage in grain. For the silo, what it lacks in tonnage it makes up in quality.

Hegari should be encouraged by the growers of prize crops. The same is true of White Yolo, but seed is not yet available for liberal distribution.

The Wonder Forage will win any prize where individual plant is the sole consideration. It will also grow more tonnage of green feed per acre and make better dry fodder than any other sorghum.

You should select Klondike watermelon for quality, White Seeded Angelino for beauty, and Excel for size.

Shape and quality alone should count in cantaloupes, not size. Armenian, Famous Indiana, Tip-Top and Triumph.

In casabas size should be considered, along with shape and quality. The Large Hybrid, Golden Hybrid and the Golden Beauty and Santa Claus all should bring a prize. Where dry farming succeeds it should have some consideration with the judge.

Vegetables include everything in the range of the alphabet, from asparagus to turnips.

Prize winning vegetables, size and type considered: Cabbage, Autumn King; beans, Superior Kentucky Wonder; celery, White Plume; carrot,

Mastodon; beet, Mammoth Long Red; cucumber, Lemon, Klondike, Italian; egg plant, New York Purple; kale, Tall Jersey; okra, Mammoth Long Pod; onion, Riverside Sweet Spanish; peppers, Anaheim Chili, Chinese Giant, Pimiento; sweet potato, Nancy Hall; pumpkin, Large Cheese; radish, Japanese Summer; squash, Banana, Italian; Roselle; tomato, Boulder; turnip, Purple Top Globe.

Berries: Any berry that is in full season at fair time should win a prize. Here are some possibilities: Strawberries, Carolina, Progressive, Everbearing; raspberries, St. Regis; blackberries, Macatawa.

Flowers and bulbs: For flowers and bulbs we advise that you study your catalog in order to determine what you would grow. There is much competition at flower shows, therefore we suggest that you try something odd, out of the line of the usual display.

INTEREST IN IRRIGATION AT CHICO

Landowners around Chico are intensely interested in a movement to establish an Irrigation district in that section. It is expected that petitions shortly will be in circulation and the project completed as soon as possible.

Until recently sentiment in favor of irrigation in Chico and thereabouts has been more or less dormant—mostly more. Conditions have made it easy to grow big crops with little labor. The soil is a rich volcanic formation and the water plane is near the surface. In extra dry seasons those requiring water have merely driven a 25 foot pipe into the ground, dropped a half stick of dynamite through it, hitched on a pump and pumped out the sand and water and in a couple of hours they were irrigating.

But with the coming of high costs of farming and the downward trend of prices for products a change of sentiment has taken place. The pumpers are beginning to feel the expense of pumping. Others who in the past were able to farm large tracts and produce grain at a profit are finding it not so easy. They are looking to some way out—some other crops that will pay better. Such crops they now realize can be grown only under ditch.

The pro-irrigationists are using as one of their main arguments the probable breaking up of the large holdings if the project is put through. They see as a result the subdivision of the big ranches and their settlement by small landholders. Nothing would please Chico better. As the center of a big and rich country it is laying its plans to develop its tributary territory to the utmost, realizing that in the prosperity of the farmer lies the prosperity of the community. One of the factors in farm prosperity is a diversity of crops, and a diversity of crops can come only with irrigation.

NEW FILMS SHOW ROAD BUILDING

Close-ups of the activities of the bureau of public roads are contained in two films recently released, "Building Bituminous Roads" and "Mixed Asphalt Pavements." The new films show how Uncle Sam, who has become the world's greatest road builder through the federal aid road act, makes use of bituminous materials in the construction of the nation's highways.

SAVED ON BULK HANDLING

A Cultivator subscriber writes: "In 1915 I saw Moreing Brothers handle some 25,000 acres of wheat in bulk, dumping grain into a receiver, which conveyed the grain to a barge. Grain standing in the field would be in the elevator by evening. It was said Moreing Brothers saved about \$35,000 on sacks."

The Hairy Peruvian Alfalfa Seed Growers Association of Arizona has engaged J. W. Longstreth as agronomist for this season's certification work in Yuma Valley, where the seed for their Red Seal brand Hairy Peruvian is grown. Spring is the best time to do this work, and they plan to cover the entire acreage and have it completed well before harvest time.

PAYNE'S
1922
Garden Guide

Write Today for Your Copy Of This FREE Book Telling How and When to Plant
— SEEDS — PLANTS — TREES — SHRUBS — CALIFORNIA WILD FLOWERS
Eighteenth Annual Catalog, Illustrated
Theodore Payne 345 So. Main Street Los Angeles

FROST PREVENTION MEETING

The people of the Covina district are moving for a thorough investigation of frost fighting methods and appeal to all the growers to take an interest in the work of the committee which has been appointed. A mass meeting has been called to be held at Covina on the evening of April 4. L. D. Ratekin of the committee, Mayor Stanton of Covina and other prominent citizens and ranchers are members of the committee. Edward Insley is secretary.

At the initial meeting held by the orange growers many maintained that the use of the ordinary orchard heater has not been a success and that investigations along other lines should be encouraged. Especial effort will be made to investigate the advisability of using blowers for creating air currents and bringing down warm air from the upper strata. There has been one heating plant test in a limited way during the past season and patent has been applied for on it. This was in the orchard of Mr. McKenzie of Pomona.

As was noted in last week's issue of the California Cultivator the Fruit Growers' Supply has a strong committee at work but it is working entirely along the line of perfecting the orchard heater. The windmill type or fan blower has been suggested many times and very limited experiments have been made with it. As a rule fruit growers have little faith in its efficiency in time of extreme cold.

It is understood that at the Covina meeting April 4 walnut growers will affiliate because of possible injury to the walnut from late spring frost.

NEW BUILDINGS AT UNIVERSITY FARM

According to announcement by Thomas F. Hunt the University of California is making good in its improvements of the facilities at Davis. Two permanent buildings are under construction. Both will be ready for occupancy at the opening of the college term in August.

The largest will be devoted to dairy industry. It will be constructed of hollow tile with reinforced concrete frame and will consist of a two story main structure, 234 feet long, and a dairy manufacturing wing running back 128 feet from one end of the main building.

The university believes that it should make its farm operations most efficient by giving the ranch help proper quarters. There are now under construction in the ranch house group two bunk houses containing individual rooms for the employees, together with an up-to-date kitchen and dining hall. Also in order to render greater service to the farmers there will be erected an agronomy warehouse containing seed cleaning machinery. All of the present buildings on the farm are being painted, and the farm by picnic day, April 29, will present to the public a good idea of what the generosity of the state has done in the way of improvement.

DEPARTMENT ISSUES SECOND REPORT

The second report of the California department of agriculture for the period ending December 31, 1921, has been issued. This report, while covering some 200 pages, of necessity deals only with the major activities of the department, relating to the administration and enforcement of regulatory laws provided by successive acts of the legislature. A remarkable feature of this report is that showing the progressive accomplishments of a

state department hardly three years old and which must be accepted as a direct tribute to the wisdom involved in the late consolidation of agricultural activities. The story of the continued advance of California agriculture is plainly set forth in the bulletin, and cooperation along the lines of agricultural endeavor will aid in a large measure in solving many of the perplexing future problems that confront the state.

This report may be had post free by addressing "The Director, California State Department of Agriculture, Sacramento."

GUIDE FOR AUTOMOBILE CAMPERS

From a study of the recreation travel within and adjacent to the national forests of California the forest service has found that fully 80 per cent of those who travel by automobile are prepared to camp. Appreciating the importance to this large camping public of reliable data on improved camping places, it has prepared a guide.

According to District Forester Paul G. Redington this guide will contain a short description of all the improved public camps on the national forests in California and a list of practically all of the cities and towns in California and Western Nevada that maintain public automobile camp grounds.

"This season," said Redington, "camp fire permits will be required on all the national forests and the Guide, in addition to other information of value to campers, will contain a word of caution regarding forest fires

and a complete list of forest officers, automobile club agencies and municipal and civic organizations that will issue free camp fire permits during the season of 1922.

"This guide will be available for distribution after May 1 at all forest offices, automobile club agencies and automobile camps listed in the booklet."

LET THESE SOAK IN!

Oil your tractor and keep it oiled. Keep the grease cups screwed down at all times. Don't let the magneto wires get oil or water soaked. Strain the oil in the crank case at frequent intervals. You can do more good work on your tractor with an oil can than you can with a monkey wrench.

A DANGEROUS PRACTICE

A Kansas subscriber writes: Please permit me to call attention of your readers to the dangerous practice of throwing boards down with nails sticking from them, and leaving them lying about, a constant danger to barfoot children or anyone with worn thin shoe soles.

This is a very common habit and causes many deaths from lockjaw unless attended to promptly and skillfully.

Better be safe than sorry.—A. L. Patten.

Sawing down trees and cutting logs is made easy by the new combination rigs offered. Some of them have light, interchangeable parts, using the same engine for both jobs.

TRACTOR TIPS

If you would be safe rather than sorry, don't overload.

To run a straight furrow you must look a long way ahead.

Read, study and commit to memory the book of instructions.

Carelessness and abuse are at the bottom of most tractor troubles.

Don't play with your tractor. Be serious. Make power farming a business.

Planning your work so that it can be done with the least possible effort is not laziness but good planning.

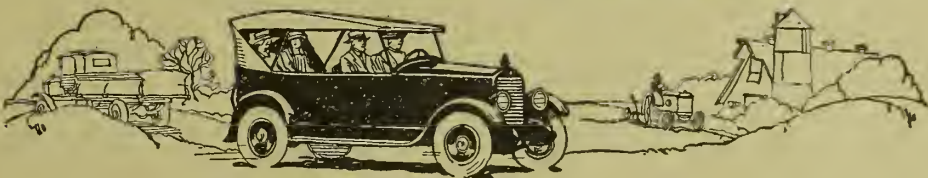
In small gardens the asparagus bed may be placed in one corner or in an offset at the end of the garden, and the hills of the rhubarb along the side fence where they will be out of the way of general cultivation. Sometimes the rhubarb or asparagus is arranged in a sort of row or narrow bed across the front of the garden, separating the garden proper from the lawn at the rear of the house. In large gardens everything should be planted in straight rows in order to facilitate cultivation. Dewberries can often be trained upon a fence, and grapes can be grown on an arbor over the garden walk.

Down in Texas some of the largest ranchers have 8 to 15 engines pumping water for stock. Wherever the herd happens to be ranging, they are close to a sure supply of water.

As the world grows more and more civilized we keep right on improving padlocks.—De Kalb Chronicle.

Scrapping warships is Secretary Hughes' notion of a scrap.—Toledo Blade.

McQUAY-NORRIS PISTON RINGS



Get All the Power You Pay For

You can't get all the power that's in the gasoline you buy if your piston rings are worn and leaky. McQuay-Norris Piston Rings stop this waste. They increase power—save gas and oil and reduce carbon trouble. Whatever the make or model of passenger car, truck, tractor or stationary engine, you will find the McQuay-Norris line is complete for every need. Through the addition of

McQuay-Norris Wainwright Pistons and Piston Pins to the McQuay-Norris Piston Ring line, you can now secure for your gas engines complete McQuay-Norris-made Pistons, Piston Pins and Piston Ring equipment.

Send for Free Booklet—a valuable explanation of the relation of piston rings to gas engine operation. Address Dept. AB.

McQuay-Norris Manufacturing Co. St. Louis, U. S. A.



McQUAY-NORRIS WAINWRIGHT PISTONS & PINS

LEAK-ROOF—an exclusive two-piece design, preventing loss of gas and compression. Gives equal pressure at all points on cylinder walls. For all piston grooves except top, which should have **Superoyle**. Each ring packed in a parchment container. Price per ring—

\$1.25

In Canada, \$1.50

Superoyle—Keeps lubricating oil out of combustion chamber. Collects excess oil on each down stroke of piston and empties on each up stroke, which ordinary grooved rings cannot do. Each ring packed in a parchment container. Price per ring—

\$1.00

In Canada, \$1.25

JIFFY-GRIP—a one-piece ring. Non-butting joint which can be fitted closer than ordinary step cut—velvet finish—quick seating. "Seats in a jiffy." To keep them clean and free from rust, each ring is packed in an individual glassine envelope. Price per ring—

50c

In Canada, 50c

Snap Rings—of the highest grade. Raised above the average by McQuay-Norris manufacturing methods. Their use insures all the satisfaction possible for you to get from a plain snap ring. They are packed twelve rings to the carton and rolled in waxed paper.

And Snap Rings of the highest grade



Made of Electric Iron

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4½ cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. One recent order of County Farm Adviser's was 5,000 White Leghorn, 2,500 Brown Leghorn, 850 Ired chicks. His orders are coming after two years' extensive trial of our chicks throughout his county. "Had the pleasure of seeing some your Anconas, White Leghorn pullets. They are grand." "Your Barred Rock chicks, bought May, 1919, proved great winter layers." "Can you furnish me 100 Wyandottes or Reds as good as your's last year? There's nothing like them here." These strains, 180-290-egg Leghorns, Rocks, Reds, Anconas, Orpingtons, Wyandottes, Minorcas, Andalusians, ducks, turkeys, yearly lead many egg-laying contests, supply foundation stock, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guarantee. Booking for immediate future delivery, below prewar prices. Smallest, largest orders welcomed. Write **Profitable Poultry**, 13 No. Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY**, Santa Ana, California.

Have you had satisfaction with your

BABY CHICKS?

If not, give us a trial. Our chicks give satisfaction.

DAY OLD DUCKS

on orders.

STEELE'S EGG RANCH.

Phone Gardena Exchange 692, Moneta, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

THE MISSION HATCHERY

Barred-White Plymouth Rocks, R. I. Reds, Black Minorcas, White and Brown Leghorn, Baby Chicks and Hatching Eggs. Quality high—prices low. Circulars free. Mission Hatchery, Box 27, Campbell, California.

White Leghorns—Eggs for hatching our specialty; produced right, selected right, shipped right; 100% fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, Calif.

Setting of Buff Orpingtons and Speckled Sussex \$5.00 each, Bronze Turkey eggs 50 cents, and Pekin Duck eggs 25c each. We only keep one kind, the best, as our winnings at the State Fair and Oakland prove. Address Braemar Ranch, Santa Barbara, California.

Baby Chicks "well hatched are half raised." Petaluma Incubators produce that kind. They have lots of "Pep." We supply chicks. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Parks' P. R. Pedigreed Cockerels and Eggs for hatching (230-egg strain); breeding pen direct from Parks, Altoona, Pennsylvania. Cockerels, \$5.00. Eggs, \$5.00 for 15. E. B. Williams, R. D. No. 2, Fillmore, California.

White Leghorn Chicks from Hoganized vigorous two and three-year-old hens on free range. 287-egg strain. Prices reduced. Hatch each week. Safe delivery guaranteed. Mrs. Robert Goddard, Los Gatos, California, R. A. Box 122.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. F. W. Ohlen, Campbell, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2. Peafowl For Sale—Old and young. Stamp. Hiram Yoder, Tuleta, Texas.

Dark Strain Rhode Island Red Hatching Eggs, \$2.00 for 15. Frank Barnett, Delano, Calif.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

For Sale: White Leghorn Baby Chicks from free range selected hens mated with pedigreed cockerels from 200-287 egg trapnest records. May and June prices \$3.50 per 25, \$6.50 per 50, \$12 per 100. Special prices 500 and 1000 lots. Safe arrival guaranteed; you pay only for chicks received alive and in good condition. No money in advance; pay on delivery. Order now. Established 1898. Must Hatch Incubator Co., 438 Seventh St., Petaluma, Calif.

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Baby Chicks. Barred Rocks and Rhode Island Reds from carefully selected stock. You want the best, we have it. All chicks shipped by parcel post. We pay all charges. Prices for April and May: 25 chicks \$5; 50, \$9.50; 100, \$18. Order early as we are heavily booked. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. To-bener Hatchery, Route 2, Box 306, San Jose.

Ives S. C. Brown Leghorns, bred and shown 32 years. Eggs, \$3.00 15. Exhibition cockerel, \$5.00. Formerly Knobnoster, Mo. Ives, 664 W. 66th, Los Angeles.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Barred Plymouth Rocks, "Wonderful Layers, champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grimes Ave., RR 2, Box 130, Burbank, Calif.

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

Thoroughbred White Wyandotte Eggs, \$1.75 per setting, postpaid. Mrs. Chas. Dougherty, Norwalk, California.

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Walter Hogan Stock White Leghorn baby chicks. All our eggs come from one flock of over 5,000 mature hens that are now laying their best and will produce fine, strong chicks. We are now selling at \$12.50 per 100, \$125.00 per 1,000, F. O. B. Gardena. \$2.00 deposit on each 100 with the order, balance C. O. D. Chicks shipped by parcel post, guaranteed to arrive safe. Don't buy chicks that come from many different flocks, some of them might not be very good. Lyon Hatchery, Gardena, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. VENTURA: First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. **BLUE ANDALUSIANS** high class stock \$3.50 setting. **GOLDEN CAMPINES** and **LAKENVELDIERS** from best yards in America. Mature early, heavy layers of white eggs, \$6.00 setting. Anconas—\$2.50 setting. Postpaid. J. B. Crawford, Route 2, Compton, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 351a, Lodi, California.

Baby Chix: White Leghorns (Tancred), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. Enoch Crews, Seabright, California.

Ancona Hatching Eggs from selected laying stock. Mated for beauty and heavy egg production. By the setting or hundred. Write for Mating List. R. G. Baugh, 3534 Allendale Ave., Oakland, California.

Hatching Eggs from my specially selected S. C. White Leghorn two year old hens, carefully Hoganized and mated to prize cocks. From pen No. 1, \$6.00 setting, other pens, \$2.00 per setting. S. H. Evans, Chowchilla, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Thoroughbred Barred Rock Hatching Eggs, \$2.00 per 15 postpaid. Orders booked for Ringneck pheasant eggs. W. Leland Smith, Fair Oaks, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Light Brahmas—A few young cocks. Setting eggs \$5.00 per 15. Keys Ranch, El Monte.

Pit Games—Old and young trios R. H. Crane Santa Rosa

Light Brahma Eggs for hatching, \$2.50 per 15, large stock. J. M. Sigler, Puente.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

BLUE HOGS

Blue Hogs—Really blue in color, large, growthy and prolific. Great show hog. Mention this paper for discount. The Blue Hog Breeding Co., Wilmington, Mass.

HAMPSHIRES

Hampshire Swine—always top the market. We have for sale, purebred Hampshire Hogs of all ages. Write us what you want. Address Braemar Ranch, Santa Barbara, California.

WANTED

I Want Farms for cash buyers. Will deal with owners only. R. A. McNown, 370 Wilkinson Bldg., Omaha, Neb.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

SEEDS AND PLANTS

SUDAN GRASS SEED (The Great New Hay Crop) First introduced in the United States 1909 from Sudan, Africa.

Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, it grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings. **Pasturage**. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.

Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$5; 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.

BOWMAN'S HYDRO & IMP. CO.

721 J St. Sacramento, Calif.
For Sale: 500 pounds Klondyke Watermelon seed, best brown varieties, at \$2.00 per lb. 100 pounds black seed Chilians \$1.00 per lb. All seed guaranteed to grow if planted at proper time. Sam Oskey, 2005 Audrey Street, Los Angeles, California.

Strawberries, 21,600 boxes per acre, July to November, 1921, from Hewitt's Improved Mountain Grown Progressive Everbearers. Yields enormous crop first year. 100 plants \$2.50, 1,000 \$20 prepaid. Carl Hewitt, Summit, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

For Sale—California Peanuts for Seed, 9 cents per pound, f. o. b. Santa Ana. Cash with the order. Weight of barley sacks, 38 lbs. net. Also 2x3 fruit trays, 6 cents. W. A. Collins, Box 397, Santa Ana, California.

For Sale—Millions of Stone tomato plants. Write for price list and particulars. Reference: Chamber of Commerce, any bank or business man in Pomona or Gardena. L. C. Johnson, Pomona or Gardena, California.

For Sale: Strawberry Plants—Klondyke, Brandywine, Gibson and Senator Dunlap, \$5.00 per 1,000. Cumberland Black raspberries, \$3.50 per 100. \$35.00 per 1,000. S. R. Moore, R. F. D. 3, Box 19, Inglewood, California.

Cory Thornless Blackberry—Extra large plants, from experienced grower and shipper. 12—\$2.25, postpaid. Satisfaction guaranteed. Illustrated folder. Write Chas. E. Mortenson, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred \$3.00; 2 year old, per dozen \$1.00. 2 year old, per hundred \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large well rooted plants now ready. You get the genuine from the Pioneer Grower Wm. Mortenson, Route 1, Lodi, California.

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000. F. O. B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

California Wonder Corn for Seed. Greatest producer wherever grown. Write for leaflet. James McKee, Riverside, Calif.

Genuine Honey Sorghum Cane Seed, \$7.00 per 100 lbs. Best variety for syrup or feed. Ray C. Robinson, Sorghum Specialist, 930 W. 5th Ave., Pomona, Calif.

Alfalfa Seed—Certified Hairy Peruvian. Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Plant Our Six Weeks' Potatoes—Earliest biggest producer known. J. L. Lawson San Jose, California.

Sour Orange Seed, fresh from Florida, immediate delivery. Milo Hunt, Whittier, California. Phone 250.

MISCELLANEOUS

Homespun Tobacco—No. 1 Tennessee rec 5½ lbs., \$1.80; No. 2 smoking 5½ lbs., \$1.65; 5½ lbs., choice burley smoking, \$2.75. All prepaid. Satisfaction or money back. Farmers' Association, Dukedom, Tenn.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco—Smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Ag. Sedalia, Kentucky.

Homespun Smoking or Chewing, 5 lbs., \$1.50, 10 lbs., \$2.50. Valuable formula. Smoking 5 lbs. \$1.00. Pigeon Roost, Sedalia, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Free Smoking Tobacco—Smoke on us. Write for free sample. Hawesville Tobacco Co., Hawesville, Ky.

Posts—Lumber Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

DUCKS

Mammoth White Pekin Duck Eggs \$1.00 per dozen, \$8.00 per hundred. A. Surtman, Petaluma, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 290 Court St., Los Angeles.

TREES

FOR SALE
NAVEL AND VALENCIA
NURSERY STOCK
NOT FROSTED

W. B. Ames, 9th floor, Merritt Bldg., 8th & Broadway, Phone 1156, Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

White Winter Pearmain, Yellow Newtown Pippin apple trees, Royal apricot on apricot root, red nectarines, Phillip and Tuscan cling peach, Placentia-Perfection walnut trees, berries and grape vines. Stock first class, true to name. Los Nietos Valley Nursery, Phone 692, Downey, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f. o. b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

FOR SALE: AVOCADOS—LEADING VARIETIES. WASHINGTON NAVEL, VALENCIA LATE ORANGE AND EUREKA LEMON TREES. EXCHANGE BUDS. T. J. WALKER NURSERIES, 1142 PORTER AVENUE, SAN FERNANDO, CALIFORNIA.

Wonderful Pomegranate Trees. Strong, two-year old stock, well rooted. Ranging in price from 30c to 50c. Sample mailed on request. The supply is limited; place your order NOW. L. E. Ingoldsbey Nurseries, Box 244, Lindsay, California.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Seedlings—Apple, pear, plum, peach. 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 100 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Wonderful Pomegranate Trees. Offering 5000 A-1 two year old trees at a great reduction on account of being obliged to move my nursery. Write for prices to E. R. Davis, Lindsay, California.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Avocados: We have a nice bunch of Puebla, Fuerte, a few Spinks, Knight, Queen and Blake. Well grown trees in fine condition. Coolidge Rare Plant Gardens, Pasadena, California.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. Phone 75-W-1.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 535, Phone Colorado 6044.

For Sale: Valencia Late, Washington Navel, Eureka lemon trees. Prices right. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healdsburg, Calif.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

For Sale—Selected Eureka Walnut Grafting Wood. F. C. Stone, R. A. Box 174, San Jose, California.

For Sale—Fruit Trees, grapevines, unrooted grape cuttings, etc. Write for price list. Burke's Nursery, Lodi, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Sacks and burlap for balling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

MACHINERY

For Sale—One 10 H. P. General Electric Motor with automatic compensator. One Frisco Deep Well Pump, with pulleys, hasting and belts in good condition. Address, E. J. Saunders, 122 N. Friends Ave., Whittier, California.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 120 S. Main; Yds. 816 Yale, L. A.

For Sale: One No. 15 Acme Ensilage Cutter. John Deere Cultivator, P. & O. Cultivator, one large Tractor Cultivator. & K. Machinery Co., 494 Brannan St., San Francisco.

One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drew Carriage Co., Ontario, Cal.

For Sale: New Case Thresher, 22x36, for beans and grain, fully equipped. A bargain at \$900.00. F. A. Hackmann, Waterville, Calif.

For Sale—One Hardie Sprayer never used. W. S. Coffin, Ontario, California.

FARM LAND FOR SALE

Sale or Trade—Ideal Stock or Dairy Ranch. 500 acres, one mile from town and railroad, fully equipped with all necessary implements and tools, horses and grade and registered Shorthorn Durhams. Fine house, large barn, blacksmith shop, garage, bunk house, pumping plant at creek and house, water runs in creek all year, well fenced and cross fenced, over 100 acres bottom plow land, burr clover pasture, variety of fruit trees around house, over 200 acres can be put into fruit and alfalfa if desired, about 2000 cords of oak and pine on stump, elevation 800 ft., 32 miles east of Stockton. Would consider residence and mercantile business in trade. Price \$40,000—terms 7%. For further information apply to owner, H. W. HANMAN, Valley Springs, California.

CHICKEN FARMS AT CORONA

Irrigated small farms for chickens, peaches, apricots, figs, plums, pears or grapes. 3 to 15 acres with water, \$225 acre up; quarter cash, five years to pay remainder. No payment required end first year if permanent improvements made. Chickens will make your living while fruit and grapes are growing into permanent income. City schools, churches, natural gas, all conveniences. See these quickly. DWIGGINS, 1118 Hibernian Bldg., Los Angeles, 13101.

\$700 GETS 160 ACRES, WITH 12 CATTLE, 24 HOGS, POULTRY Corn, hay, feed thrown in; big profits here; hogs, cattle, corn, general products, good markets; handy village; 75 acres rich lime tillage; wire-fenced pasture; about 1,000 cords wood; 70 apple and peach trees; good cottage, well shaded; 2 barns. Owner called away. \$1,400 gets all, half cash. Details page 106 New Illinois. Catalog 1,200 Bargains, FREE. STROUT FARM AGENCY, 831 H. K., New York Life Bldg., Kansas City, Mo.

HOME, FARM AND LIFE INCOME

For less than cost of city house, you can buy 10 to 15 acres irrigated farm; bring it into full bearing peaches, pears or grapes, furnishing life income; and build comfortable farm house with running water, natural gas, finest climate, city school, churches at Corona. Quarter cash, five years to pay balance. See quickly. DWIGGINS, 1118 Hibernian Bldg., Los Angeles, 13101.

IRRIGATED FRUIT LAND

Fruit makes California the "Safe Farming" state. Irrigation makes fruit farming safe. We offer irrigated bottom land, best for big yields of fruit, at liberal terms. We have a real opportunity for you.

SUTTER BASIN COMPANY
304 California Fruit Bldg.
Sacramento, Cal.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

Irrigated Chicken Farms, fine for fruit, grapes, \$225 acre, five years to pay. DWIGGINS, 1118 Hibernian Bldg., Los Angeles, 13101.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

Ranch Home for Sale—15 acres and equipment. Mrs. E. Winnie, Corning, Calif.

CATTLE

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Innsfall Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Leesee, Davis, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

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Real Radio News and Information

written by experts

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section is the most beautiful published. You're missing a treat if you aren't getting it regularly. Order direct or through your local news dealer.

TURKEYS

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Mammoth Bronze Eggs—Foundation stock "Gold Nugget" and other prize strains. For six generations we have hatched only selected eggs from 2-year-old hens, then have kept only best birds for breeding stock. No inbreeding. Eggs guaranteed. Andrews & Andrews, Bo-K-Haunt, Hemet, California.

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 88A, Merced, California.

Thoroughbred White Holland Turkeys, eggs 60c; setting of 10, \$5.00. Chinese Ringneck pheasants, pen of 3, \$12.50; eggs \$5.00 setting. 2 year female Silver, \$7.00. Pause Pheasantry, Fair Oaks, California.

Mammoth Bronze Turkey Eggs 35c, 50c, \$1.00 each. Fertility guaranteed. A few breeders left. Keys Ranch, El Monte.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

For Sale: Bronze tom, Ives' World's Champion Strain. Ives, 664 W. 66th, Los Angeles.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Bdway. 5401. Los Angeles, Calif.

DOGS

Collie-Shepherd Puppies, 3 months old. Reauties \$10 up. Woodruff, 535 Mary Street, Bell, California.

HORSES

For Sale—Fourteen young mules, good stock, below value for prompt sale; also harness and tools. Subtropic Farms, La Habra Heights, La Habra, California. Phone Whittier L-124 or L-224.

For Sale—2 Colts, 3 and 4 years old, light weight, one broken. 30 Dollars each. Henry Baer, Placerville.

STRANGE INDEED!

"You have such strange names for your towns," an Englishman remarked to one of his new American friends—"Weehawken, Hoboken, Poughkeepsie, and ever so many others."

"I suppose they do sound queer to English ears," said the American thoughtfully. "Do you live in London all the time?"

"Oh, no!" said the unsuspecting Briton. "I spend part of my time at Chipping Norton, and then I've a place at Pokes-togg-on-the-Hike."—Harper's Magazine.

HIS PREFERENCE

Willie was in a bad temper. His mother had just discovered that there was not a clean nightshirt ready for him to wear.

"Never mind, Willie," she said consolingly. "You will have to put on one of your sister's nightgowns tonight."

"What! a girl's?" snorted Willie, drawing himself up haughtily.

"Yes. Why not?" asked mother in surprise.

"I won't wear it!" declared the small boy. "I'd rather go to bed raw!"

—Detroit News.

Good taste in food, as in anything else, inclines toward simplicity. That child is handicapped for life who grows up without sound food tastes and habits.

Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
White Leghorn Chicks Only

Holly Hatchery Chicks Win Again!

Our May hatched Richardson chicks are superior in laying ability to all others.

Farm No. 4, State of California Extension Poultry Experiment Farms, was first for 1921 with a record of 192.4 eggs per hen with our Richardson chicks. Can you beat it!

Why be satisfied with anything less than the Best.

Order quick as our May dates are filling fast.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circular.

B. R. HOLLOWAY
Box K. Van Nuys, Calif.

"Pioneer" Baby Chicks



We can now supply all kinds of baby chicks, baby turkeys and ducklings. We have served the public for sixteen years and are better fitted than ever to give you good strong profitable chicks. Safe delivery and full count of live chicks at destination Copyrighted guaranteed.

We also carry a complete stock of puppies, birds and cages, pullets, feeds and supplies. Pioneer incubators and brooders, also fireless brooders always on hand. Send for Price List. Visitors Welcome.

PIONEER HATCHERY
820 So. Spring St., Los Angeles, Calif.
"World's Largest Chick Dealers"

Poultry Stock

Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

CURTISS POULTRY FARM

Phone 78-J-4

1st and Grand Ave. East San Gabriel, Calif.



Baby Chicks

Place your order now for chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

Fancier's Exchange

640 So. Main St., Los Angeles, Cal.

The Redwing Hatchery

Incubates 250,000 Eggs Every Three Weeks

being the largest and finest equipped electric hatchery in the Southwest.

We are now booking order for immediate and future delivery of all the popular breeds of baby chicks; also our celebrated strain of Oregon-Corvallis White Leghorns.

We can supply pullets of all kinds at all times; also incubators and brooders.

No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY

2030 E. Florence Ave., Los Angeles, Calif.



Try the Coulson System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars. Coulson Co., Petaluma, Cal.

"Brooding and Caring for Baby Chicks"

The method followed on one of the most profitable egg farms in California.

A 50 page booklet, 50c per copy. Your money back if not satisfied.

JOS. H. TUMBACH

RR 2, Box 304 Pasadena, Calif.

Sick Baby Chicks? GERMOZONE

is a positive remedy for roup, colds, bowel trouble and such costly ailments. Preventive as well as curative. A wonder worker for poultry. On market over 20 years. Endorsed by many thousand users. Don't lose your baby chicks. Get GERMOZONE TODAY. At drug and seed stores. If no dealer, order by card. 75c and \$1.50 sizes. Postman will collect. No extra charge.

GEO. H. LEE CO., Dept. F-30 Omaha, Nebr.

The Cheapest Brooder House

By Jean A. Koethen



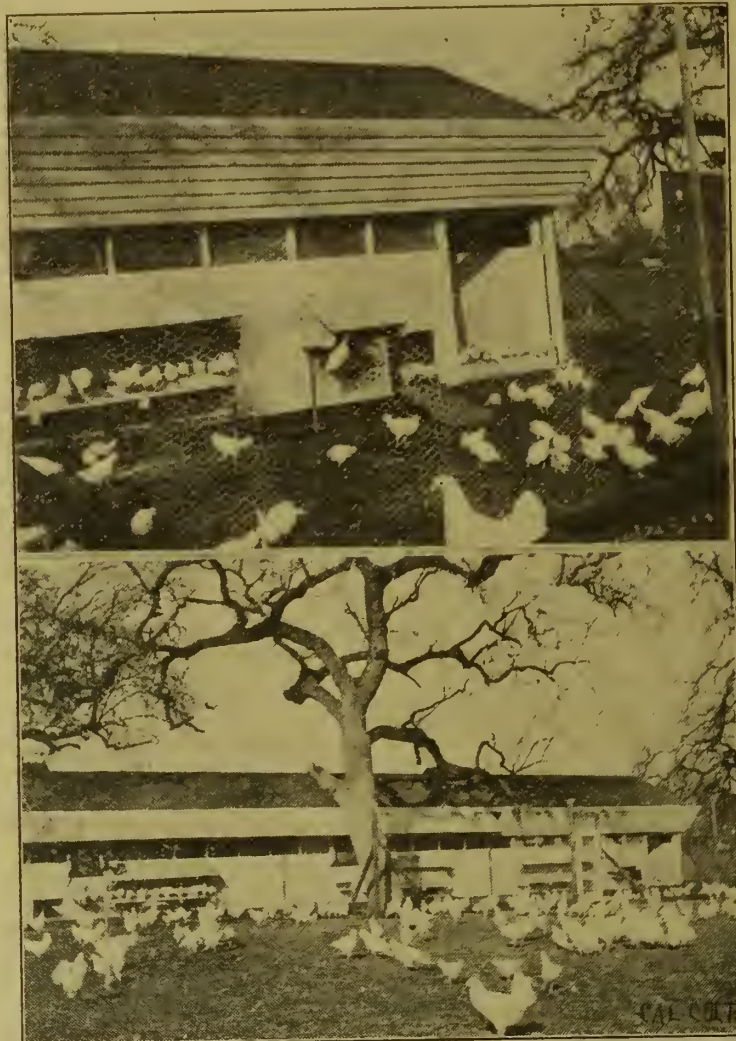
THE use of a laying house for brooding chicks is become more and more common among California poultrymen. With the coming in

of the big brooder stove and the electric hover and the passing of the small unit brooders the special brooder house is no longer a necessity. Any vacant laying house may be fitted up with stove or hover and used for brooding 500 to 1,000 chicks, and the saving in expense and ground space is considerable.

An excellent example of one section of a long laying house in use for rais-

this from a laying house to a cold brooder, and the chicks are taught in one lesson how to reach their roosts. C. C. MacDowell, who cares for the White Farm poultry, teaches the chicks to go to bed by the simple device of drawing them gently to and up the ladders with a length of chicken wire. The second night a few scattering loiterers have to be helped. After that the whole flock know their way up the ladder.

The sections or houses which make up this long laying house are 22 feet square, with gable roof nine feet high at the gable, seven feet high in front



Brooder and Other Efficient Equipment on Poultry Farm

Figure 1. Upper photo: These chicks were brooded in the adjoining house and now use this house as a cold brooder, roosting on strips of 1 by 2 between the regular roosts.

Figure 2. Lower photo: Notice the outside hoppers and the adjustable shutter which is turned up for the chicks in the house at the extreme right and down for the hens. Each section of this house is 22 by 22.

ing chicks was seen recently on White Oak Farm, near Ventura Boulevard, owned by Mr. and Mrs. Ludwig. Figure 1 shows November chicks, now nearly three months old, enjoying the sunshine in the doorways and yard of their house. The house in which they were brooded adjoins this on the left and is fitted with curtains so that the front can be tightly closed while the chicks are small. A 500 chick electric hover is used on the floor of this house, which is covered with sand and straw. A low door and inclined runway give access directly from brooder house to run. Half a dozen small roosts made of inch wide slats or batens provide the chicks with opportunity for learning to roost.

At the age of two months, when heat is no longer needed, the chicks are transferred to the adjoining house in which they are seen in the cut. Lath ladders extending from floor to droppings board and an extra roost between each two regular roosts are the only equipment needed to turn

and five feet high at the back. Four feet of the front is enclosed, the remaining three feet being covered with wire and an adjustable shutter. The nests are under the roosts and the feed troughs and water fountains outside along the front. Figure 2 shows three sections of the house, two of which are occupied by hens, while the third, at the extreme right, is occupied by the growing chicks.

FEDERATION OF PRODUCERS' ORGANIZATIONS

The Petaluma Poultry Journal reports that at a recent conference plans were made for a federation of the Pacific Coast poultry producers' associations under a board provided by joint action of all of these societies. The plan under which the organizations will act together resembles proposals which have been made for coordination of activities of the various wheat growers' associations throughout the country.

The central federation will not de-

tract from the operation or affect the power of any of the organizations, but will act to cement their work in such

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy in Drinking Water Does It. No Dusting, Spraying or Greasing

At this season of the year lice and mites cause many poor hatches. Setting hens infested with them will often desert their nests at the most critical time. They sap the strength and vitality of baby chicks. Many dusts, sprays and dips are so strong that they often make eggs unhatchable. Greasing setting hens or baby chicks is disagreeable and unsanitary.

A wonderful new discovery has recently been developed which makes it easy to keep the whole flock, especially setting hens and baby chicks, absolutely free from all lice and mites. Just a few drops of Imperial Lice and Mite Remedy, given occasionally to fowls in drinking water, keeps them entirely free from all vermin. It is a simple remedy in highly concentrated form, and is guaranteed not to affect eggs or flesh of fowls in any way. Lice, mites, ticks and other vermin will not stay on any fowl when this remarkable remedy is used in their drinking water. It is also a splendid spring tonic and blood purifier for the entire flock.



White Diarrhoea Remedy Free

The manufacturers of Imperial Lice and Mite Remedy, in order to get it quickly established and widely used, are making a special introductory offer. In connection with your order for a regular full size (double strength) \$1.00 bottle enough to eliminate all lice and mites from the average flock and keep them free from this vermin, they will include free to you as an outright gift, your choice of either a regular \$1.00 package of Imperial White Diarrhoea Remedy (the standard time tested remedy), or a large size \$1.00 package of Imperial Egg Tonic, the guaranteed egg producer. In ordering, send only \$1.00 (check, M. O. or currency) and state your selection. Both remedies sent postpaid.

If more convenient, you need send no money, just your name and address to the Imperial Laboratories, Dept. 555, 2110 Grand Ave., Kansas City, Mo., and pay the postman \$1.00 and a few cents postage when the package containing the two remedies arrives. As this offer may not appear again you should act at once, or elp for future reference. You need not hesitate in ordering, as you risk no money. The manufacturers guarantee to refund the cost any time within 30 days if you are not entirely satisfied.



Novo Hoists

for the Ranch

In Stock

Novo "Handy" Hoist

Called "Handy" because they're the handiest thing on the place. COME AND SEE THEM or write for details.

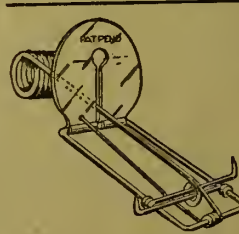
SMITH - BOOTH - USHER CO.

Machinery, Industrial and Contractors' Equipment, Supplies
SAN FRANCISCO LOS ANGELES

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 25 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post. Mfg. by Z. A. MACABEE, Los Gatos, Cal.



The STAR Gopher Trap

TAKES THE GO OUT OF GOPHER

Send 30c in postage for sample, 6 for \$1.50. The Star Mfg. Co., 235 Aliso St., Los Angeles.

Bee Hives and Supplies

Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

The A. I. ROOT COMPANY, Dept. B.
1824 E. 15th St., Los Angeles, Cal.
PACKERS OF AIRLINE HONEY

undertakings as the opening of new markets, the securing of statistical and market information, and to prevent flooding of any one section of the country by shipments from different organizations at the same time.

It is expected that out of the new arrangement a general sales agency in New York and in other eastern markets will be developed for Pacific Coast association eggs intended for export and for Atlantic Coast cities.

The associations represented at a recent conference, in which plans were laid for the federation, were the following:

- Washington Cooperative Egg and Poultry Producers' Association.
- Pacific Cooperative Poultry Producers.
- Poultry Producers of Central California.
- Poultry Producers of Southern California.
- Poultry Producers of San Diego.

Poultry Queries

Conducted by Jean A. Koethen

The Way to Begin

We are thinking of starting a poultry farm in this district. Will you please tell me what opportunities there are in this line? How would you begin the job? We have about \$6,000 capital. How many head should we begin with? How many acres of land are necessary? — Subscriber, Porterville.

If I knew how old you and your

wonderfully good rule for the prospective poultryman.

Ipecac for Blackhead

I would like to know how ipecac is used. I got some from the drug store in powdered form but there are no directions.—Subscriber, Corning.

The Doctors Wegeforth used the powdered ipecac as preventive of blackhead, mixing it in the food of all the birds they wished to keep from taking the disease. The dose was a teaspoon of powder twice a week for 20 turkeys. It was given in soft food, either dry or moist mash, I am not sure which, and presume it makes no difference. It could be mixed in the egg and cereal which is commonly fed to baby turkeys. The dose given to turkeys which already showed symptoms of blackhead was ten drops of fluid extract of ipecac three times a day, given directly by mouth. This dosage was continued three days after which it was decreased to ten drops twice a day for three days, and later to ten drops once a day for three days.

This also answers the inquiry of Campo subscriber in regard to method of administering ipecac.

Leg Weakness

Please tell me the cause of leg weakness in baby chicks three weeks old. They seem healthy, eat heartily, but shift around on their legs about three days, then die.—Subscriber Summit.

Too close confinement and heavy feeding are the two interrelated causes of leg weakness. The most effective cure is to get them onto the ground and keep them there as much of the day as possible. Feed grain in deep litter so they will have to work for it and limit the mash given them. Addition of bone meal to the ration will

records. There are two kinds of trap-nests, one for trapping the individual birds, the other for separating layers from non-layers by letting them through the trap into another pen.—Subscriber, Moneta.

I have mailed you bulletins containing description and plans of several trapnests. Any of these could be used,

I think, for letting the hens into an adjoining pen, merely by placing them against the partition and putting a wire door in place of the solid board at the farther end. The hen will naturally go toward the light. The usual method of keeping trapnest records is by keeping a card for each hen. She

(Continued on Page 375)



Send for This Book

There is nothing left out of "Land Development" when it comes to dynamite on the farm.

The Hercules Powder Co. has published this 75-page book in the interests of the fruit growers and ranchers. It contains instructions for tree-planting, blasting between the rows, ditching, stumping, and boulder-blasting, and is illustrated with both photographs and diagrams.

Send today for "Land Development"—it is free upon request.

HERCULES POWDER CO.

San Francisco 1001 Chronicle Building California

HERCULES DYNAMITE

POULTRYMAN'S CALENDAR—APRIL, KEEP THEM GROWING

It is one thing to hatch a fine lot of chicks, and another to keep them growing. So many factors enter in—feed, exercise, cleanliness, room to grow in, chance to run, green feed, freedom from insect pests, fresh air—there is always a chance of failing somewhere and raising runts instead of vigorous layers.

With the coming of spring mites must be carefully guarded against. Nothing will kill chicks more quickly. The ration must be progressive, suited to the growing strength and capacity of the chick. Overheating must be guarded against. The sooner the chick can be gotten away from the stove and into the open, the better. Daytime heat must be reduced as rapidly as the weather will permit or the chicks will be weak and tender. The ideal life for a chick is that of a brood on range with a mother hen. The more nearly intensive conditions can be patterned after this the more vigorous will the chicks be. The run of the orchard is a wonderful help in pushing the chicks along and developing sturdy pullets.

friend are and what experience you have had and how much you will need to live on the next few years I could answer more easily. If you are young men, unencumbered with families, then you can do almost anything you want to do. If you are middle-aged men with families you will have to think longer before you tie up all available capital, for shoes and clothes do not grow on trees, and opportunities to earn money working for other people are not always to be had. If I had \$6,000 to start a poultry farm with I would put it all, and more if I could, into land, and then find a job that would keep the pot boiling and give me money to set out the land to suit. You can keep all the chickens you can take care of on from two to five acres but you won't have a great deal of room for fruit. With ten to 20 acres you can have both fruit and chickens and be pretty sure of an income whatever happens. Frankly, I cannot encourage anybody at this time to put \$6,000 into the poultry game. It is too uncertain. Eggs are selling for less than it costs to produce them, and prices have been too low all winter. Things may be better by fall, and again they may not. Put your money into land if you know anything about farming. Plant it to fruit or alfalfa. Put up a small chicken house. This summer or fall buy 50 pullets and see how you make out with them next winter. Some time in the fall order 500 chicks from the best breeder you can hear of. Order them for February and see if you can raise 150 pullets. If you succeed with them next year you might try 1,000 chicks. If you do not succeed you are not out a great deal. Make haste slowly is a

make the bones stronger, and sprouted oats and rolled oats help the development of the muscles.

Pullets Guaranteed

There has appeared at different times in your advertising section an ad offering young chicks and guaranteeing 90 per cent pullets. Can you tell me what experience any of your subscribers have had with this offering?—Subscriber, Paso Robles.

If any Cultivator subscriber wishes to answer this query his reply will be forwarded to Paso Robles subscriber. While I have no personal knowledge of the advertiser or his stock I see no reason why he should not guarantee 90 per cent pullets and come through with the goods. In the first place, "guarantee" does not, as I understand it, mean that he promises positively that there will be just 90 per cent pullets in the lot of chicks he sends, but that he is willing to make it 90 per cent if the number falls below. In the second place, it is well known among breeders that mating can be so controlled that the offspring will be nearly all pullets. This is done by mating an old cock with just as many pullets or very young hens as he can take care of and have the eggs reasonably fertile. It is not a question of picking out pullets after the chicks are hatched but of proper mating to produce the desired percentage of pullets.

Trapnests

I would like to get plans for the construction of trapnests, also the methods used and the manner of keeping

WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

Western Pipe & Steel Co.

1758 N. Spring St., Los Angeles 424 Market St., San Francisco
Fresno, Bakersfield, Taft

La Habra Heights

Suburban to Los Angeles, higher than and adjoining Famous Whittier-La Habra districts.

The recent frost makes this the time for investigation. We invite inspection of hillside plantings showing tender one-year-old avocados undamaged by one of the most severe frosts ever experienced in California.

Our section is one of the warmest and best protected from wind of any in Southern California. Let us show you now.

Ideal conditions for avocado, citrus and winter vegetables. Beautiful homesites.

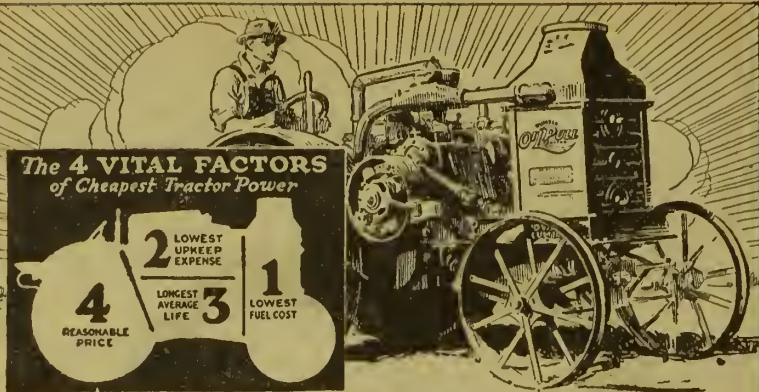
BUY NOW FOR SPRING PLANTING, OR WE WILL PLANT AND CARE FOR ORCHARDS. SPECIAL TERMS TO THOSE WHO IMPROVE.

Any acreage desired. Low prices. Reasonable terms.

Send for descriptive folder.

Also specialize in Hillgrove Townsite, North Whittier Heights property, and in other choice walnut and citrus properties.

Edwin G. Hart Developer and Exclusive Agent for North Whittier Heights
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In the OilPull the problem of producing cheapest power for farm work has been solved, by combining the Four Vital Factors. These are: (1) Lowest Fuel Cost. (2) Lowest Upkeep Expense. (3) Longest Life. (4) Reasonable Price.

In no other tractor will you find these four combined. As proof, the OilPull (1) has held all the principal National Fuel Economy records for 10 years. (2) Shows upkeep cost of only 50% of the Government's national average. (3) Averages 10 years and more of service. (4) Reasonable Price.

OIL PULL TRACTOR

"The Cheapest Farm Power"

OilPull success is due to many things, but of chief importance is TRIPLE HEAT CONTROL—a perfected system of oil burning that positively gets the power out of cheap kerosene, stove tops, distillate, etc.

Makes possible our unqualified guarantee to burn kerosene successfully under all conditions and at all loads up to its full rated brake horse power.

See the Advance-Rumely dealer for demonstration. Mail coupon for copy of our special booklet on TRIPLE HEAT CONTROL.

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Serviced from 30 Branch Offices and Warehouses. The Advance-Rumely line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, husker shredders and farm trucks.



Triple Heat Control

A gallon of cheap kerosene contains more actual power than a gallon of expensive gasoline. The problem is to get the hidden power out of cheap kerosene.

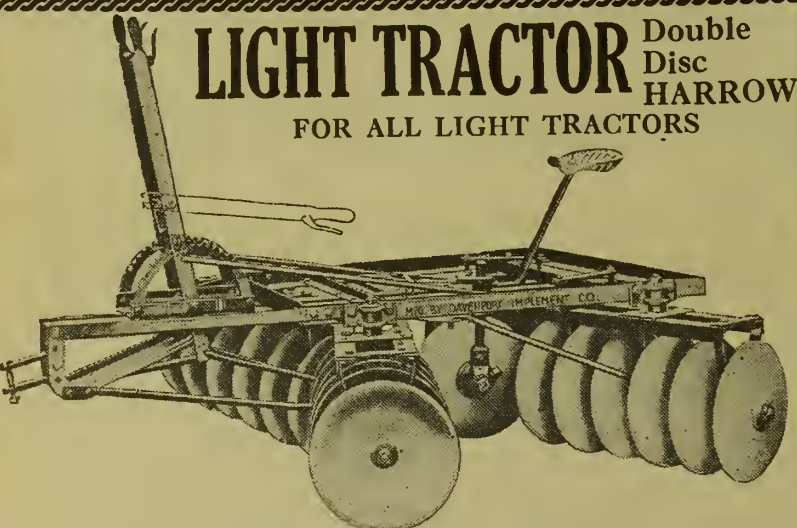
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ADVANCE-RUMELY



LIGHT TRACTOR Double Disc HARROW

FOR ALL LIGHT TRACTORS

—AT A LIGHT PRICE

This implement of medium weight and priced accordingly was made to stand the strain of hard service without the weight and expense of heavier discs. Made rigid or flexible frames with drop levers for orchard work. 5 and 6 foot sizes.

WARR IMPLEMENT CO.

110 North Los Angeles Street

Los Angeles

Seed and Everything for the GARDEN

Send for Catalog

MORRIS & SNOW SEED CO.

439 SO. MAIN ST.

LOS ANGELES, CAL.

When Writing Advertisers Please Mention the Cultivator.

Los Angeles Markets

Los Angeles, March 29, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 36 cents.

CHEESE

Brokers' prices: California flats, 20¢22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 27; case count, 25; pullets, 24.

POULTRY

Price to producers: Hens, 23; colored, 31; broilers, 33¢45; roasters, 38; old roosters, 14; fryers, 45; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60¢70; capons, 38¢43.

Belgian hares, 12¢16; old, 8.

LIVESTOCK

Los Angeles, March 21—Welghed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 10.00; 175 to 225 lbs., 10.50.

Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 7.00; 150 to 225 lbs., 8.00.

Sheep: Ewes, 5.00¢7.00; lambs, 11.50¢12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 28, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market weak. Lugs, 80¢90. Stocktons: Burbanks, per cwt., best mostly 2.00¢2.25; poorer, 1.75¢1.85; ungraded, 1.40¢1.60 per sack. Idahos: Russets, best, mostly 1.85¢2.00; few 2.25; bakers, 3.00¢3.25. New stock: Carlsbad, 12¢14 per lb., according to quality.

Sweet Potatoes: Movement light, market weaker. Locals, No. 1 best, per lug, 70¢90; poorer, 60. Arkansas: Nancy Halls, 4¢4½ per lb; per bu., mostly 1.85¢2.00.

Onions: Demand light, market firm. Stocktons: Per cwt., White Globes, best, mostly 11.50¢12.00; browns, best, mostly 10.00; few, 10.50; Australian browns, mostly 10.25¢10.50.

Garlic: 7¢8 per lb; poorer, 5¢6, by sack.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, March 28, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, large, fancy, 1.25¢1.50; medium, 1.00¢1.15; small, 75¢90.

Asparagus: Local, 45¢44 per lb. Imperial Valley, mostly 25¢35 per lb. Delta, best, 25¢35. Northern, Oakley section, 25¢35.

Bunched Vegetables: Per doz. bunches: Turnips, 35¢40; carrots, 65¢80; poorer, low as 60; beets, 65¢75; radishes and parsley, 20; spinach, 35¢40; mustard, 25; watercress, 25¢30.

Cabbage: Per field crate, mostly 2.00¢2.25; poorer, low as 1.50.

Carrots: Sk., 3.00¢3.25. Cauliflower: Quality fair to poor. Per field crate, best, 2.00¢2.25; poorer, 1.60¢1.85.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, best, 5.00¢6.50; poorer, 3.00¢4.00. San Diego, cold storage, 7.00¢8.00; small sizes, 6.00.

Lettuce: Demand moderate, market firm. Locals, quality poor; best, mostly 2.50¢2.85; few 3.00; poorer, 1.75¢2.25 per field crate, according to quality.

Parsnips: 1.25¢1.50.

Onions: Green, 15¢17½ bunch.

Peas: San Pedro, best, mostly 18¢20; few, 22; Imperials, 15¢17 per lb.

Peppers: Demand moderate, market steady. Mexicans, Chilis, 12¢14 per lb.; Bells, fancy, mostly 20¢25; few, best, 27.

Rhubarb: Special brands, Senator, packed box, 2.50; other varieties, 2.00¢2.25.

Tomatoes: Market steady. Mexicans, per repacked lug, 3.00¢3.25; mostly 3.00 for fancy shipping stock; original lugs, best, 2.50¢2.75; poorer, 2.25; repacked crates, fancy shipping stock, 2.50¢2.75; loose, per lb., best, 8¢10; poorer and overripe, 6½¢7½ per lb.

Turnips: Sk., 1.00¢1.25.

FRESH FRUIT

Strawberries: 7.00¢9.00 per crate.

CITRUS FRUITS

Grapefruit: Market firm. Californias: Northern, packed box, 3.00¢3.25; market pack, 2.75¢3.00; small, 2.00¢2.50.

Lemons: Demand and movement moderate. Market firm. Locals: Loose boxes, best, 2.25¢2.50; poorer, 1.50¢2.00; special brands, fancy, 5.50¢5.75; choice, 5.00¢5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 6.00¢6.75; market pack, 4.00¢5.00; culls, 50¢1.00 per field box; few best, 1.50¢1.75.

Tangerines: Market firm, 9¢10 lb.

GRAIN

Prices on L. A. Grain Exchange. Barley: 100 ton lots, April delivery, 1.45. Milo, 100 ton lots, April delivery, 1.75.

San Francisco Markets

San Francisco, March 28, 1922.

BUTTER

Firsts 36½

CHEESE

Dairy Exchange quotations: California Young America, fancy 22 California Flats, fancy 21½

California Flats, firsts 20½ Oregon Trips 25 Oregon Young America 25

EGGS

Dairy Exchange Quotations: Extra 27 Extra Pullets 26½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs., 35¢40 lb.; 1½ to 1¾ lbs., 42¢46; 1¾ to 2 lbs., 43¢46.

Colored Fryers: 2½ to 3 lbs., 42¢46.

Colored Young Roosters: 3½ to 4 lbs., 40¢42 per lb.; over 4 lbs., 35¢38 per lb.; staggy showing spurs, 25¢30 per lb.

Colored Old Roosters: Slow, 18¢20 per lb.

Leghorn Old Roosters: Slow, 15¢18 per lb.

Leghorn Hens: Weak, movement slow, supplies increasing, 2½ to 3 lbs., 20¢21 per lb.; 3 lbs. and over, 22¢24 per lb.

Large Colored Hens: 29¢32 lb.

Ducks: Young, 26¢28 per lb.; old, 22¢25 per lb.

Geese: Young, 28¢30 per lb.

Live Turkeys: 32¢35 lb.

Dressed Turkeys: Young, 42¢44 per lb.; off stock, 36¢40 per lb.

Belgian Hares: Live, 16¢18 lb.; dressed, 20¢40 lb.

Squabs: Live, fancy, 65¢68 lb.; common, 3.00¢4.00 doz.

Old Pigeons: 2.50¢3.00 per doz.

Guineas: Young, \$8.00¢10.00 doz.

Jackrabbits: 2.00¢2.50 doz.

LIVESTOCK

Western Meat Company quotes: Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7¢8; second quality, 6¢6½; cows and heifers, No. 1, 5½¢6¼; second quality, 4½¢5¼; bulls and stags, 4¢5 per lb.

Calves: Light weight, 9¢10 per lb. heavy, 7¢8 per lb.

Sheep: Wethers, 8¢9 per lb.; ewes 6¢7.

Lambs: 12¢13.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½¢ per lb.; do., 200 to 250 lbs., 10½¢ per lb.; do., 250 to 300 lbs., 9½¢ per lb.; light sows, 9½¢ per lb.; heavy, 8½¢ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price.

Tulare, March 21

88 153 11.35

102 150 11.25

87 192 20 11.15

86 183 11.10

82 141 11.10

35 feeders 91 10.95

18 218 10.65

38 152 10.65

9 282 10.15

9 313 110 10.00

3 267 110 8.65

1 420 5.75

1 180 16.00

559 hogs, 5 cars, 57 consignors, \$10,165.50

Visalia, March 22

61 176 10 11.55

106 157 11.50

96 184 11.50

54 119 11.15

23 234 10 10.55

12 301 90 6.75

1 500 5.00

353 hogs, 4 cars, 26 consignors, \$6,727.60

Hanford, March 23

2 feed'rs 100 11.25

22 119 11.60

100 169 11.55

100 156 11.50

49 151 50 11.30

92 192 11.30

5 222 10.30

9 282 9.30

9 318 90 8.30

388 hogs, 4 cars, 36 consignors, \$7,488.10

McFarland, March 24

112 167 100 11.50

13 feed'rs 105 10.60

16 222 9.00

5 262 8.00

2 410 7.00

2 580 3.00

150 hogs, 1 car, 14 consignors, \$2,794.00

Totals for week: 1,450 hogs, 14 cars, 133 consignors, \$27,176.26.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 16.00¢18.00 crate poorer, 14.00¢16.00 crate.

Asparagus: 15¢22 lb.; off grades, 12½¢.

Beans: 40¢ per lb.

Bunched Vegetables: Carrots, 50¢60 per doz.; turnips, 45¢55 per doz.; beets, 50¢60 per doz.; parsley, 15¢20; radishes, 36¢ per doz. bunches.

Cabbage: 2.00¢2.55 per crate, 2 per lb. 75¢1.00 per doz.

Carrots: 1.00¢1.25 sack.

Cauliflower: 1.25¢1.50 doz.

Celery: River, fancy, mostly 2.00¢4.00 per crate; poorer, 2.00¢3.00 per crate.

San Diego, 4.00¢6.50 per crate.

Chicory: 2.25¢2.50 crate.

Cucumbers: Hothouse, fancy, 2.00¢3.00 per doz.; small, 3.50 per crate; English 2.50¢2.75.

Egg Plant: 15¢30 lb.

Endive: 40¢45 lb.

Garlic: 4¢6 per lb. for medium grades poorer quality, less.

Lettuce: Imperial Valley, iced, 4.75¢5.00 per crate; Los Angeles, 1.50¢3.00.

Mushrooms: Ordinary, 10¢30 per lb.

Olives: 5¢7 per lb.

Onions: Cold storage browns, 7.00¢9.50; white globe, 8.00¢9.00; green onions 1.50¢1.75 per box.

Parsnips: 1.75 per sack.
Peas: So., 15¢25 per lb.
Potatoes: Rivers, fancy, 1.80¢2.30; Oregon Burbanks, 1.85¢2.25; Idaho Netted Gems, 1.85¢2.25; off grades lower; Salinas, 2.25¢2.75 per cwt.
Peppers: Florida and New Mexico, Bells, 15¢25; Chilis, 5¢12 lb.
Pumpkins: 70¢1.00 per 90 lb sack.
Rhubarb: Sebastopol, 6¢8 per lb.; Bay, 7¢9 per lb.; Southern, 1.50.
Squash: Cream, 1.25 per lug; Hubbard and Banana 6¢8 lb.
Spinach: 4¢5 lb.; off grades lower.
Sprouts: 14¢15 lb.
Sweet Potatoes: 3.50¢3.90 per cwt.; Arkansas yams, 2.00¢2.15 per basket; New Mexico, 2.00¢2.15 per cwt.
Tomatoes: Mexican, repacked, 2.70¢3.25 per Los Angeles lug; off grades, 2.00¢2.50.
Turnips: 1.25¢1.50 per sack.

FRESH FRUIT
Avocados: California, 5.00¢9.00 cr. Bananas: Best Eastern and Hawaiian, 6¢8 lb.
Loquats: 20¢25 lb.
Pineapples: 6.00¢7.00 doz.
Strawberries: 5.00¢6.00 crate.

CITRUS FRUITS
Grapefruit: Cal. fancy, special pack, 3.50¢4.25; Arizona, 4.25¢4.50 box.
Lemons: Special pack, 4.75¢5.25 box; Choice, 4.00¢4.50 box; Lemonettes, 2.00¢2.25.
Oranges: Special pack, 126s-160s, fancy, 6.00¢6.50; 125s, 5.75¢6.25; 200s-216s, 4.50¢5.00.
Tangerines: 2.50¢3.50 per half orange box.

RICE
Rice Association prices:
Bag, 2.40¢2.55 f. o. b. shipping points.

BEANS
Below California Bean Growers Association shippers' prices choice cleaned:
Large Whites 6.35
Small Whites 6.50
Pinks 6.25
Mexican Reds 5.15
Red Kidney 9.00
Henderson Bush 9.25
Cranberries 8.50
Bayos 6.25
Blackeyes 6.25

HAY AND FEEDSTUFF
A. W. Scott Co. reports:
Receipts past week 1,186 tons as compared with 590 previous week. Heavy receipts, demand light. Government bids developed lower prices than during season, the main cause being competition of surrounding states reaching as far as Seattle. Export and coast shipping steady but very light. Alfalfa moving slowly but steadily. Demand from the south of the state keeps up and is diverting much that would come into this territory from Nevada. California stocks are moving more freely but generally for interior use and very little coming this way.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

	Ton
Wheat Hay, No. 1.....	17.00¢19.00
Wheat Hay, fair grade.....	14.00¢17.00
Tame Oat Hay.....	15.00¢19.00
Wild Oat Hay.....	11.00¢13.00
Alfalfa Hay.....	15.00¢18.00
Stock Hay.....	9.00¢11.00
Straw.....	Nominal
Barley, ground.....	30.00¢32.00
Barley, rolled.....	29.00¢30.00
Oats, rolled feed.....	35.00¢37.00
Bran, \$32¢\$34; Millrun.....	32.00¢34.00
Middlings.....	46.00¢48.00
Linseed Meal.....	60.00
Cocoanut Meal.....	23.00¢25.00
Alfalfa Meal.....	22.00¢23.00
Cottonseed Meal.....	52.00¢58.00
Sugar Beet Pulp.....	27.00¢29.00
Molasses, tanks, 17.00; bbls.....	25.00
Milo Maize.....	40.00¢42.00
Corn Meal and Cr. Corn.....	35.00¢39.00
Scratch Feed.....	45.00¢47.00

GRAIN
Barley: Feed, 1.30¢1.37½; shipping, 1.35¢1.45.
Wheat: Mill, 2.15¢2.25.
Red Feed Oats: 1.78¢1.80.
Corn: California yellow, 2.10¢2.20; eastern yellow, No. 2, 1.43¢1.45; No. 3, 1.25¢1.27; kafir, in bulk, 1.70¢1.75; do., No. 2, in bulk, 1.70¢1.73; white Egyptian, 2.00¢2.10; California red milo, 1.85¢1.90; do., bulk, 1.75¢1.80; eastern red, 1.80¢1.85; do., No. 2, in bulk, 1.46¢1.49.

Citrus Markets

Los Angeles, March 29, 1922.
Prices are generally satisfactory. The \$8.00 mark is occasionally touched and many sales in auctions hold around \$7.00. Shipments to date exceed 10,000 carloads, which is only about 3,000 short of last year at same date.
Lemons are not commanding so much money but the few which are being offered are taken at fair prices. The lemon situation is affected by the large supply of foreign now being offered. There are around 125,000 boxes available for sale within the next 30 days.

Shipments
Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 10,050 cars; lemons, 2,852; total, 12,902. To same date last season: Oranges, 13,046; lemons, 2,768; total, 15,814. From Central California to date this season: Oranges, 4,244; lemons, 102; total, 4,346. To same date last season: Oranges, 4,334; lemons, 120; total, 4,454. From Northern California to date this season: Oranges, 372; lemons, 8; total, 380. To same date last season: Oranges, 305; lemons, 5; total, 310.

AT THE AUCTIONS

March 24
New York: 10 Nav., 2 mixed. Nav. 6.25¢8.15; Tange. halves 3.00, Seeds. halves 2.65, Malta Bloods halves 3.15.
Boston: 10 or. Nav. 5.55¢7.60, Sweets 6.30¢7.00.
St. Louis: 5 or., 2 lem. Nav. 5.65¢6.70, lem. 4.60¢5.60.
Cleveland: 4 or., 1 lem. Nav. 5.40¢6.65, lem. 4.95¢5.60.
Philadelphia: 3 or., 1 lem. Nav. 6.60¢6.95, Sweets 6.20¢6.45.
Cincinnati: 2 Nav. 6.15¢6.35.
Pittsburg: 2 or., 1 lem. Nav. 5.25¢6.50, lem. 3.85.
March 27
New York: 36 or., 2 mixed, 4 lem. Nav. 4.45¢7.90, Seeds. 5.15¢5.65, Sweets, 4.90¢5.80, Bloods halves 3.10, St. Mikes. 5.15¢5.90, halves 2.40¢2.95, tange. 5.00¢6.35, lem. 3.85¢5.00.
Pittsburg: 7 or., 1 lem. Nav. 5.25¢6.65, lem. 4.05¢5.10.
Philadelphia: 10 or., 1 lem. Nav. 5.80

¢7.95, Val. 5.60¢6.00, Bloods 6.25¢6.90, Seeds. 5.35, Sweets 5.45¢6.25, Mikes. halves 2.65¢2.90, lem. 4.55¢5.60.
St. Louis: 5 or., 3 lem. Nav. 5.85¢7.00, lem. 2.55¢4.85.
Boston: 17 or., 1 lem. Nav. 5.85¢7.75, Bloods 6.65, Sweets 6.10¢6.50, tange. 4.30¢4.60, lem. 5.20¢5.85.
Cleveland: 2 Nav. 6.10¢6.60.

March 28
New York: 18 or., 1 lem. Nav. 4.90¢7.55, St. Mikes 2.65¢6.70, tange. halves 3.30¢3.60, lem. 4.00¢4.70.
Boston: 9 or., 1 lem. Nav. 6.10¢7.50, lem. 4.35¢4.85.
Pittsburg: 5 or., 1 lem. Nav. 5.45¢6.70, Sweets 5.65¢6.30, lem. 4.20¢4.95.
Philadelphia: 6 or., 1 lem. Nav. 5.30¢7.35, Sweets 5.30¢5.85, St. Mikes 5.50¢5.95, lem. 3.25¢4.40.

POULTRY QUERIES

(Continued from Page 373)

must be legbanded, of course, and the number on the band placed on the card. The card is divided into squares, a square for every day in the month, and a mark placed in its proper square every day the hen lays.

STRAIGHT AHEAD

J. B. Lillard, state supervisor of agricultural instruction, in News Letter writes: "George Bernard Shaw is said to be responsible for the saying, 'If you can, do; if you can't, teach.' Someone in defense of the teacher and with a thrust at the destructive critic has retorted: 'If you can, do; if you can't, criticize.'"

WEATHER REPORT

San Francisco, Cal., March 25, 1922.

	Week	Rainfall	Seas.	Norm.	Temp.
					Max. Min.
Eureka	.94	29.35	57.35	58	40
Red Bluff	.02	15.22	20.66	72	78
Sacramento	.01	12.85	16.39	68	41
San Francisco	.14	17.99	19.02	69	45
San Jose	.05	13.73	14.17	72	39
Fresno	.06	9.84	7.99	71	44
San Luis Obispo	.34	22.94	17.34	80	42
Los Angeles	.04	18.81	13.44	82	50
San Diego	.02	18.00	4.59	72	48



Every Page Has a Garden Idea

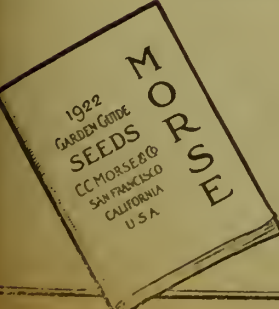
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MORSE'S TESTED SEEDS
ALFALFA CLOVERS SORGHUMS
CORN GRASSES

Vegetable, Flower and Seeds of every description
We make a specialty of Seeds for growing vegetables for canning and marketing purposes. Seeds that are specially selected, true to type, best adapted for this purpose, such as Tomato, San Jose Canner; Tomato, Re-selected Stone; Celery, Golden Self-Blanching; Spinach, etc.

Write us for prices on quantities before buying elsewhere.

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San Francisco

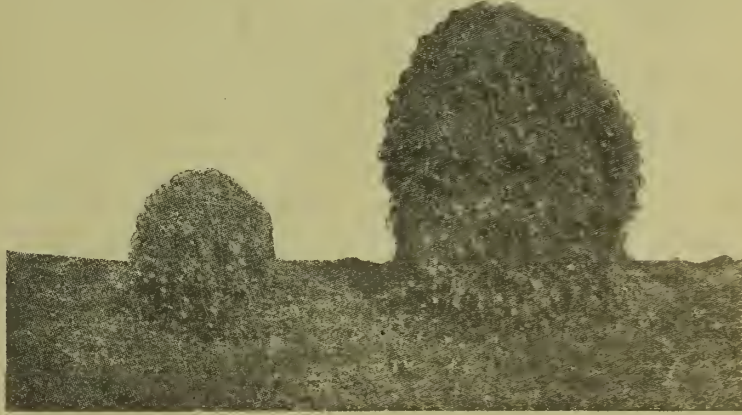


More Money Assured Per Acre

Would you pay 11 cents for hogs and underfeed them?

Would you farm valuable land, go to the expense of plowing deep, selecting good seed, and then UNDERFEED THE CROP?

1922 gives promise, by reason of heavy rainfall, of being a year of heavy hay production, and prices are good. An increase of one ton per acre means an increase of from \$20 to \$35 crop yield per acre.



Pile on left shows alfalfa from plot not treated; pile on right, alfalfa from same size plot treated with only 200 pounds of gypsum to the acre. Photograph loaned by Prof. Olson of State Experiment Station of the State of Washington.

One of the MOST IMPORTANT ELEMENTS required by alfalfa is calcium sulfate. By applying it in the form of AGRI GYPSUM you supply just the material required to feed the leaves and tender growth. Actual plot tests on alfalfa and cover crops show increased yields of from 25 to 200% by using gypsum.

Wm. Sex. Rivera, writes: "The cover crop on the land where AGRI GYPSUM was used was from 3 to 6 tons heavier per acre."

Such crops as oranges, alfalfa, potatoes, hay, truck and crops with heavy foliage require LARGE AMOUNTS OF THE ELEMENTS CONTAINED IN AGRI GYPSUM.

You can reasonably expect from 25 to 500% increase in hay production by the application of 1000 pounds of AGRI GYPSUM per acre, at such small outlay that it is an exceedingly profitable investment.

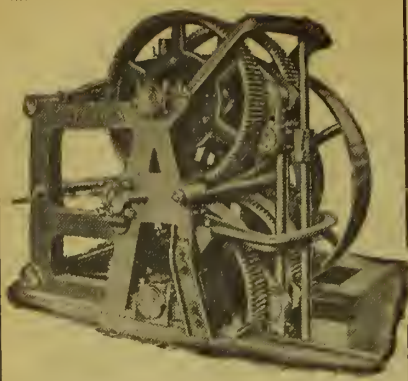
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My Name _____
Address _____
Crops _____ Acres _____



THE POMONA

Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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POMONA, CAL.
Manufacturers of the
POMONA Irrigation Gates and Valves

WE Solicit Your Order For Nursery Stock Because

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—We propagate from our own bearing tested trees.

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—We use great care in handling nursery stock.

Permit us to send you our new descriptive catalog of Fruit Tree or Ornamental Nursery Stock.

Leonard Coates
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Treat Your Soil With Toro Brand Agricultural Sulphur



Improves alkali soil, transforms latent potash and phosphates into available plant foods.

Prevents wire worms, eel-worms or nematodes, smutty grain, ants, and potato scab.

220 lbs. per acre has increased crops up to 500%. For dry dusting, use "ANCHOR" Brand Velvet Flowers of Sulphur.

For Lime Sulphur Solution, use DIAMOND "S" Brand Refined Flour Sulphur. Sold by leading dealers.

Write for circulars Nos. 6 and 8, price list and samples. State for what purpose sulphur is to be used.
SAN FRANCISCO SULPHUR CO.
624 California St. San Francisco, Cal.

BLACK LEG

100% PROTECTION FOR LIFE
from one vaccination with Cutter's Liquid or Solid Blackleg Aggressin. Absolutely safe. Cutter's Solid Aggressin Injectors work just like Blackleg Pill Injectors. If Cutter's Aggressin is unobtainable locally, write

The Cutter Laboratory
"The Laboratory that Knows How"
Berkeley (U.S. License) California

N.B.—Old Style Powder and Pill Vaccines still made for those who prefer them.

Gypsum is of Value



THE general farmer is using more fertilizer and applying more of those materials which correct unsatisfactory soil conditions than ever before. At one time Californians said that manure is "poison" to California soil. They not only said it but they were honest in the belief and proceeded to haul thousands of loads of stable manure and spread it upon sandy roadways in order to subdue the dust and make the roads passable. Even California soils have proven their need of upbuilding, and no more manure is hauled to roadways but is, most carefully saved.

If an alfalfa field which will yield say five tons of good hay, by application of fertilizer or gypsum may have its production increased by a ton or two tons, or possibly five tons, the owner is making long money if his fertilizer investment is not too great. One of the best correctives for the soil of the alfalfa field is gypsum. Some have applied 500 pounds and others a ton or more and made great increase in alfalfa production.

The heavy clay or adobe soil met with so frequently in the Western states contains large quantities of iron, aluminum and magnesium silicates. These compounds in combination produce a weak natural cement. Such soils expand on wetting and shrink on drying out, thus creating surface cracks. This is called checking. Checking is very injurious to the plants. Roots are frequently broken when the surface soil cracks. It must be borne in mind, however, that this checking in a very modified or extremely slight degree is sometimes of benefit in permitting the light, air and water to circulate freely. Add gypsum to this type of soil and a peculiar chemical action takes place. The gypsum breaks up the combination of heavy clay compounds into simple substances. This makes the soil friable and open, mellow, allowing light, air and water to circulate freely, with consequent benefit to the crop.

Sandy soils are usually made up of partially decomposed granite or rock and are very porous in nature. When gypsum is added to sandy soil it plays an important part in further decomposing the granite or rock, and thus makes the soil more compact. Granite frequently contains considerable amounts of potash, which when released by gypsum becomes immediately available to the plant.

Gypsum, the soil standardizer, thus serves a variety of purposes in adding calcium and sulphate-sulphur, also in releasing potash to the soil for plant food, and of opening up or compacting the soil to the most ideal condition. Gypsum works on all soils, no matter how extreme their condition, and tends to produce a standard and ideal soil for agricultural purposes.

Owing to its chemical action when used as fertilizer, gypsum liberates potash and phosphate from the insoluble condition they are frequently in, and at the same time supplies the vital calcium and sulphate-sulphur to all plant life. By standardizing the soil it allows the light, air and water to circulate to best advantage. This is of great assistance to the plant and is necessary not only to plant life but to the favorable bacterial life in the soil.

These bacteria are of material benefit in rendering plant food available to the plant. Soil bacteria show greatest activity in a mellow soil well supplied with organic matter.

Soil bacteria are of considerable importance in connection with plant growth. The bacteria of greatest importance to the grower are classed under the head of "decomposition bacteria" and "constructive bacteria." There are four types of "decomposition bacteria" of primary importance to growers, namely, ammonifying bacteria, nitrifying bacteria, sulphofying bacteria, denitrifying bacteria.

THE NATIVE HOME OF THE CHERIMOYA

Wilson Popenoe, agricultural explorer of the United States department of agriculture, writing from Ecuador to the Journal of Heredity, says:

"The pineapple, the mangosteen, and the cherimoya," wrote the botanist Berthold Seemann, 'are considered the finest fruits in the world. I have tasted them in those localities in which they are supposed to attain their highest perfection—the pineapple in Guayaquil, the mangosteen in the Indian Archipelago, and the cherimoya on the slopes of the Andes—and if I were called upon to act the part of a Paris I would without hesitation assign the apple to the cherimoya. Its taste, indeed, surpasses that of every other fruit, and Haenke was 'quite right when he called it the masterpiece of nature.'

"This superb fruit (Annona cherimola), well known and highly appreciated from Mexico to Chile and Argentina, as well as in a few regions of the Old World, has received in recent years the attention of North American horticulturists. The climate of Southern Florida has proved too tropical for the production of good fruit (for the tree, though a native of the tropics, grows in those regions only at considerable elevations where the climate is much cooler than on the seacoast), but in Southern California excellent cherimoyas have been grown, and it is likely that in future years fruits produced there will make their appearance in the markets of the Eastern United States.

"The situations in which the trees are most commonly found, so far as I have observed, are the slopes or sides of small ravines and the occasional bits of alluvial land which are formed in the narrow mountain valleys. The valley soils seem to be preferred by the cherimoya, and such lands also appear to produce the largest trees, nevertheless it is not rare to find scattered specimens on clay slopes of somewhat rocky character. The climate of this part of Ecuador is warm, as indicated by the elevation, yet it is not hot as it is in the coastal lowlands. Sugar cane is cultivated, although not extensively, and around the occasional huts of the natives there are orange and avocado trees, bananas, and a few food crops such as corn and yuca (Manihot utilisima). The climate is less moist than that of Loja. There is a dry season, rather severe, I imagine, which extends from May or June to October or November.

"Cherimoya trees here reach 25 feet in height, occasionally 30 feet or slightly more. Often they divide at the ground and have three or four main stems. Only a few ripe fruits were available at the time of my visit, but there was an abundance of immature ones. I was interested to see if the various types which we recognize in cultivation, accordingly as the surface is smooth or rough, were to be found upon the wild trees. They were. In the numerous specimens examined the surface was most commonly smooth, with the carpellary areas marked by raised lines, but there were also, in limited numbers, most of the other types with which we are familiar in California."

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APR 11 1922

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Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

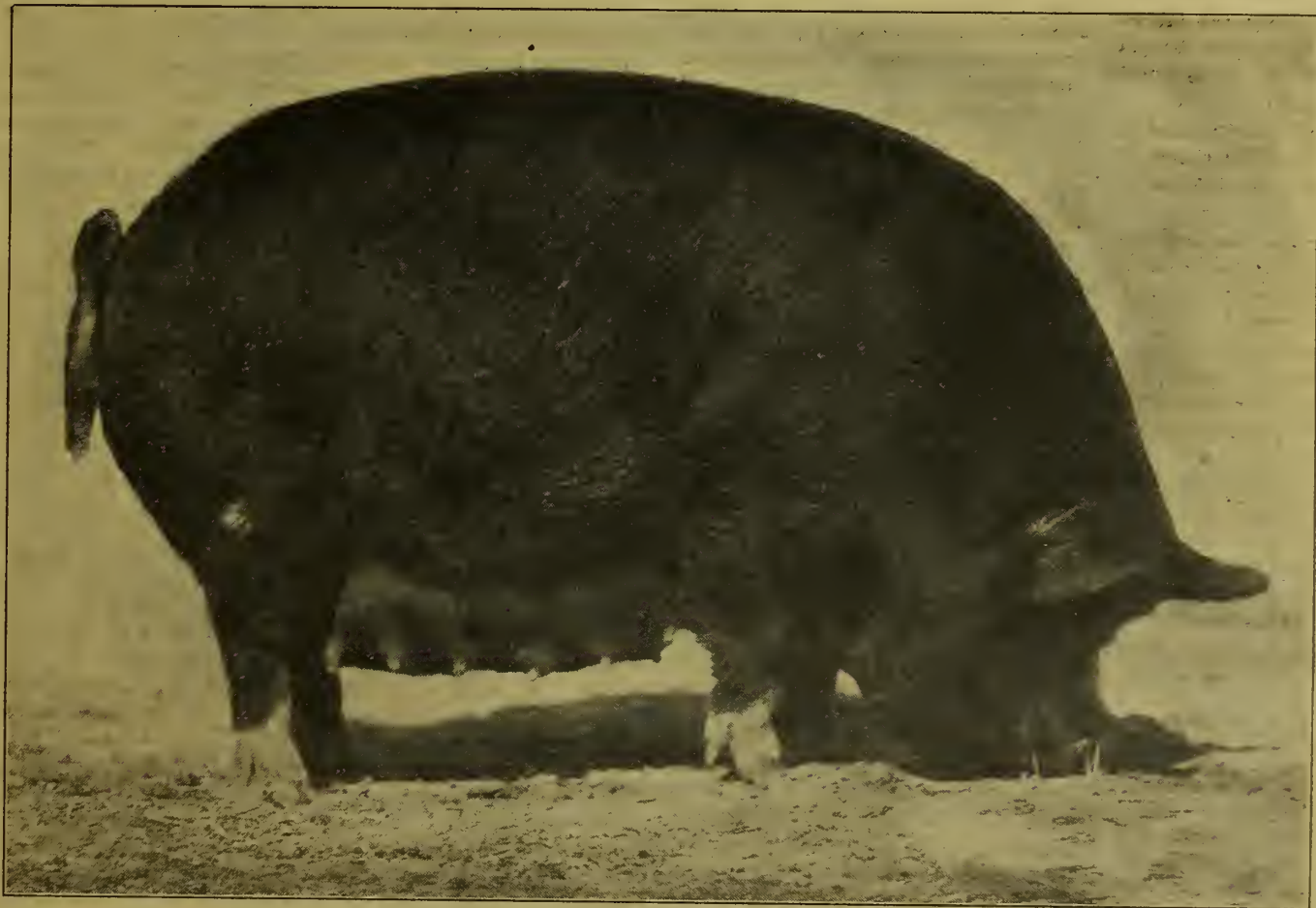
San Francisco

Vol. LVIII

April 8, 1922

No. 14

Handsome Is and Handsome Does



Hogs are picking up, in fact this one is caught in the act. As Frost would say, "She is some hawg." This is a picture of the grand champion sow at state and other fairs in California in 1920 and at other fairs since, especially at the American Berkshire Congress at Riverside, 1922, where she again took highest honors. She was raised by Humphrey. Her name is Grape Wild Rose 6th, and she is now owned by the Italian Vineyard Company. She is the type of Berkshire now rapidly coming to the front.

Agricultural News Notes of the Pacific Coast

Northern California

J. W. Myers of Colusa shipped a carload of honey to New York March 16.

The farm center hall at Knightsen, Contra Costa County, has been dedicated.

Cling peaches were planted on 873 acres in Sutter County during February.

Shipments of beef cattle are being made from Surprise Valley, Modoc County.

Hunt Bros.' cannery at Hayward, Alameda County, has started on spinach.

Butte County supervisors are discussing hiring an official coyote hunter and trapper.

Work will soon start on the plant of the California Prune and Apricot Growers at Colusa.

Reseeding and protection of the ranges in Shasta County are planned by the farm bureau.

Large quantities of squirrel poison are being spread in Tehama County by farm bureau members.

The Rice Growers' Association recently made sale of 29,000 bags of rice at \$2.60 per hundred for No. 1 paddy.

Santa Clara County's Blossom Festival at Saratoga was opened last Saturday with address by Governor Stephens.

Reported offer of \$75 a ton for all wine grapes of the Cloverdale district has been turned down by the growers' association.

A migratory school is maintained in Orwood district of the delta region of Contra Costa County for children of asparagus pickers.

A. E. Bottel is the new horticultural commissioner for Riverside County. Mr. Bottel was inspector in Los Angeles County for five years.

Glenn County farm bureau meetings: Directors, April 8; Codora, 10; Orland, 12; Jacinto, 14; Willows, 17; Capay, 19; Plaza, 21; Grapevine, 26; Glenn, 28.

Construction on the road into Lassen national park from the Red Bluff-Susanville highway will probably not start till June 1 because of heavy snowfalls.

A large shipment of No. 1 paddy of the 1921 crop was recently sent from Yuba City. Sale was made outside the association but at \$2.60, the price secured through the association's activities.

Farm home department meetings in Tehama County: Antelope, 10 and 11; Corning, 12; Oak Park, 13; Henleyville, 14; Red Bank, 24; Bowman, 25; Squaw Hill, 26; Flounoy, 27; Red Bank-Reeds Creek, 28.

Grazing along Squaw Creek in the Shasta national forest will be cut 20 per cent because of overstocking last year. Supervisor Hall talked over the situation with stockmen at a meeting in Redding last week.

A survey of the poultry industry of Alameda County is planned by the farm bureau and the Hayward chamber of commerce with the idea of securing an outlet for surplus in making of salad dressings, potted chicken, etc.

Tehama County farm center meetings: Johnson-Reeds Creek, April 10; Dairyville, 12; Antelope, 13; Oak Park, 14; El Camino, 17; Red Bank, 19; Bend, 21; Richfield, 24; Stanford, 26; Liberal, 27; Flounoy, 28; Bowman, 29.

Central California

The San Benito-Santa Clara Cow Testing Association has 32 members, owning 1200 cows.

Poultry raisers of Inyokern have formed a cooperative association for purchase of supplies and marketing.

Twenty-five cities of the San Joaquin Valley have entered floats in the Raisin Day parade at Fresno, April 27.

Because of the cold season spinach packing at the Hume cannery at Turlock will not start till the middle of the month.

F. B. Roberts of Madera has been chosen by olive growers of that section to represent them at the Fresno organization meeting.

A. J. Flebut of the United States department of agriculture is making plans for experiments in control of citrus thrips with nico dust.

The Inyokern farm center has built a new road into Inyokern from the west, which will shorten the old route six miles. The new road is 22 miles long.

Contracts have been made for growing of 150 acres of cucumbers at Turlock. The Turlock Merchants & Growers Association will undertake the brining.

Cantaloupe acreage at Turlock this year is expected to be about 3,000, somewhat less than last year. Several growers will change to watermelons this season.

San Jose chamber of commerce has presented petition to the state highway commission that the Skyline boulevard be constructed as originally surveyed along the crest.

The Le Grand Elevator Association, one of the cooperative organizations of farmers in Merced County, is making arrangements for its fourth consecutive year of handling grain in bulk.

It is hoped that a state olive growers association will be formed by mid-summer so that it may handle this year's crop. Organization meetings are planned in all olive growing sections of the state.

Cotton gin built at Shafter, Kern County, by the cotton raisers association has been ordered sold to satisfy creditors. The growers organized in 1920 and were caught by the slump in the cotton market.

Additional payments of 3 cents on Muscats and Thompsons, 2 cents on Malagas and Feherzagos and 3 to 4 cents on dipped and bleached Thompsons to growers of Sun-Maid raisins distributed last Saturday.

Farm center meetings in Kern County: Delano, April 10; Wasco, 12; Rio Bravo, 13; Edison-Fairfax, 14; Mountain View, 17; Pond, 19; Inyokern, 20; Rosedale, 21; Shafter, 24; Arvin, 28; directors, Bakersfield, 29.

The federal power commission has given permission to the San Joaquin Light & Power Corporation to build hydraulic power plant on north and west forks of Kings River. 250,000 horsepower is to be developed at expenditure of \$50,000,000.

A horse and mule department has been organized in the Kings County farm bureau. The program includes a stallion and jack survey of the county, staging a horse and mule show at the county fair with educational features, the establishment of a horse and mule exchange also being proposed.

Southern California

Apricot growers of Ventura County will meet at Santa Paula, April 15.

Imperial Valley Iceberg lettuce sold last week in New York at \$7.50 per crate.

Imperial Valley reports activity by livestock buyers, an unusually large number now operating.

Imperial County fair directors have decided that no games of chance will be permitted on the fair grounds.

Victor Valley, San Bernardino County, is rejoicing in a season's rainfall of 15 inches. The average is six inches.

The Escondido, San Diego County, Citrus Union expects to ship 100 cars of lemons and 40 of oranges this season.

Mass meetings will be held in Los Angeles County through April and May to discuss the proposed state water power act.

Highway police are enforcing the 20,000-pound truck loading regulation over the Rincon causeway between Ventura and Santa Barbara.

County Bee Inspector Hanson of San Diego reports apiaries in healthy condition, only a few mild cases of European foul brood being found.

The first shipment of mohair, 26 bales, from Escondido Valley of San Diego County, was sent out by the Red Ribbon Ranch last week.

Manager Churchill says the Lima Bean Growers Association is retaining a quantity of limas in warehouse to be used for reseeding in case of late rains.

Alfalfa growers of Imperial Valley are now forming a marketing organization. Warehouses will be provided so that hay may be stored for favorable marketing.

The Auto Club of Southern California is calling on municipalities, boy scouts and school children to aid in keeping roads clean of broken glass and other "puncture material."

The Orange County Citrus Exchange for its ten months shipping season ending October, 1921, sent out 3539 carloads, 2530 Valencia's, 839 lemons, 140 Navels, 30 miscellaneous; returns f. o. b. California, \$5,973,165.04.

Imperial Valley date growers are planning to ship their own dates this season. At a meeting in Brawley, March 31, the methods of the Coachella Valley association were reviewed by the committee appointed to make investigation.

The state railroad commission has denied applications of two large transport companies to put on a line of motor trucks over the coast route between San Francisco and Los Angeles because "the present railroad, boat, and stage facilities are ample."

Farm bureau meetings in Los Angeles County at West Covina, April 10; Roscoe, 11; La Canada, 13; Covina, 14; Pasadena, 18; Rivera, 19; Hansen Heights, 21; Baldwin Park, 25; Owensmouth, 27; Pomona, all day at Ganesha Park, 28; Downey, May 1.

Horticultural Commissioner Ryan of Los Angeles County says that 1369 cars of oranges, chiefly Navels, have been inspected and shipped from January 21 to March 25 by the 80 packing houses in Los Angeles County. Upwards of 300 cars of Navels remain to be shipped during April. Thirty-one houses are now operating on Navels.

The Coast and General

Arizona livestock is wintering well; pastures benefited by recent snows.

Rains have delayed planting in Mississippi, Georgia, Tennessee and Virginia.

Portland, Oregon, stockyards report half their hog shipments come from South Dakota.

Vegetable growers of Idaho will this year market through the California Vegetable Union.

A unit of the Pacific Cooperative Poultry Producers has been organized at Eugene, Oregon.

The Colorado River Commission has been holding hearings in Salt Lake City the past week.

Plantings of head lettuce have been made by a number of farmers of Washington County, Idaho.

There will be a feeders meet and round-up at the experiment station at Union, Oregon, April 13-14.

It is estimated that 60,000 acres in Salt River Valley, Arizona, will be planted to cotton this season.

Practically all of the remaining 1921 crop of hops in the Dallas district of Oregon has been shipped to England.

The Ninth National Foreign Trade Convention will be held in Philadelphia, May 10-12. "Greater prosperity through greater foreign trade" is the slogan of the convention.

Farmers of Maricopa County, Arizona, will increase plantings of cotton, wheat, hay and truck crops over last season's. Total acreage planted in county is estimated at 300,000.

Colorado has an additional grade for potatoes to be known as Colorado Grade Standard. Two-thirds of the potatoes shall meet requirements of U. S. Grade No. 1, one-third, same as to size but quality as in No. 2.

Reports to the International Institute of Agriculture show practically same area sown to winter grains as last year in Belgium, Bulgaria, Spain, Finland, France, Poland, Roumania, Canada, United States, British India, Tunis and Algeria.

Stocks of wheat in country mills and elevators, March 1, are estimated at 72,564,000 bushels by the United States department of agriculture. This is the smallest quantity reported to the department for that date during the past ten years with the exception of 1918.

Stocks of potatoes in the hands of farmers and local dealers March 1 in the 15 leading potato states are estimated at 90,946,000 bushels by the United States department of agriculture. Of this quantity 73,486,000 bushels were held by farmers and 17,460,000 bushels by local dealers.

Homer A. Harris, who has had charge of the federal government's marketing bureau at Idaho Falls for several months, will close the office and go to Los Angeles, where he takes a similar position with a larger territory. It is expected the office at Idaho Falls will be reopened next fall.

What is claimed to be the first carload shipment of eggs from southwestern Idaho was made March 7 and 8, when two full carloads were sent out by the Pacific Cooperative Poultry Producers' Association. The shipments totaled 33,180 dozen eggs. One carload went to Butte and the other to Wallace, Idaho.

STOP right there, Professor! You say the success or failure of the tractor depends upon the operator? What is a good operator?" This question was asked by a worried looking young man who is responsible for the management of a large ranch in Northern California. He had asked a real question.

"You know the answer as well as I. There is little doubt but what the best operator for you to have for the many tractors on your large ranch is a man who is absolutely dependable, who will follow directions and not require repeated orders to do or not to do certain things about the machine, a man who is not a 'self confessed' master mechanic, but rather one who has had a good training in the use of farming tools and knows when he is doing a good job of plowing or disking.

"Of course, he should know enough about the machine to start the motor and do such necessary mechanical jobs as locating and remedying a missing spark plug, be able to adjust a carbureter, clutch or fan belt properly, but first and foremost he should be impressed with the fact that his job is to keep her rolling. I say this mainly because I know that you have a good mechanic and well equipped machine shop on your ranch. This mechanic is supposed to keep in touch with the tractors and other machines and be able to detect by inspection or listening when they are not working properly. He is also responsible for the repair work."

The other day a man who has always been enthusiastic about the use of tractors came into my office and placed a circular on my desk. It advertised the sale of a considerable portion of his high priced power farming equipment. "What's the matter?" His reply was the same old story. "It's like hiring a tramp to care for a thoroughbred race horse and expect him to win every race. We have used high priced equipment since our training in other engineering lines has

The Tractor's Better Half

By L. J. Fletcher, Division of Agricultural Engineering, University of California

shown that it pays to use the best of construction, but we are almost disheartened by the lazy, careless, brainless class of operators upon whom we must depend. When we do find a good man he will operate the machine for one, or maybe two seasons, do a remarkably large amount of work with few delays and low expense, and then he graduates into a service man or tractor or automobile repair mechanic. One year we hired factory men and paid them high wages. That year our repair bills were fairly low, but we could not make the men see that they were hired to operate and not to repair the tractors. Those men would not think of going on the job without a complete set of tools, and toward the end of the season I almost believed that I saw tractors start to come apart of their own accord when one of these men came near it."

The tractor pays its owner when it is working. Large ranch companies tried various schemes to prevent the expensive loss of time, for when a tractor is not running there is more than one expense piling up; first, the work is not being done, second, it generally means that money must be spent on the tractor, and, third, if a special mechanic is employed the tractor operator is not kept busy. Several companies have been successful with the bonus system. They have found that where the tractor will run for seven hours of the day it will "break even." The extra one, two or three hours of work per shift is where the profit is made. For that reason operators are paid double, or even triple, wages for all operation over seven hours. Another company pays operators on a double scale, one

rate for the time that the tractor is actually running and half this when they are repairing the tractor or it is laid up for repairs. Some of the large ranchers are trying out the use of a number of smaller machines in an attempt to get away from the serious delay of rush work when one large machine is laid up. One rather keen farm manager has adopted the principle of pushing the tractors through for one season's work, giving them careful attention as far as lubrication and care and operation are concerned, but by no means putting them through the often disastrous general overhauling. At the end of the year of 1,000 to 2,000 hours of work the machine is cleaned up and turned in on a new one. If this were generally practiced, it would make the problem of the used tractor even more serious than it is now with the dealer.

But how about the smaller ranches where the owner operates his own machine and there is but one tractor on the ranch? By far the majority of tractors in California are operated under these conditions, and if the ranch justifies the purchase of a tractor, and where the proper size and type of tractor and implements are used, they are proving almost universally a success. Studies made by the government in many of the Middle Western states where tractors are almost universally operated by owners show that the average annual cost of repairs does not exceed three per cent of the first cost of the machine, and this average is not on the first year's use, but extends through an average of 38 months. No one but an owner or one financially interested will give the tractor the kind of care

it really deserves. Most examples of the greatest economy of operation have brought out the following facts: First, the owner has carefully studied the instruction book or manual which came with the tractor and understands quite well the operation or duties of the various parts of the machine. He has no secret formula for his low operating cost except that he has followed directions and used common sense. He has changed the oil as often as required, been careful that all lubricants were clean and properly applied, kept all parts of the machine in proper adjustment, did not overload, jerk, or otherwise mistreat the tractor, and perhaps even went so far as to provide a waterproof shed or building for the tractor during the wet weather.

During this period of the nation's readjustment certain interests not entirely friendly to the use of the tractor are pointing out that it has had its day and enjoyed its spree when prices were high but must now give way to the old, time proven methods. The more or less general belief that there is a large difference in the construction, materials and resulting efficiency in various tractors of the same make and model is entirely unfounded. A rather careful study of the weaknesses of a number of the later tractors that have been put on the market has shown that these same weaknesses occur in many tractors of this design, but that there is something peculiar about one individual machine which makes it a sort of super tractor while many others made in the same factory at the same time are destined to be failures is not a fact.

In a comparatively short time anyone interested can find cases where all the more commonly sold tractors in California are proving a success from every standpoint. It cannot be proved that the machine is the variable, and it can be shown that the operator is the variable. For that reason we can be reasonably sure that as tractor operators improve in efficiency the use of the tractor will become more and more general.

The Alfalfa Catechism

By G. W. Hendry, University Farm

AT what season should alfalfa be planted?

A. Plant during February or March on land which has been fall or winter plowed and finely prepared just prior to planting. The mild cool weather of early spring with an occasional shower is the most favorable season to start alfalfa.

Q. Does fall planting give as good results as spring planting?

A. It seldom does in the north and the stand is generally damaged by weeds, frost or standing water. Last season (1921) February planted alfalfa at Davis gave four and one-half tons of clean hay per acre in three cuttings, also a light early clipping which contained some weeds.

Q. Do you recommend the use of nurse crops for alfalfa plantings in California?

A. Not under average conditions. The only situations in which they are recommended are those in which killing frosts occur soon after planting.

Q. How do you prepare the land for planting?

A. As fine and deep as possible, well settled, with moisture right at the surface. To accomplish this fall or winter plow deep, leave rough exposed to rain and frost, and harrow to a finely pulverized seed bed in February or March. Spring plowing just before planting is not so good and should be followed by disking, rolling, harrowing and floating to settle and pulverize.

Q. How late in the spring may alfalfa be planted?

A. Plantings after May 15 are often damaged by hot weather and drying and caking of the soil. June plantings at Davis have invariably given poor stands. It is necessary to irrigate to keep alive and the soil crust resulting from irrigation is injurious to the stand.

Q. How late in the fall may alfalfa be planted?

A. Alfalfa may be planted as late as December 1 and we have obtained a fair stand at Davis from January

plantings, but for good results planting should not be attempted after November 1 and then only on land which has been summer fallowed. Fall planting in the south is much more satisfactory than in the north of California.

Q. How much seed should be planted per acre?

A. If the seed is good and the soil moist and finely prepared 15 pounds drilled is about right. If you broadcast use 25 pounds, and if the land is cloddy or dry save your seed and plant it right next season. One pound of alfalfa seed per acre (220,000 seeds) means six seeds per square foot, ten pounds 60 seeds per square foot and 15 pounds 90 seeds per square foot. If you fail with 15 pounds of seed you would do no better with 40.

Q. How should alfalfa be planted and managed in the Imperial Valley?

A. In that section it is necessary to irrigate first and then prepare a seed

bed by plowing and harrowing. The seed should be planted from October to November. Irrigations after planting should be delayed until after the third or fourth leaf stage in order to avoid covering the seedlings with sediment. Two irrigations should be given between cuttings. On account of the long season five to eight cuttings may be obtained. Winter renovation is especially recommended in the Imperial Valley to break up silt deposits.

Q. How can alfalfa seed be tested?

A. The best way is to send a two ounce sample to Seed Testing Laboratory, State Department of Agriculture, Sacramento, and ask for a germination and purity test. This is done without charge, and by sending in several samples obtained from different dealers you can find which is the best and cleanest and protect yourself against planting dodder or "hard" seed.

Q. Is there much poor alfalfa seed on the market?

A. Yes, and you cannot always dis-

(Continued on Page 382.)

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R. M. Teague, Pres. and Manager
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Saturday, April 8, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fall to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Hogs are picking up. The market is receiving them at a price which permits the grower to pay for their feed and have a bit of profit left. That is possible if the right type of hog is raised, one which will turn the minimum of feed into the maximum of flesh. An ideal is offered in the illustration on the cover.

* * *

There is now a National Retailers Association. The members of this association have become somewhat alarmed because of retailers being charged with demanding undue profits in these times of reconstruction. We believe this charge is not true to the extent to which it was a few months ago. The butcher, for instance, was quick to put the reconstruction price on livestock as he bought it from the farmer but desperately slow in scaling his price to the consumer. This resulted in injustice to both farmer and consumer and ultimately in reduced consumption. The high price sometimes maintained resulted in an order going past the home store-

keeper to other shrewd merchants who appreciated the conditions of the times. The Cultivator has had much of sympathy for the small town merchant. We believe so far as possible one's home merchant should supply the needs of the farm. If he will be content with a reasonable profit the farmer should patronize him. The merchant will then support the schools, the churches, the clubs and other institutions and make a more attractive home center.

VALUABLE REPORT

Numbers 11 and 12 of Vol. X of Monthly Bulletin of the California Department of Agriculture is invaluable to every one who wishes to be informed as to agricultural California. It is a book of over 200 pages and has Director Hecke's annual report, likewise that of the head of every bureau or division of the department which is becoming an institution of which every Californian is proud. We presume any citizen of California may secure a copy by writing Department of Agriculture, 11th and K Streets, Sacramento.

MORE ORCHARD HEATERS

The January freeze proved several things and one in particular—"orchard heating pays." The tall stack with "perfect combustion" was a bitter disappointment. It delivers the heat to the sky and not to the orchard—or did this year. Atmospheric conditions change fearfully and every "cold spell" is different. But the heater which will deliver its heat lower must come back.

All the lessons of frost fighting are not yet learned. Investigation is bringing them out, but in protected blocks—where growers cooperated—a 98 per cent delivery of fruit is secured whereas nearby orchards with similar conditions show a 30 per cent delivery.

GOOD READING

The editorial department sometimes grumbles because of the encroachment of advertising. Even occasionally a subscriber will write in and voice complaint because of the proportion of reading matter to advertising in a certain issue being below normal. But this complaint was far more frequent some years ago than it is today. We believe this is largely due to the improvement in advertising "copy." Some of the best artists and some of the best writers of the land have been secured to present the merits of advertised articles. These men have made a thorough study of their work and have learned the general principles such as truthfulness, attractiveness, illustrations, general information and optimism.

Lest our readers may possibly feel the need of more reading matter we are going to suggest that this issue and the next and even the following afford the opportunity of securing a line of wonderfully helpful information through the advertising columns. For instance, take the ad (we may add that the word ad is short for advertisement, and note that it is a word and not an abbreviation) on page 390. It touches upon "Prunes for the health that's in them" and the suggestion that they are good for Monday, Tuesday and on till Sunday. Then this helpful suggestion:

"Prunes are a natural corrective. Nature has seen to that. Moreover, these natural sweetmeats can be pre-

pared in so many ways that there is always a new dish to tempt your table-folk."

Then bear in mind it is the California farmer who is giving to other farmers through the Cultivator valuable information. There is no section in the world where farmers are spending hundreds of thousands of dollars for advertising their products as in California.

Then the little girl on the opposite page with her alphabet blocks a yard high is passing on to the 40,000 homes into which the Cultivator goes, a most valuable suggestion as to the height of the sink her mama should have. There are a little over two dozen words in that full page advertisement, but a lesson invaluable is conveyed. The height of a sink makes a world of difference to the tired back of one who is working over it much of every day. We know of a home in which only a week or two ago a material change in plumbing, costing over a hundred dollars, was made because for years a sink altogether too low had caused backache and even heartache. Because of the knowledge we have of that incident we would suggest that in determining on plumbing installation, the tallness or otherwise of the one who will spend much of her life before the sink, be taken into consideration. But that is not the only helpful suggestion in that advertisement. Study it.

In another ad is a statement that in 1910 "we paid \$33.90 for a certain size of tire. Today, for a vastly better tire of the same type, you pay \$10.95." Therein is both economy and optimism. Then there are statements that "your battery must have proper care," that "an automobile may be faithful, powerful and enduring," that a tractor may be "automatically lubricated," and again some of the best lessons are obtained from the ads appearing in the livestock department, "the bull is half the herd"—possibly the better half, and many a one is offered for sale. There are records of production and records of winnings which should inspire every livestock breeder to most careful discrimination in making purchases for his own herd. Advertisements are inspiring and make most profitable reading for the farmer.

STEERING FROM POLITICS

A Redlands subscriber writes: "I have been taking and paying for the Cultivator for several years. You no doubt are operating this paper for profit first and for the general good of the rural population second. You are steering pretty effectually from political questions. I do not see you taking much of a stand against single tax or the proposed amendment authorizing the machine to start on the issue of a five hundred million dollar bond issue to ostensibly buy up most or many of the public utilities of the state. The King bill got no objection from your paper as I remember. We need some reductions in taxes rather than continual increases."

As to "operating for profit first and general good of the rural population second" will say that the Cultivator has a reasonably good hunch that unless it hews fairly close to the line of "general good" the "profit" will be materially like the core of the small boy's apple—"There won't be no core." To the best of our judgment the general good will come by standing squarely and emphatically against the single tax, and the single tax has been a proposition before voters of California as regularly as the biennium comes around. It was before the voters at the general election in No-

vember, 1920. At that time a single taxer having complaint of our attitude opposing the single tax wrote us an amongst his reasons for upholding the single tax was this: "Land was not produced by man, it was created by God. It was not made for certain people but for the human race to make a living from." To this we replied on the editorial page of October 30, 1920, as follows:

"As to the Creator we grant the claim of our subscriber, but we also recall that the Sweet Singer of Israel at one time remarked regarding the man who fears the Lord: 'His seed shall inherit the earth.' Inheritance has been passed on from father to son ever since that song was sung and to begin today to declare that inheritance invalid, to destroy our love of our own homes because of a claim that all the earth should be possessed in common appeals to us as not only unwise but unpatriotic. We believe the strongest incentive to love of our country comes from the fact that our country stands for the protection, the very preservation of our home life. The present tendency in this state is toward creating a greater number of small home farms. The truest American citizenship is developed in such homes."

"The farming lands already have great enough burden to bear without taking the entire burden of taxation. The census has shown the drift to the cities (where most of the person's property is possessed), to be increasing every decade. Why drive a people into the same effort to secure more stocks or bonds or personal property wealth?"

The Cultivator is just as emphatic as ever as to the awful injustice which the farmer will suffer if the single tax is foisted upon him. We will work and vote to the end that the single tax measure be defeated.

As to California's Water and Power Act we will work and vote for it. The farmers of the state, so far as the have taken action or passed resolutions, have favored it because they see in it the retaining for the people of their own power at cost. Hydroelectric companies, which have hopes of their ability to secure these great privileges for personal profit, have promised investors in their bonds a preferred stock even above 8 per cent return on money invested. We can see no justice in burdening the farmers with high rates for the use of power to lift water to irrigate their lands in order to pay high interest rates to investors in hydroelectric securities; neither to pay high salaries to a very few executive officers. The state and municipalities and even our cooperative marketing organization have succeeded in hiring the best of executives at lower salaries than are often paid by the utility corporations. In other words, the five hundred million dollar bond complained of by our Redlands subscriber can be floated at a vastly lower rate of interest by us the people of California, than it can be by corporations. The water and the power are our own. Let us add them to the lands which we also own. The most rapidly growing city in the world today affords proof of the value to the people of retaining possession of their own. As to buying public utilities already established we hope it will not be necessary. It will not be if the corporations can deliver the goods at a reasonable price. If, however, the state can secure better results for less money we can see no valid reason why the people should not take charge and reduce distribution costs. It has been done in Ontario, Canada. It has been done in the city of Los Angeles.

The King bill got no objection from this paper. It did get fullest support simply on the ground that the farmer has always borne the burden of taxation. The King bill provided that the burden of taxation should not be returned to the farms.

The Central Livestock Market

THE Central Marketing Plan carried out in the livestock and agricultural sections of the United States, except in California, and as now proposed for Los Angeles means:

Facilities

Modern pens and buildings with facilities for feeding, resting, weighing, sorting and otherwise caring for and handling meat food animals, also horses and mules. The plant should be sufficient to provide a place where at any time a reasonable quantity of livestock may be housed and yarded while awaiting sale or while stopping in transit for feed and rest; also to provide facilities for branding, dipping and dehorning of cattle.

The Market

The place where the buyer and seller may meet instead of traveling around the country searching for what both want. The place where a cash market is maintained every business day in the year for the buying and selling of all kinds of food animals under competitive bidding from the greatest number of buyers. The place to work out plans for better grading of livestock generally, to improve the grades and quality and increase quantity by cooperation between producer, packer and federal, state and county representatives.

Marketing

The purchase and sale of food animals may be in any one of three ways: by the owner, cooperative institution, or so-called commission firm. The choice is entirely with the owner.

Humane Handling

One of the principal features of the market is to compel humane handling of food animals to avoid bruises and other injurious things which result in loss of meat food product.

Railroad Facilities

To provide an organization to specialize on railroad rates and service, and working for better loading and unloading facilities, to avoid bruises and other damaging things connected with the marketing of livestock.

The fat hog auction has saved California swine men. The cattlemen have faced serious difficulties and until recently unsatisfactory market conditions. California has no large centralized market. The packer still goes to the ranch, which is satisfactory to large cattlemen but often means ruin to the business of the smaller producer. The chamber of commerce of Los Angeles is acting to secure a centralized market. Its action should result in advantage to the cattlemen. Its committee reports:

The Livestock Exchange

In connection with all livestock markets of any magnitude the so-called livestock exchange, consisting of traders and those immediately identified with the marketing feature of the exchange, makes rules and regulations for the orderly buying and selling and regulations for the handling of livestock at the market. The members of the exchange are in direct contact with the daily receipts of livestock and prices prevailing at the principal central markets of the country, and not only stand ready to serve the local buyer or seller but to execute orders for out-of-town buyers.

This direct contact with out-of-town markets furnishes a basis of value, and if the shipper does not desire to sell to a local buyer he knows what his stock is worth on other markets and may go on to such markets without undue penalty.

(The Exchange supporters can certainly take no exceptions to the foregoing two paragraphs. Possibly our readers may not, for it is a very fair statement of what an exchange ought to be. But the abuses which have crept into the great grain and other exchanges have resulted in congressional action—not yet entirely satisfactory—and the application of such epithets as "greatest gambling institution on earth." If, however, an exchange will perform its legitimate functions, welcome.—Ed.).

Federal Supervision

The market will be conducted under the supervision of the department of agriculture and operated under the provisions of the so-called stockyards and packing house act of 1921, which requires the licensing of all such markets, and also the buyers, for packing plants engaged in interstate commerce. All rates and charges of the marketing institution must be published and filed with the department of agriculture. All charges for services rendered must be kept in

accordance with prescribed methods and must be kept open for federal inspection. The act forbids unfair, unjustly discriminatory or deceptive practices or unreasonable preferences or advantage to any person or locality, also the transfer or exchange between packers of livestock purchases, or doing anything that will monopolize or control prices, etc.

Sources of Income

There are two principal sources of income: So-called yardage charges and sale of feed. The yardage charges cover all services in connection with yarding, weighing and delivery and are assessed only in case of sale. The charge is paid by the seller. No charge is made for trying the market or for feed and rest of transit shipments. The charge for feed covers also the service of feeding and watering at any time of the day or night.

Packing Plants

Within 25 miles of Los Angeles there are 33 slaughtering plants operating under federal and city inspection. Extend the line another 50 to 100 miles and we find many other plants of a similar character. The total number of animals slaughtered annually within the 25 mile circle is: Cattle and calves, 260,000; hogs, 270,000; sheep and lambs, 434,000 (almost 1,000,000 head—about three times the slaughter at Denver). An additional 200,000 animals are slaughtered within the larger circle.

The Supply

California supplies 40 to 45 per cent of the cattle and calves, 10 to 25 per cent of the hogs, and 50 per cent of the sheep. The remainder is obtained as follows: Each plant having a corps of buyers traveling the country as far north as Yellowstone Park, east to the Rocky Mountains and the Texas state line. Practically all of the present hog supply is now coming from western Nebraska and the panhandle

of Texas. A large part of the cattle supply comes from eastern central markets, and it is not unusual for the Idaho, Utah and Nevada producer to ship cattle to Denver, to be purchased there by California slaughterers.

Without attempting to estimate the loss of meat food by shrinkage, the freight bill for the unnecessary ride of more than 1200 miles from home to Denver and thence to California, as against, in many cases, the lesser distance to California, is an item of serious waste. Strange as it may seem, this thing occurs at the very time the California packers have an army of buyers in the section from which the movement first takes place.

Outside of the amount purchased on eastern central market, all purchases are made by a ranch to ranch canvass by each packer. This is an expensive process at the best, with the result that the packer selects the large producer where the greatest number may be had.

It costs just as much for railroad fare, hotel bill and wages to spend a day or two in buying 30 cattle as it costs to buy 300 cattle, and it takes about as much time to go over and cut out 30 cattle from a herd of 200 as it does to buy 300 already graded on the big ranch. That is the trouble today with the small rancher—he has not a chance against his larger neighbor. If he had a market he would either deliver to the market by truck and take home a feeder, or a country buyer would purchase a few head from each rancher and ship a carload to market.

The Hog Situation

The hog situation is even more serious. We have already observed that 75 to 90 per cent of the present supply comes from east of the Rockies and bought largely through organized markets. It is a matter of common knowledge that today pigs are being killed in California because of the lack of a home market. A substantial part of the supply of hog product is now being shipped into California from the East for processing.

(Continued on Page 393.)

Requirements for the Rabbit Business

By W. D. White

The rabbit business requires—the same as any other business—Grit, gumption and Grace:

Grit to stick to it, regular daily work; gumption to use for yourself the best of what you see or read; Grace to bear some backsets, for it has its ups and downs.

Have good hutches in as good a location as you can.

Get good foundation stock from reliable breeder.

Have good utensils and keep them clean.

Keep stock clean, out of hot sun or drafts and dry.

Follow line breeding and use only healthy stock.

Keep your records full and complete. When you sell buyers of stock want to know what is what and who is who.

Use only good and proper feeds; anything else works harm. Use your eyes and nose when buying.

Start in small way and increase as business demands.

Put a plain truthful ad in a re-

liable paper. Keep it there; you can sell all the good stock you can raise.

An itemized statement for 1921 from a rabbit raiser who works during the day and cares for his stock nights and mornings shows that he made

\$331.73 profit from his backyard proposition in rabbits during the year. Rabbit raising pays big dividends to him or her who works at it in the right way with good stock, given good care.

CHART OF RABBITS AND THEIR RESPECTIVE QUALITIES

	Flemish—Steel Gray.	Gray Giant.	Belgian.	New Zealand—Red and White.	Himalayan.	Polish.	Angora.	Dutch.	Lop.	English.	Blue.	Silver.	Champagne De Argents.
MEAT { Grain	MF	M	F	F	F	F	F	F	F	F	F	F	F
Color	D	D	MD	W	W	W	W	W	W	W	W	W	W
Lbs. at Maturity.....	13-15	14-16	8	8-10	4	3	6	5	10		3-10	7-9	6-8
Mos. to Maturity....	9-15	10-15	8	8	5-7	5-7	8	6-8	6-8		8	8	9
Quality Fur.....	Fr	Fr	G	E	E	E	G	G	Fr		E	E	E
Use	G	G	Fr	G	Fr	Fr	Fr	Fr	G		G	G	Fr
Demand for Stock..	Gen	Gen	Fr	G	Fr	Fr	Fr	Fr	Fr		G	G	Fr
Fancy.....	L	L	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Commercial.....	Y	Y	L	Y	L						Y		

Explanation:

MF, medium fine; F, fine; D, dark; M, medium; W, white; G, good; Fr, fair; E, extra; L, limited extent; Gen, general; Y, yes.

Veteran Goodyear users tell us that our tires today give more than twice the mileage they did ten years ago.



The average decrease in the price of Goodyear Tires since the year 1910 is more than sixty per cent.

QUALITY WAS NEVER SO HIGH PRICES WERE NEVER SO LOW

It is a favorite practice nowadays to refer more or less sagely to the good values of "before the war."

So far as tires are concerned, any such reference is an illusion.

The plain fact is, pre-war tire values were only a pale shadow alongside those of today.

Every tire in the Goodyear line proves this to be true.

If you are a veteran Goodyear user you have probably noticed that our tires today give more than twice the mileage they did ten years ago.

If you have compared the prices of then and now you have seen that

present Goodyear prices are less than half of what they were.

Just to make this clear, consider our 30 x 3½-inch Cross-Rib clincher.

In 1910, for example, you paid \$33.90 for this size tire.

Today, for a vastly better tire of the same type, you pay \$10.95!

All other Goodyear Tires show similarly important reductions, the average decrease in price since 1910 being more than sixty per cent.

Goodyear quality was never so high—Goodyear Tires are larger, heavier and more durable than ever before.

Goodyear prices were never so low—as the figures here listed will show.

30 x 3½ Cross-Rib Fabric.....	\$10.95	33 x 4 All-Weather Tread Cord.....	\$33.40
30 x 3½ All-Weather Tread Fabric.....	\$14.75	33 x 4½ All-Weather Tread Cord.....	\$42.85
30 x 3½ All-Weather Tread Cord.....	\$18.00	34 x 4½ All-Weather Tread Cord.....	\$43.90
32 x 3½ All-Weather Tread Cord.....	\$25.50	35 x 5 All-Weather Tread Cord.....	\$54.75
32 x 4 All-Weather Tread Cord.....	\$32.40		

Manufacturer's tax extra

GOODYEAR

Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

Get new 1922 Model STUMP PULLER

Clear your Stump Land without cost. Increase your income and the value of your farm. Your richest land lies under those tax-eating stumps. Pull them—make this valuable land work for you. Get a Stump Puller free by being a

Kirstin Demonstrator

Pay for your KIRSTIN by showing it to others on your own land. Our plan does not interfere with your own work. Thousands write us every year about the KIRSTIN. We want one owner in each locality who will let us send other people to his farm to see the KIRSTIN work. You don't sell or canvas—just show the KIRSTIN.

We Pay You Cash

The KIRSTIN Demonstrators earn cash commissions for this easy work. A few commissions pay for your own Puller and give you extra money besides. No limit to the money you can earn. **WRITE TODAY!** Act quick! Only one demonstrator appointed in each locality. Special low prices to demonstrators. Write for full details at once—today.

A. J. KIRSTIN COMPANY

4209 Lud St.
Escanaba, Mich.

FREE

Kirstin ONE MAN Stump Puller

Wonderful leverage principle gives you **Giant Power**. Weighs less, costs less—yet has greater speed, power, strength. Made in Horse Power as well as One-Man Models. Guaranteed for three years. Send no money. We send any size or style on 30 days trial. Prove our Claims on your own land.

LAND CLEARERS GUIDE FREE
80 page book—pictures—colored illustrations—written by experts. Tells how to cut cost of clearing in half. It's free—write for a copy today.



One Man Alone
Pulls Big Stumps

Quick Shipments from
ATLANTA, GEORGIA
PORTLAND, OREGON
SAN FRANCISCO, CALIF.
ESCANABA, MICHIGAN

BECAUSE—OUR PRODUCTS ARE THE BEST
Is No Indication That They Are High Priced. Quick Delivery. Expert Advice.

WATER AND OIL WELL CASINGS
RIVETED STEEL WATER PIPE
SURFACE IRRIGATION PIPE
TANKS FOR ALL PURPOSES
GALVANIZED TROUGHS

THE
BEST
IS THE
CHEAPEST
IN THE
END

Write for Price List
CONSOLIDATED PIPE COMPANY
Los Angeles: 2440 E. 9th St. Bakersfield: Union & Irwin.

THE ALFALFA CATECHISM

(Continued from Page 379.)

tinguish it by its appearance. We have tested many fine looking samples which germinated less than 50 per cent, the remainder being "hard" seed. Good seed, however, properly stored should retain its vitality for six years and shows a better germination several months after threshing than when fresh. Very old seed can generally be easily distinguished by their red brown color.

Q. How is alfalfa seed graded?

A. The specific gravity process is in general use and the machine is the same in principle as the one used for separating gold from crushed rock. It is also in general use in California for cleaning and grading light vegetable seed.

Q. Is dodder carried on the seed?

A. Dodder seed is closely related to alfalfa seed in appearance and when mixed with alfalfa requires an expert to detect it.

Q. Does it pay to drill the seed?

A. Yes. The drill properly handled insures a more uniform stand and requires less seed than the broadcaster.

Q. What do you mean by properly handled?

A. First, the drill must be of a type that will handle small seeds like alfalfa. Not all makes will do this. Secondly, the whole art of drilling alfalfa consists in planting shallow, not more than one-half inch in a pulverized, well settled soil which is moist to the surface. Only a few makes of grain drills can be set to plant at this shallow depth. If you broadcast, use a brush drag to cover—a peg tooth harrow buries the seed too deep.

Q. I have been advised to treat my seed with bacteria cultures before planting in order to inoculate the roots with nodule forming bacteria. Is this beneficial and does the university supply such material and directions for using it?

A. Most California soils are not in need of artificial inoculation as the necessary organisms are already abundantly present, and alfalfa seedlings quickly become thoroughly inoculated through natural processes. Inoculation is most easily accomplished by using dirt from a successful alfalfa field. The university does not distribute inoculation material, but a leaflet describing a simple home method for making cultures from soil taken from old alfalfa fields may be obtained upon request from the Agronomy Division, University Farm, Davis.

Q. I have an old alfalfa field in which the stand has become thin. How should I proceed to thicken up the stand?

A. If the stand is so thin that satisfactory yields are no longer obtained you had best plow the field next fall and reseed in February or March, or better grow barley, corn or beans for two or three years and then replant to alfalfa. Both the alfalfa and the other crops will be benefited by the rotation. If you are much in need of hay next spring, disk the field thoroughly this fall and drill 70 to 80 pounds of Red oats or Chevalier barley during November or December. Sudan grass drilled in May is not so good. It is generally a waste of effort to attempt to improve the stand by sowing alfalfa seed among the old plants.

Q. What is considered a good yield of alfalfa seed and how is the seed crop harvested?

A. Fifteen hundred pounds of clean seed per acre is a high yield and the average is from 100 to 400 pounds of seed per acre. The crop may be cut when the pods are ripe and the seed hard, with a self rake reaper or mowed, windrowed and threshed with a grain separator with seed attachments, but a regulation clover huller is to be preferred. It is customary in California to cut one crop and let the second crop make seed. Nine to 12 weeks will mature a crop. Seed may be produced any place in California that alfalfa thrives, but the moisture supply should be reduced during the ripening of the seed and the drier,

warmer climates are preferred. Old fields with thin stands produce better seed than young crowded stands. Planting in rows for seed production is sometimes practiced. It costs about five cents per pound to thresh and clean the seed. The straw remaining after threshing has some feeding value.

Q. Why is alfalfa seed grown in California and the western states in larger quantities than in the East?

A. Because the climate is more favorable for producing high quality seed and better yields are obtained. In humid climates alfalfa sends up shoots from the crown before the first crop of blossoms has been fully formed and this interferes with seed production. In interior California shoots do not develop from the crown, noticeably, until after irrigation. Rainless summers are best for alfalfa seed production. Dry summer heat is also an aid in "tripping" and pollination of the flowers.

Q. Do you advocate rolling alfalfa after planting?

A. Not always. The corrugated roller is beneficial in holding moisture up in soils which dry quickly and is generally the most efficient tool for breaking light crusts formed after planting.

Q. Do you believe in clipping back first year alfalfa when six or eight inches high to throw the strength into the root?

A. I believe in clipping young alfalfa to check rapid growing weeds which threaten to choke it out, but do not think that such treatment affects the crown or root development one way or the other. There is experimental evidence in support of this view.

Q. What have your experiments shown about Hairy Peruvian alfalfa?

A. Hairy Peruvian starts growth earlier in the spring than common alfalfa and continues to grow later in the fall and produces a slightly heavier tonnage. The stems are coarser the leaves larger and hairier and the quality of hay inferior to common alfalfa. The coarseness of Peruvian hay is especially marked in thin stands, on light soils and in overripe hay which becomes quite woody. On the whole the greater productiveness of Peruvian alfalfa does not compensate for its poorer quality and we are satisfied to use the common variety in our own fields. A plot of Hairy Peruvian alfalfa planted at Davis in 1919 now three years old, is 50 per cent dead. Smooth Peruvian adjoining is 25 per cent dead, common only 10 per cent dead, showing clearly the shorter life of Hairy Peruvian under the conditions of this test.

Q. Is there any variety of alfalfa which is more drought resistant than others?

A. There is no authentic experimental data which I know of to show that there is. Turkestan has had that reputation but Turkestan is merely a regional name applied to any seed imported from Turkestan and such importations have proven to be quite variable and almost always inferior to American seed. Some dealers have claimed greater drought resistance for "dry land" seed produced in arid localities, but there is no reliable evidence in support of this contention.

Q. Can alfalfa be grown on adobe soil and is there any variety better adapted to such land?

A. Alfalfa does not thrive on stiff heavy soils and while it may hang on for a time it is seldom profitable. No difference in the adaptability of the several varieties for such soils has been observed.

Q. What variety is best for high elevations in Northern California?

A. Where the ground freezes and winter killing occurs any of the variegated alfalfas, such as Grimm, Baltic or Canadian, will succeed better than common alfalfa. You may obtain information regarding sources of seed of these varieties from Professor P. F. Trowbridge, Agricultural College, North Dakota.

Q. How much alkali will alfalfa stand?

A. Old established stands of alfalfa will tolerate some alkali, but the seedlings are sensitive and easily destroyed. It is best to plant alkali land during the winter while the alkali is down, so that the seedlings can become established and root deeply before the salt rises in the spring. On land containing as much as 0.2 per cent to 0.4 per cent of total soluble solids or from .05 to 0.1 per cent of

black alkali alfalfa may be established if properly managed, but it is an uncertain undertaking. After the stand is established, heavy top growth retards evaporation and checks concentration of salt at the surface. Alfalfa can endure seven to ten times as much sodium sulphate and four to five times as much chlorides as it can carbonate, but in general cannot be grown when alkali prevents the growth of barley. When there is but a trace of "black alkali" and the salts present are principally of the white form, alfalfa may be healthy when the concentration amounts to 0.5 per cent of the total dry weight of the soil, but when sodium carbonate or bicarbonate makes up the whole or a considerable portion of the soluble matter, as little as 0.1 per cent may be decidedly injurious.

Q. What causes the poor spots in alfalfa where no alkali is present?

A. These are often the result of poor soil preparation and may be knolls, which have been cut off in leveling and not replowed, and on which the soil is too hard for the penetration of alfalfa roots, or they may simply be high spots, which are not covered in irrigating. A gravel pocket underlying the surface and causing rapid drainage may also account for poor spots.

Q. How should alfalfa be irrigated the first season?

A. Irrigations should be withheld until seedlings start to turn color and show a decided need of water. This may be as late as June or July for February seedlings. The object is to encourage the seedlings to strike deeply into the soil in search of moisture.

Q. What depth of irrigation water is required to produce the best yields of alfalfa on medium soils in the Sacramento Valley?

A. About 35 inches, applied in seven inch installments, one after each cutting, or about three acre feet.

Q. What is the most desirable size of check and grade for alfalfa on soils of medium texture?

A. A convenient average check is one 40 feet wide and about 400 feet long, with a grade of from three to six inches per 100 feet, when about six cubic feet of water per second is used per check.

Q. What is meant by the renovation of old alfalfa stands, and what sort of tools are best for the purpose?

A. Renovation or winter cultivation is practiced to destroy weeds and aerate the soil. The disk, the spring tooth harrow and special spike tooth alfalfa renovators are all used. I prefer the spring tooth harrow crossing the field at right angles several times during February or March, while the soil is in a pulverizable condition and the young weeds easily destroyed. The disk is too destructive and cuts off too many crowns. The soil becomes very compact about alfalfa crowns through continuous irrigations, and the vigor and health of the plants is improved through this early spring cultivation.

Q. What is an average and maximum yield for alfalfa?

A. On deep, fertile, porous irrigated soils in the great valley of California, good young stands of alfalfa, properly managed, should yield 11 tons of cured hay in five cuttings. The average is nearer five tons to the acre.

Q. How can one judge at what time to cut alfalfa?

A. The most reliable indication to go by in California, after the first year, is to cut when the blossoms begin to appear. Eastern growers watch the new shoots from the crown and cut when these begin to put out, but this is not a reliable guide in California. It is injurious to cut alfalfa the first year until the tops have made a large growth and the crowns have formed.

Q. What is the profitable life of an alfalfa field?

A. Under ideal conditions, such as are found on some of the deep, sweet, well drained soils of interior California, well cared for fields of common alfalfa may endure for 30 years or longer, but yields generally decline after the fourth or fifth year. But generally gophers thin the stand to such an extent that it becomes unprofitable after ten years. An eight year old field was plowed at Davis in 1921 in which the tap root of every plant examined has been cut by a gopher from 3 to 22 inches below the crown, but in most cases the leader has been replaced by several smaller lateral roots which extended to a depth of

eight feet or more and the plants were still yielding well. On poorly drained soils, heavy textured soils, or in eastern climate ten years is about the maximum life period.

Q. Under favorable circumstances how deep will alfalfa roots penetrate?

A. The longest roots of common alfalfa reported to my knowledge were those described by Chas. W. Irish, chief of irrigation inquiry, U. S. D. A. as cited by Coburn. The roots were found penetrating crevices in the roof of a tunnel 129 feet below the surface of an alfalfa field. The average alfalfa root is under an inch in diameter and the length is largely determined by the depth of the water plane and the soil texture, but usually does not exceed fifteen feet in length. Stebler and Schroter cite Bonnet's record of a tap root 66 feet long.

Q. What is a good crop rotation, including alfalfa for a general stock farm under irrigation in the Sacramento Valley?

A. If you need silage and grain I would recommend the following as a thoroughly practical and well demon-

strated rotation: Alfalfa four to six years followed by barley followed by sorghum. Alfalfa to be fall plowed and seeded to barley November or December. Barley harvested in June and a quick maturing silage crop, such as Early Amber sorghum, may be taken from June to October, land fall plowed and planted to Yolo for grain or honey sorghum for silage, April 20 to May 1. Sorghum harvested in October, land fall plowed and reseeded to alfalfa February or March. This rotation has been followed with variation on the university farm. The rotation described is sometimes objected to on the contention that sorghum leaves the ground too rough for alfalfa seeding, but the difficulty may be overcome by proper disking of stubble and deep fall plowing.

Another alfalfa rotation now in effect on the quadrangle field at Davis is: Alfalfa six years plowed in winter—planted to Yolo May 1. Yolo harvested October 15, land thoroughly disked and drilled to Hard Federation wheat November 1, wheat harvested June 1, stubble disked in June and plowed in November and re-

planted to alfalfa February or March. This rotation leaves the ground in better condition for alfalfa drilling than the first described rotation.

Q. Is there any experimental evidence to support the theory that other crops yield better following alfalfa?

A. Yes. Schofield found that potatoes were increased in yield 100 bushels per acre, oats 6 hushel per acre, sugar beets 3.4 tons per acre following alfalfa. At Davis corn, barley and grain sorghums have yielded better following alfalfa.

About nine years ago we planted one check in a large field to Arabian alfalfa, the remainder to common alfalfa. In three years the Arabian had disappeared entirely and in six years from planting the entire field was plowed and planted to corn for silage. The check which had been in Arabian alfalfa and had remained bare for three years produced about twenty per cent less corn than the remainder of the field, which had been in common alfalfa continuously for six years preceding corn planting.

Q. Is it possible to market Cal-

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THREADED RUBBER BATTERY

California grown alfalfa hay at a profit in the east?

A. The first eastern shipments in quantity of California grown alfalfa were made in October, 1921 when several cargoes of from 500 to 3,000 bales each reached the eastern seaboard via the Panama canal. The new water rate which has made this outlet possible is \$12 per ton including canal tolls, but exclusive of distribution charges at point of delivery. It was reported that California alfalfa because of its good odor and quality brought a premium over eastern alfalfa of \$4 to \$5 per ton.

OLIVE GROWERS IN EARNEST

Olive growers in all parts of the state are getting together to form a marketing organization in time to handle this year's crop. The Fresno chamber of commerce set aside \$500 for organization expenses. T. B. Mc-

Kelvey, chairman of the committee on organization, has been sending out letters to olive growers and others interested, outlining the contemplated plan of organization.

It is hoped that olive growers of the state will nominate representative successful growers from different olive growing sections, who will attend a meeting in Fresno, April 30. A suggested plan of organization will be furnished each representative so that when he comes to Fresno he will be thoroughly informed and ready to make constructive suggestions. It is hoped that action may be secured promptly so that the state association may be incorporated by June 1.

For purposes of organization the state has been divided into three districts—one south of the Tehachapi, one between the Tehachapi and the Sacramento Valley, and one north of the Sacramento Valley. Each of these

districts is being asked to nominate 25 representative growers to act as trustees, to meet at Fresno on April 30 to adopt a plan of organization for the association, and to prepare a contract for the signatures of the growers.

ALMOND GROWERS WIN POINT AT WASHINGTON

Manager Tucker of the California Almond Growers' Exchange writes that advices have been received from Washington that the senate finance committee will recommend a tariff of five cents on almonds in the shell and 15 cents on shelled almonds in the permanent tariff bill.

He adds: "This is indeed a great victory which our California senators and representatives have won not only for the benefit of the 5,000 almond growers of the state but for California

generally as such a schedule of import duties on peasant grown almonds from Southern Europe means that the almond growing industry in California will thrive and expand to tremendous proportions. Eventually it will mean \$20,000,000 a year more poured into California business and development.

"As we see it there have been three elements in our tariff fight which has been carried on for nearly a year and a half. Those elements are the newspapers of the state, the California congressional delegation and the California Almond Growers' Exchange. The fight is not yet won. The tariff bill must yet be passed by the senate, adopted by the usual conference committee of house and senate and be signed by the president.

"As you know we are in the throes of a reorganization campaign at the present writing. Victory in the tariff fight ought to convince not only almond growers but all farmers that their future lies with their cooperatives. No speculator ever made an effort to advance the California farmers' interests as have his cooperatives. No interest or group of interests has advanced California as have the farmers' cooperatives, save the newspapers of the state. We feel that we are working with you in a great cause."

V. C. BRYANT TAKES UP WORK OF W. H. HEILEMAN

The executive committee of the state farm bureau federation announces appointment of V. C. Bryant to fill position left vacant by the death of W. H. Heileman, secretary of the state farm bureau federation. Mr. Bryant has been assistant professor of agricultural extension of the University of California and is thoroughly familiar with the work of the farm bureau.

Mr. Bryant's past experience and training fit him well for this responsible position. He was raised on an 320-acre ranch in central Kansas and served a thorough apprenticeship on a general diversified ranch on which corn and wheat were produced, steers and hogs were fed and a string of 25 to 30 of the best cows milked. After completing the work offered in the local schools he entered the State Agricultural College at Manhattan, Kansas, from which college he graduated in 1910, having majored in agronomy and taking all the work which was offered in livestock. He also worked as a student assistant during his senior year, teaching grain judging. After graduation he came to the University of California to take a year's post-graduate work and to work as a student assistant in the agronomy department. After receiving the degree of Master of Science in Agriculture in May, 1911, he took up the teaching of agriculture in a high school for two years, during which time he also did agricultural extension work, which consisted chiefly in lecturing at farmers' institutes. In the summer of 1913 he was regularly employed in the agricultural extension division under the direction of Professor W. T. Clarke, then head of the division, in which division he has served ever since. During the summer of 1915 he bought a 193 acre tract of alfalfa land in the San Joaquin Valley, which he improved and established a dairy upon. Since that time he has been operating a dairy and gaining actual experience in farming in California.

VENTURA'S APRICOT INSTITUTE

The apricot growers of the Ventura County farm bureau will hold a one day institute the latter part of April in Santa Paula. The major problems of the apricot industry will be under discussion.

The Kern County farm bureau dairy department has appointed a committee to take care of the Dairy Day at the Kern County fair to be held in October. This committee consists of H. K. Dickson, instructor of agriculture, Bakersfield high school; P. G. Grundt, chairman of the dairy department, and P. G. Penfield, county dairy inspector.

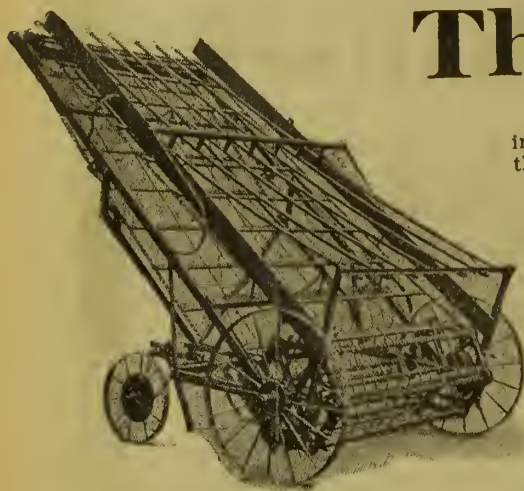
The agricultural extension service of Kern County has conducted this month three vine planting demonstrations with a total attendance of 70 people, and three cutworm control demonstrations with a total attendance of 71 people.

Harvest Your Hay The Thomas Way

You can reduce the overhead cost of production of your hay crop and increase your profits by using Thomas hay machinery. Harvest your hay the Thomas way,—it requires fewer men and covers more acreage; delivers more tons at less cost than other methods of harvesting.

The Thomas Mower will cut clean and the side delivery rake will throw the hay into even windrows. One man on the wagon with a Thomas loader can handle more hay than four men can throw with forks. The element of time and labor saving will add to your profit as well as giving more efficient results with the least physical effort.

Write us for prices and booklets on the Thomas line of hay machinery.

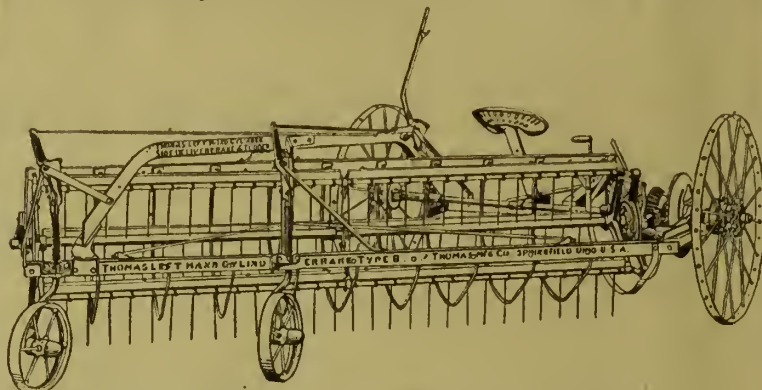


THE THOMAS Single Cylinder Windrow Loader

Cylinder is 6 feet 4 inches long. All steel frame strongly braced; wood used only when it serves better. Mounted on heavy steel wheels which are provided with lugs to prevent slipping. Draft is unusually light; cylinder is mounted on the heavy main axle to which cylinder ends are keyed.

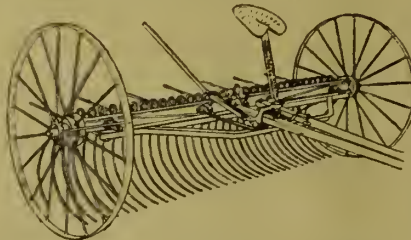
The raking bars, of extra heavy welded pipe, work in slots in the cylinder ends and are provided with springs which relieve the bars and save the teeth when obstacles are encountered.

Automatic hitch with rope attached so that man on the load can disconnect the loader from the wagon.



THE THOMAS SIDE DELIVERY RAKE

is well-made, noiseless, strong and efficient. It has more clearance on delivery side than any other. Works equally well in hay or beans. Rakes 8 to 9 Feet Wide. Cylinder is 10 feet long; heavy steel wheels of large size; two Castor wheels which are raised or lowered from the seat by a single lever. Steel throughout.

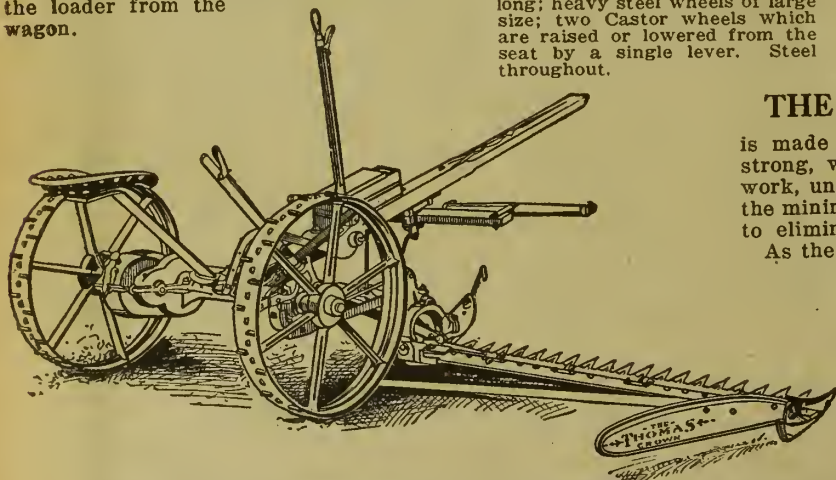


THE THOMAS ALFALFA RAKE

is made to meet the demand for an exceptionally strong, well-built machine that will do the hardest work, under the most severe conditions, easily, with the minimum of effort on the part of the operator and to eliminate troublesome and expensive breakages.

As the name implies, it was designed primarily for work in heavy Alfalfa, but is adapted to the heaviest work in any kind of hay.

If you want a Rake that will give you no trouble, that is always ready for use, requires no repairs and above all, that is easiest to operate,—BUY A THOMAS ALFALFA RAKE.



THE THOMAS CROWN DOUBLE SPEED MOWER—FOR TEAM OR TRACTOR

The Thomas Crown Mower is the only two-speed mower made. Made in both single and double speed type. Sizes 3½, 4½, 5 and 6 foot, with 4½-inch heavy rim ground wheels. Slow speed for 90% of work, causing less wear. High speed for very heavy work. Cutting where other mowers fail.

The foot lift and hand lever work in conjunction automatically, and with the gag lever gives absolute control in raising and lowering the bar. The tilting lever is easily operated, with ample adjustment for any condition of the grass.

The swath board is adjustable so it can be raised or lowered. Double eccentric steel arch connection, stronger, more adjustment than others, and giving practically instantaneous adjustment on cutting bar.

Inner shoes malleable, not cast iron, as are many others. Wearing lugs in heel of each guard, less friction, better support for knife. All boxes removable; no wear on frame. Ball thrust bearing for crank shaft pinion. Heavy drop forged steel pitman straps. Sliding hitch, direct pull; no side draft.

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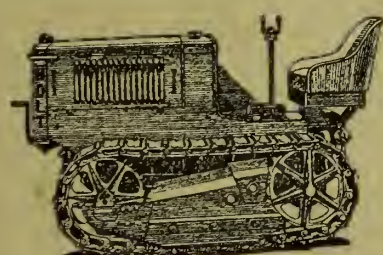
Six months ago —
we said "Caterpillar" T-35 is the supreme
small tractor. *Today* the experience of
every purchaser of a T-35 proves the
right to that claim of supremacy

About six months ago when the first announcement of the Model T35 "Caterpillar" Tractor was made, we termed this little machine "The Supreme Small Tractor." We knew we could expect big things of the T35, but the tractor itself has exceeded even our highest hopes—in economy, in dependability, in power, in endurance—in every quality by which tractors are judged.

Vineyardists, orchardists, general farmers, contractors, loggers, road makers—power users of every class have been quick to recognize and appreciate the superiority of the "Caterpillar" T35 Tractor. Their purchases have placed these tractors in work of every nature, both tractive and stationary—work that has pre-

sented the most severe tests possible: continuous day and night work over long periods, extreme tests of power, operation on steep hills and on soft marsh land, in sand, over rough roads, in heavy dust. T35 purchasers are, without exception, more than satisfied—really enthusiastic over this tractor's performance in actual field service.

Rapidly increasing production now makes early deliveries of T35s possible. It is advisable, however, to place your order early. Don't delay a thorough study of this tractor—an interesting folder, containing full information, letters from users, etc., will be sent on request. Use the coupon below.



To sum up briefly, the specifications of this tractor—it weighs less than 4,000 lbs., has 25 motor and 15 drawbar horsepower, is only 48 inches wide, has astonishingly big capacity for work in proportion to its size, exceptionally low fuel and oil costs, minimum upkeep expense, adaptability to an extremely wide range of work and to all kinds and conditions of ground and weather. It is exceedingly easy to operate, simple in design and possesses perfect accessibility. There is not an ordinary carbon steel gear or shaft in the entire machine—all are nickel steel, chrome nickel steel or chrome vanadium steel. All bearings, except in the motor, are anti-friction—ball or roller. All working parts are completely enclosed from dust and dirt.

Exclusive T35 Features

Wonderful new overhead valve, overhead camshaft motor with machined combustion chambers, vanadium steel crank shaft, connecting rods, rocker arms, etc. *All bearings floated on oil under pressure.* This is the motor that caused so much comment among engineers at the recent Pacific Coast Auto Show.

Extra large multiple disc clutches—positive action—same type as used in highest grade motor trucks. Three-speed transmission, giving a range for every line of work. All gears and shafts made of nickel steel specially heat treated. Cushioned automatically releasing trucks prevent any possibility of breaking or straining any parts if the track should clog. Newly developed special Holt process track. The greatest development in tracks in recent years. All working parts carried in oversize ball and roller bearings. All working parts completely enclosed and running in oil bath. Greater accessibility than any other tractor on the market.



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THIS new fame-making price clearly proves that the Overland is the greatest automobile value your dollars can buy.

It's a car so faithful, so powerful and enduring you can enjoy it for years. The all-steel chassis resists wear. Triplex Springs protect the car and cut down upkeep. The 27-brake h. p. motor travels more miles at less cost than any other car. Owners average 25 and more miles a gallon.

Overland, always a good investment—now the greatest Automobile Value in America.

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Touring Car, \$550 · Roadster, \$550 · Coupe, \$850 · Sedan, \$895
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A 1200 ACRE MUSCAT VINEYARD, in Full Bearing 9-12 Years Old

To close its affairs a Corporation offers for sale its 1200 acre full bearing Muscat vineyard located in the

Heart of Southern California's Grape District

near Etiwanda, San Bernardino County, on the Foothill Boulevard, near schools, churches, stores, etc.

Pacific Electric R. R. Station on the land (twenty-one trains daily to Los Angeles and San Bernardino); Southern Pacific and Santa Fe R. R. close by.

Packing house, buildings, live stock, implements, etc. Also 80 acres one year old of Cornichon, Malaga and Sultana, and 80 acres planted recently to Cornichon, Materos, Malvoise and Mission, all at a REMARKABLY LOW PRICE that will interest you.

For particulars, terms, etc., address—

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Cloud on Title

In the seventies my grandfather deeded property in Illinois to my father's minor sister. The deed read "to her and to the heirs of her body." By the guardian of her estate this property was sold and some years later my father purchased it from the vendee. The sister has since married and has several children. The claim is now made that after the death of this sister these children will have an interest in this property. What steps could my father take to clear the title and is there any such cloud upon the title?—Subscriber, Fillmore.

The situation presented by the use of the words "heirs of the body" is one which is highly technical and it would be necessary to inspect the deed as a whole to determine just what effect it would have. These words may be used to create a life estate with the reservation of the remainder to children, or, on the other hand, the same words under the "common law deed" are frequently used to create what is known as "fee simple estate." It is probable, however, from the history of the matter, that there actually is no cloud upon the property, and even so, that this cloud has been wiped away by the long continuance in possession of other parties. If there is a cloud it would require either a deed from the sister's children or a court action in Illinois to clear it.

Bills Outlaw

Eight years ago I did some orchard work for a party. I did not press him for payment, but now when I present a bill he refuses to pay on the ground that it is outlawed. He makes the same claim on his doctor bill. Is he correct?—Subscriber, Beaumont.

An action upon any contract, obligation or liability founded upon an instrument in writing or action to recover upon a book account, account stated, or current account, must be brought within four years. An action upon any other contract, obligation or liability not founded upon an instrument in writing must be brought within two years. There is no difference between a claim of a doctor or for labor. Each of these claims under certain circumstances does have certain preference given in payment of other claims, but the effect of the statute of limitations is the same as on others.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Fig Cuttings

Are suckers from fig trees desirable as cuttings?—Subscriber.

This question was referred to Ira J. Condit of the California Reach and Fig Growers. He answers:

"The suckers which come up from the base of fig trees are not usually desirable for cuttings, since they are so pithy that they dry out. It is common practice to pull the suckers from the tree and plant them directly in the field if there are any roots formed. There is no advantage in selecting cuttings from fruit bearing wood, so far as I know; the suckers from the base of trees will make fully as good trees. The trees are leafing out rapidly now and the best season for obtaining cuttings is past. I believe, however, that if the cuttings are taken from two year old wood on which the buds are more or less dormant, that fairly good success may be obtained with rootings."

Manure Pit Near Dairy Barn

Would like to know if I build a concrete bin for manure with top on it would I have to have it made 50 feet from the barn as the law requires for a manure pile?—Subscriber, Orland.

Yes, it would be necessary to have the pit 50 feet away from the dairy barn. Of course if the bin were entirely fly tight the inspector might feel that he would be justified in ignoring the technical violation of the law, but the strict enforcement of the law would require the removal of all manure more than 50 feet from the dairy barn.

Pecan Requirements

What are the requirements of pecan tree as to soil and moisture?—Subscriber.

The pecan has been planted in California since 1870 and has almost invariably done well where best varieties have been used for grafting. Rich, deep, loamy soil, with a moderate supply of irrigation, is necessary for best results. The tree has not become a commercial favorite, presumably because of its extensive planting in other states where lands are much lower priced and where the pecan does fully as well as in this state.

Fly Repellants

I am bothered with the small horn flies on the cows' backs. They were very bothersome last year and now that warmer weather is here they are coming back again. What can I do to get rid of them?—Subscriber, Santa Ana.

There are excellent fly repellants offered on the market, which may be sprayed over backs of the stock. This gives only temporary relief and treatment must be repeated every day or few days. In addition to these ready to use mixtures one may prepare his own as follows: Crude petroleum, 1 gallon; powdered naphthalin, 4 ounces. Cut the soap into thin shavings and dissolve in water by the aid of heat. Dissolve the naphthalin in the crude oil, mix the two solutions, put them into an old dasher churn, and mix thoroughly for 15 minutes. The mixture should be applied once or twice a week with a brush. It must be stirred well before being used.

Sparrow Pest

I am bothered with the small brown sparrows. They eat the young garden stuff as fast as it comes up. Can you suggest any way of getting rid of them?—Subscriber, Santa Ana.

Poisons are always objectionable with birds. If there is no other means of eradicating the sparrow poisoning by the use of strychnine may be resorted to. But a better way is the use of the net or wire screen trap or box into which the birds are lured by feeding a few mornings. When filled the trap is sprung. A small shotgun is also effective because of killing some and frightening more away. However, the satisfactory sparrow control has not been devised.

Overhead Irrigation of Grapes

Please advise me as to overhead sprinkling for grapevines in small vineyard for home use. Soil is very sandy and on steep grade.—Subscriber, Delhi.

So far as grape vines are concerned we can see no objection to using the overhead sprinkling system. However, it seems to us that it would be much more economical and much easier simply to irrigate with open ditches on contours or build basins around the vines. The water should be held on the ground long enough to penetrate to a depth of several feet. On a steep slope the water from the overhead system might run off too rapidly unless there were basins or checks to hold it. There will probably be greater danger from mildew with the overhead system because of the

leaves and canes being so thoroughly soaked each time there is an irrigation.—F. K. H.

Seats for Cannery Employees

Do all canneries in California have stools for women to sit on? If not, in what sections do they use them?—Subscriber, Newberg, Oregon.

It is required by state law that seats be furnished for women employees. We believe this law is obeyed in practically every cannery and dry yard in the state.

Applying Fresh Manure

I intend to put fresh horse manure around young peach trees after plowing. Is this injurious to young trees?—Subscriber, Vacaville.

Many producers in California are applying the manure fresh from horse stable or cow corral. Of course, if put on in large quantity, that is, piled so thick around trees that it generates heat or ammonia sufficient to injure the trees that might be occasion for loss. The application of such a quantity, however, is seldom made. If scattered about freely, so as not to rest against the trunk, there is little probability of heating or of injuring. However, there is an advantage in working even fresh manure into the soil where irrigation carries the fertility to the roots and where partial covering with soil prevents undue drying out.

Rabbits in Watermelon Field

Will you please advise me what poison would be best to use to kill rabbits; the largest amount the quickest way? I am planting 200 acres of melons and grapes, and rabbits are a great injury here to us.—Subscriber, Alpaugh.

The best protection is a rabbit proof fence. Apparently that is not available. The next best protection is secured through the use of traps, if one has sufficient force of workers to keep them set. From an economical standpoint strychnine on an attractive bait is usually resorted to. With growing vines there is no "protector" available, so the only remedy is the destruction of the animals. However, there are some growers who surround the field with attractive feed for the pest, occasionally poisoning the bait, though the principal effort is to decoy the pest away from the growing crop. After the green native feed of the fields dries up juicy fruit baits are usually most attractive and a small quantity of strychnine in these baits proves as quick and efficient remedy as can be secured. Bear in mind rabbits come long distances for food and the complete destruction of the visitors for one day seems to afford little relief the next so there is a continuous distribution of fresh baits required. The keeping down of weeds which afford hiding places for the pest is also beneficial. If not near a grain field where rabbits have access to one of their favorite foods, use poison of 12 quarts oats, 1 ounce powdered strychnine, 1 tablespoon starch, 1 ounce soda, 1/4 ounce saccharin, 1 quart water. Mix strychnine, starch, soda, saccharin thoroughly, stirring into small quantity of water added to the remainder, which may be boiling. Stir and boil until a clear paste is formed, then stir in the 12 quarts of oats and the bait is ready for distribution. Meantime shotgun and trap may also be used. If there are surrounding grain fields then this bait may not be attractive and it may be necessary to use slices of apples in which powdered strychnine has been inserted. Warning should be given surrounding stock owners before the poison baits are distributed.

Seedling Oranges

Kindly tell me what is the best way of growing seedling oranges? Do you sow the seed in flats or in the open ground? When planting out how far should the rows be apart and how close are the seedlings planted in the rows? Is it desirable to sow the seed under glass? What kind of orange seed is considered the best?—Subscriber, Santa Barbara.

No flats are too shallow for the tiny tap root of the seedling orange. The seed is often grown in narrow beds in a bath house, being practically broadcasted and covered with fine sandy loam. Again, they are planted in rows,

say 10 or 12 inches wide, and irrigated by allowing water to run over the entire width of the row. It is yet a bit early for the planting, though some do plant in March and planting may be continued until May. After scattering the seed over the prepared soil it should be covered to a depth of nearly an inch with sand which has been thoroughly screened. The seed should be allowed to grow for about 12 months in these beds, when the small plants may be taken out and reset in nursery rows, with trees in the row at least six inches apart, and rows, say, four to five feet apart. Some nurserymen prefer a distance of from 12 to 14 inches apart in rows. This allows for balling of the trees, which, of course, is not possible when too close together. After remaining in this nursery row for a year the trees are budded. The third year is given to growing the new top. The best information on planting and caring for young nursery trees is given in "The Citrus Fruits" by R. M. Teague, San Dimas. Seed sown under glass would probably not be as hardy as that grown in the open, or, as is

usual, under a lath screen. Seed often preferred is the common sour orange of Florida.

A Profitable Plum

Would like to know if it is necessary to plant with 10 acres of Kelsey plums some other kind of plums before they will bear heavily? Also, could you tell us some kind of a cover crop that would benefit the Kelsey plums?—Subscriber, Fresno.

The Kelsey is self pollinating. Wickson says: "Very widely grown but less in favor than formerly in interior valleys where color is not well developed. As a rule the Kelsey bears heavy crops without necessity of pollinating. If the ground is recently planted it is probable native grasses will afford a good green manure crop for the first year or two. We have known of good returns from the planting of common bur clover, though it does not give great tonnage. Any of the legumes, especially melilotus indica, planted in the fall, makes a good cover crop."

Fertilizer for Dahlias

Is dried blood or lime direct from slaughter house of value in fertilizing dahlias?—Subscriber, Los Angeles.

Dr. R. R. Snowden answers: "Both dried blood and lime direct from the slaughter house are good fertilizers for dahlias, but it is not good to mix them since the lime, if of the caustic kind, will liberate the nitrogen as ammonia and thus cause its loss. However, in any case if mixed with an adequate amount of gypsum the loss will be eliminated. Not having any idea of the proportion of these constituents of the slaughter house product, I could not suggest the amount, because the amount of lime proper to use would be very much more than the amount of dried blood that could be profitably used. But in any event it would do no harm to apply the mixture at the rate of 1,500 pounds per acre."

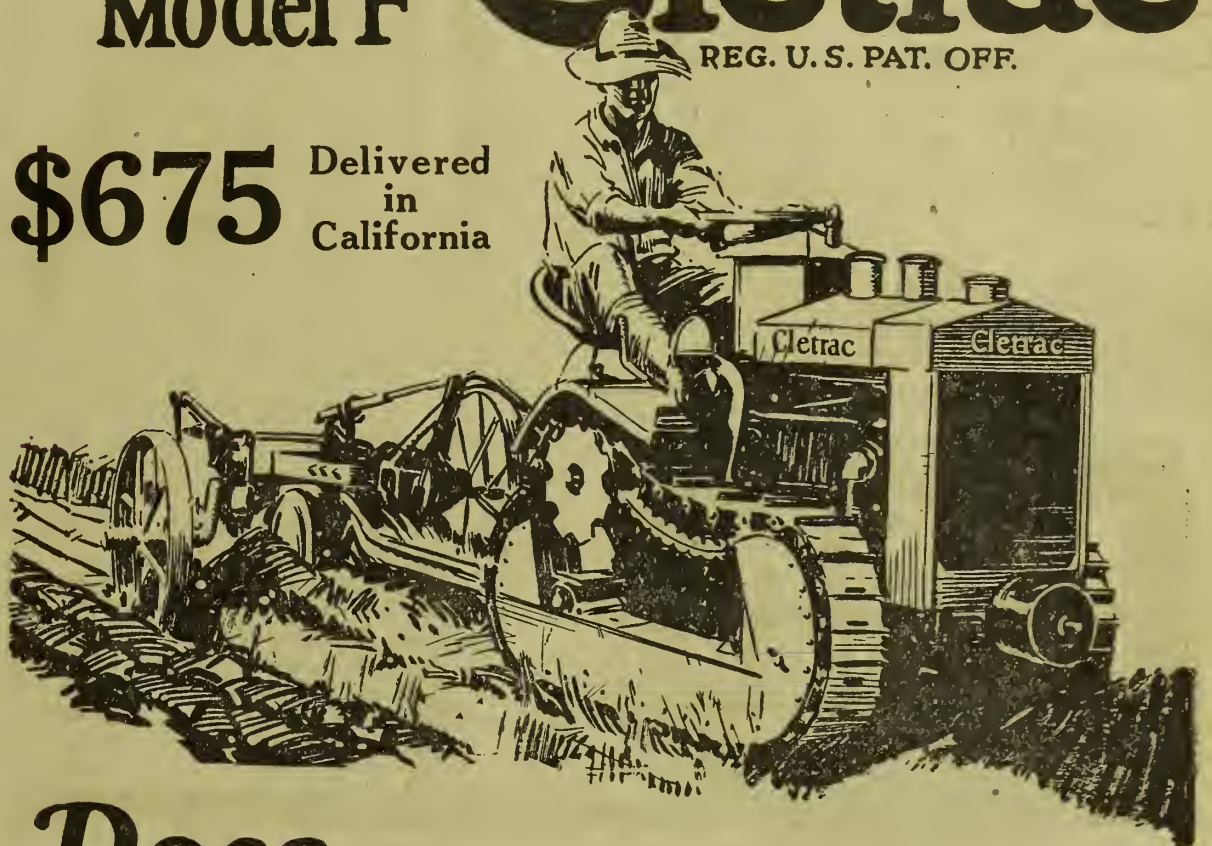
Rabbits With Boils

I have some finely bred Belgians, some of which are affected with what

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appear to be ordinary boils or carbuncles. Am feeding limited amount of carrots and greens, with some grains, especially rolled oats. Stock

appears to be perfectly healthy excepting for these boils.—Subscriber, Los Angeles.

This is somewhat out of the ordinary. The first suggestion is that the trouble may be caused by too rich feed. If such is the case a reduction in the amount of rolled oats and an increase in the amount of green feed may be helpful. Washburn's "The Rabbit Book" says: Boils may be lanced, the pus squeezed out and the opening washed with a mild disinfectant (peroxide, for example) not harmful to the animal. When abscesses occur, represented by large, swollen areas filled with pus, the condition is more serious and may become chronic. From personal observation we believe a tendency to formation of abscesses may be inherited. We have known of at least one doe who showed a marked tendency in this direction as she aged, and some of her young exhibited this condition to such a degree that the meat was valueless. Treatment for abscess is same as that for boils, but where it becomes chronic, spreading over large areas on the animal, the creature should be killed and buried.

Rabbits Pay

Can you give any information on the subject of rabbits for market? What is a good breed?—Subscriber, Compton.

A fund of information as to rabbits is given in the article and especially chart by W. D. White on another page. The varieties best for fur and best for meat and even the fancies or pets are there indicated. As to profit, that depends, as in any other business, on the grower, and there again Mr. White's article gives some remarkably good hints. It has been stated that the young from one strong, healthy doe will produce 90 pounds of meat in a year. Our market page gives the range of prices, not counting the green or forage which may be picked up, for feed which would produce this 90 pounds of meat, and this would not exceed one-fourth the market price. We would not advise anyone

to dispose of a paying business and enter the rabbit business, but as a side line it may yield a satisfactory profit. Then, in the course of a few years, one may find himself so fitted for the business that large development may follow.

Rheumatism

Are there any localities in California especially suited to sufferers from rheumatism?—Subscriber, San Diego County.

So far as locality is concerned we do not know of any place in the world where absolute immunity from rheumatism can be guaranteed, but within a few hours' drive of the home of the San Diego County subscriber, in fact, just over the line in Riverside County, are the Elsinore Hot Springs and not far from them the Murrietta Springs. Near Hemet and San Jacinto there are others, and these we believe have afforded help to many a rheumatic sufferer.

Dahlias and Gladioli at Fresno

I would like to learn from someone living in or near Fresno the proper care of dahlias and gladioli. On the coast I know dahlias are planted so as to get the sunshine all day and catalogs say to plant them that way, but will they stand the full sunshine of this valley? Should they be protected in the afternoon or would it be, all right to plant them where they get the sun for about three hours in the morning and are shaded by trees the balance of the day? Is it necessary to lift the bulbs in the fall? I would also like to ask if gladioli are of any value here, blooming as they do during the hot season? They are so lovely I wish to raise some if I can get them to grow here.—Subscriber, Fresno.

Dahlias revel in hot sunshine but develop best where soil is kept cool and moist. The upper side of tubers should never be less than four inches below the surface of soil, and stand them up as they grow, eyes on top, never lay on side. This is important, for large tubers may be eight inches long and this would place the lower

end at least a full foot below the surface; as they root first from lower end this treatment provides a cool soil for the roots. Keep soil stirred deeply except within six inches of the stalk. Fresno should grow as good dahlias as any part of the state but they should be planted in March. To have best gladioli the bulbs should be planted in January. Plant six inches deep, and in hot weather, especially during flowering season; water almost every day, heavily, if drainage is good. Nearly all species of gladioli grow in or close to marsh lands or "swamps."

Grafting Walnuts

When is the proper time to graft the walnut?—Subscriber, Colusa.

Right now. See article on page 121 of the issue of February 4.

Sweet Butter

A subscriber at Selma sends the following hint to subscriber at Santa Cruz who inquired in a recent issue as to sweet butter: "Try scalding your milk. Strain in pans then set on stove till hot or scalding, but not boiling. Set outside on table till cool before putting away. Keep milk on porch in cooler so air can get to it. Milk will get strong if kept in close house. After scalding cream will raise quickly and be ready to skim in a couple of days. I churn twice a week and have fine butter. When weather is freezing cold I keep in pantry but it must have air or it will get strong and will take on the taste of other things near it.

Answering the same question Mr. and Mrs. J. A. Peterson of Mountain View write: "Your cows will give sweet milk and butter provided you give best feed. Alfalfa hay and alfalfa meal cause milk to have strong odor. Even if you churn every other day it will have a bad taste. Give best oat hay and middlings. Put a little salt in middlings, wet it some, just enough for one meal at a feed. Give plenty of green feed and vegetables. Also, give no dry alfalfa for a while and see results. If you feed dry alfalfa, give more than half oat hay with it, and once you get good feed, stick to it and do not change to inferior feed."

(We may add that the giving of offensive odors to milk by feeding alfalfa hay is not credited as it once was. All dairymen make alfalfa their principal feed and feeding immediately after milking does not affect odor or taste.—Edit.)

Mrs. H. Wheeler of Sebastopol writes:

"I have had the same trouble during the winter months. No matter how sanitary we have been with the milk, nor how fresh the cow, nor how good the feed, the butter would get strong, sometimes would be bitter. Even when the cream was kept in a warm room it would not sour. Sometimes I would churn two days before the butter would come. All my neighbors complained of the same trouble, but thanks to Hansen's buttermilk tablets, I have had spring butter all winter.

"I proceed as follows: As soon as milk is brought in and strained, set on back of stove to heat until it begins to crinkle,—then set away until ready to skim. After commencing to save the cream take a pint fruit jar, fill with skim milk, add to it one pulverized Hansen's buttermilk tablet. These can be procured from your druggist or he will order them for you. Set the jar in a warm place like the top of the food closet on the kitchen range and stir occasionally. It will take about two days for it to sour and set. Beat up well and add to your cream, keep skimming into your cream and buttermilk until you have a churning. Each time cream is added stir well. Keep in a warm room to ripen. When cream becomes thick, churn, wash the butter well and salt. After a day or two work well and you will have real spring butter.

"If you are churning often, a little of the buttermilk can be left in the jar and more milk added, and it will soon sour again; this way not so many tablets are used.

BESSIE'S ANSWER

The teacher was trying to make Bessie understand subtraction, and she said: "You have ten fingers; now supposing there were three missing, what would you have then?" "No music lessons," said the child promptly.—Boston Transcript.

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Bleeding Wart

Our bull has a lump just back of his right shoulder that is about three times the size of a kernel of Indian corn. It is soft and has a very thin skin over it. Sometimes he opens it by rubbing against a post when it bleeds very profusely and he loses quite a quantity of blood. It has been open three times and we stopped the flow of blood with vinegar. Fearing that it will get open some time and bleed too much, we would like to know what will cure it permanently.—Subscriber, Brawley.

Take a red hot iron and burn it to a crisp. Also get at your druggist some Monsell's iron powder and when the scab comes off bind about half a teaspoon on the spot. This should heal it permanently.

Tumor on Eye

What can I do for a cow with a red growth coming over the eyeball? It has been much inflamed for some time.—Subscriber, Chowchilla.

Touch it with a small swab dipped in nitric acid. Be careful and do not use too much of the acid. You may have to repeat it once or twice. Be careful in handling the acid as it is very caustic.

Cow Not Breeding

Have a cow that seems to be in heat most of the time. She becomes very excited when other cows are in heat but refuses the bull. She bawls constantly and makes a noise more like a bull than like other cows. What can I do for her?—Subscriber, Chowchilla.

She is probably barren, may be something wrong with the ovaries. Fatten her for the butcher.

Tuberculosis

Have a cow that has been served four times but has failed to get with calf. After each service she discharges a yellow mucus. What would you advise doing for her?—Subscriber, Chowchilla.

Have her tested for tuberculosis.

Rheumatism

I have a cow three and a half years old that has had two calves. She eats well and was perfectly healthy until about two months ago when she became lame in one hind leg. We called a veterinarian to see her. He said she had strained her leg. He blew up the hip with air and alcohol but she got worse and a large lump formed on the side of the leg and keeps getting larger. She is now lame on the front leg also and a lump is coming there. What is wrong and what can be done for her?—Subscriber, Encinitas.

You did not say just where the lump is but if it is on or near a joint would think it was rheumatism. Try these powders: Three ounces salicylate of soda, three ounces bicarbonate of soda, three ounces powdered nux vomica and six ounces powdered gentian. Mix and divide into 24 powders and give one powder every evening in a little feed.

Wart

Our family cow has developed a wart on her chin about the size of a half dollar. How can I eradicate it?—Subscriber, Parlier.

Get an ounce of nitric acid. Make a small swab and with that apply enough acid to wet the wart but no more. This will form a scab and when the scab comes off wet it again. You may have to use the acid several times, but as soon as the wart seems to be killed let it heal. Be careful in handling the acid as it is very caustic and will burn the skin or clothing.



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William found a pocketbook but the string jerked it back

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Since retiring from the field a good many growers continue to come to me for this information, so I have decided to devote all my time to the work.

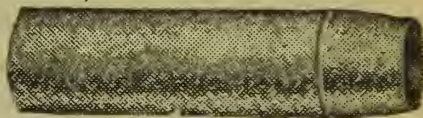
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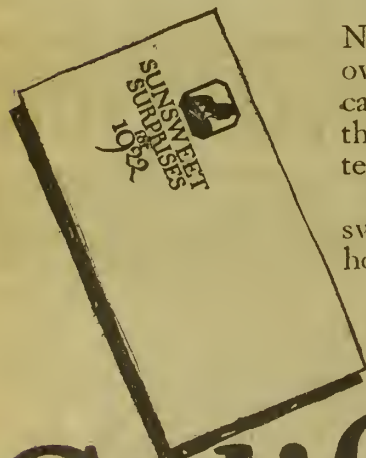
PRUNES

EVERY DAY	<i>For the health that's in them</i>
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TUESDAY	
WEDNESDAY	
THURSDAY	
FRIDAY	
SATURDAY	
SUNDAY	

Health—the real, robust, red-blooded article—pays little heed to the calendar. If a dish is good for your health one day—it is good any day and every day. To use prunes only in the stewed form [and then to use them only “every so often”] is hardly fair—to the prunes or yourself.

Prunes are a natural corrective. Nature has seen to that. Moreover, these natural sweetmeats can be prepared in so many ways that there is always a new dish to tempt your table-folk.

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Household Department

NATURE'S FAMILY

By O. S. Pinckney

“Come mother,” said Spring to old Nature one day,
“Wake up! let's get busy again.
You've had a good sleep and there's plenty to do
Since the season of snow, cold, and rain.
We must wake up the children and deck them all out
In dresses of purple and green
And cover the branches of all the bare trees
On the hillsides and down by the streams.”

So old mother Nature awoke with a smile
While Spring warmed the air and the soil.
With old Sol's pleasant rays and the warm southern breeze
Together they labored and toiled.
They dressed all the children in bright, shining green
While the daisies and violets bloomed.
Soon all the bare branches were covered with leaves
And the breeze waved the tall willow's plumes.

They wove a green carpet and spread o'er the land
And worked it with figures of blue,
With figures of white and of yellow and red,
Of purple and lavender hue.
The farmer was happy and whistled once more
As he turned o'er the soil in his field;
“It we all work together and each do our share
In the Autumn we'll have a good yield.”

JIMMY'S JOB

By Edward P. Hendrick, in Youths' Companion.



A Jimmy Wales, water boy for the gang on the Dinsmore Street sewer, swung his dripping pail over the edge of the trench and lowered it to the men 26 feet below he grumbled. Something was wrong with the gang in Dinsmore Street. The firm knew it; Coleman, the superintendent, knew it; Jimmy Wales, the water boy, knew it, and he grumbled because—well, because that was the thing to do on a “rotten job like this.”

These were days of worry for the superintendent in charge. The sewer trench cut through a stratum of semi-liquid clay and sand, and there was constant danger that the sheathing that supported the sides of the trench might give way under the tremendous pressure. Every day that the trench remained open added to the danger of accident, yet any request for overtime work met with surly answers.

“If some one would only start something,” thought Coleman, “we'd have a show-down and get it over with. Someone's talking Bolshevism to this gang.”

The noon whistle interrupted his thought, and he watched disgustedly as the men dropped their tools wherever they chanced to be. Jimmy Wales, bringing his pail from the hydrant, stopped in his tracks, set his pail on a pile of sand, flung himself down beside it and, drawing a huge sandwich from his pocket, munched it contentedly.

Coleman strolled over to him. “Jimmy,” he said, “I want you to run down to the blacksmith shop and ask Belcher if he can mend those chains for me right away. I'll need them this afternoon.”

The boy took another bite of his sandwich.

“What's the rush?” he mumbled.

“I ain't paid to work noontimes.”

Coleman sat down beside the boy. Presently he said quietly, “How long have you been with this gang, Jimmy?”

“Six weeks.”

“Is the work too hard for you?”

“No, it ain't; but anybody's a sucker to work overtime less'n they get double pay.”

“Did some one tell you that, Jimmy?”

“Didn't tell me specially. I heard Tim Lawson say so, and—and I reckon he knows.”

Tim Lawson; so he was the sore spot in the gang. The very man who must do his work faithfully and carefully, if they were to complete the job without an accident!

“Jimmy,” continued the superintendent thoughtfully, “did you ever wonder how it happens that I am in charge of this work, while men like Tim Lawson, who were building sewers when I was a kid in knee pants, are still working for a day's pay?”

“You had a pull,” replied the boy promptly. “Lawson says so.”

“He's right,” returned Coleman quickly. “I had a pull, and I have it now. Would you like to hear how I got it?”

“Sure, I would,” grinned the boy.

“How old are you, Jimmy?”

“Fourteen.”

“I was just your age when I got my first job; it was with this same company, and I was water boy.”

Jimmy sat up and looked at the boss with new interest.

“We were building a road over Corliss Mountain,” continued Coleman. “I had to lug water from a spring half a mile away. I'll never forget how my legs ached, and it seemed as if every man on the job drank water enough to drown him. I heard the foreman say that he'd had to fire two water boys because they couldn't hold up their end. Right there I made up my mind he'd never have a chance to fire me. It came easier for me after a while. We got along to where I could get the water from a house close to the job, and I had more time to spare. The boss used to send me on errands from one end of the job to the other, and I liked that because it gave me a chance to see how the work was done. I kept my eyes and ears open, and by the time we finished in the fall I had a pretty good idea how a job ought to run. I went to school that winter, and when construction work opened the next spring what do you suppose happened?”

Jimmy could not guess.

“They sent for me and gave me a job running a concrete mixer. I wasn't any smarter than any of the other boys on the work, but somehow I got the idea that it was the job that counted. Any little extra work was O. K. if it helped put the job along. Since the day when I made good as water boy on Corliss Mountain road I've never had to hunt a job—the job has always hunted me.”

“Him a water boy!” soliloquized Jimmy as he trudged back from the blacksmith shop a little later with two heavy chains over his shoulders. “Well, what do you know about that!”

During the days that followed a little leaven of efficiency appeared in the person of the gang's most humble member. The water boy found time to do little errands for the men. If tools were thrown carelessly about, Jimmy Wales put them where they belonged. Jimmy had naturally a cheerful grin. He used it.

Somehow it began to seem as if Jimmy Wales carried a remarkable brand of water in his pail. Even the worst grumblers had a good word for the water boy.

Among other things Jimmy became greatly interested in the work of pipe-laying, and he made frequent trips to the bottom of the trench, where he bombarded Mike Carson, the pipe-layer, with questions.

“Is it me trade ye'd be learnin'?” chuckled the good natured Irishman.

“I'm going to find out about everything on this job,” replied Jimmy.

One hundred and eight feet of pipe had been laid from the manhole at Summer Street. The digging continued soft, and Coleman frequently cautioned Lawson to exercise the greatest care with his sheathing. The bracer was surly and resented any inspection of his work.

“He's looking for trouble!” he growled. “I'm doin' all I'm paid for.”

It was while the superintendent was at the far end of the job that a heavy maul dropped from the street level struck a carelessly driven cross brace and knocked it loose. With a splinter-crash, twenty feet of sheathing gave way and fell over in the trench, followed by tons of earth.

Beyond the break the men scrambled hastily to the street level. Coleman, running at top speed, joined them and surveyed the group. Tim Lawson quailed before his look.

“Where's Mike Carson?” asked Coleman savagely.

The men were silent.

Throwing off his coat, the superintendent sprang into the trench and dropped rapidly from brace to brace until he reached the bottom.

“Carson!” he shouted. “Mike Carson!”

A faint voice replied. There was a moment of question and answer; then

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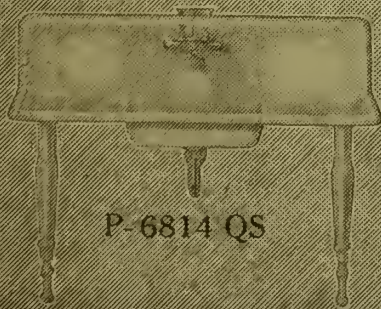


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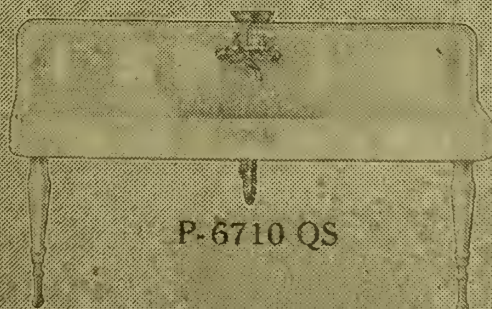
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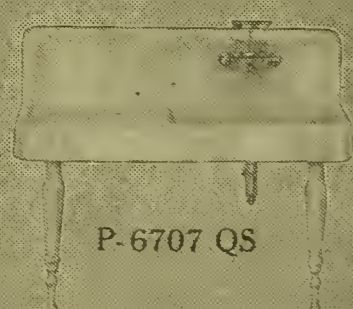
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Coleman climbed quickly to the street. "Carson's there, men, and he's alive. The planking has arched over him, so he has plenty of air space; but he says there's a timber across his back that's killing him! We'll have to dig like devils, but be careful not to start any more earth caving."

Only three men at a time could work in the restricted space above the buried man, and as fast as one paused for breath another took his place.

"Where's the water boy?" asked some one suddenly.

"There's his pail," said another; "he can't be far off."

"Has anyone seen him since the break?" asked Coleman sharply.

None could be sure.

For fifteen minutes the men dug like fiends. Suddenly they stopped. From beneath their feet came a queer sound; a sound of a saw, cutting through hard timber. In a moment Coleman was again at the bottom of the trench.

"Mike Carson," he shouted, "can you hear me?"

"Sure, I can!" came the reply; "and it's feelin' better I am since I got half a ton of timber off'n the small of me back! 'Tis this scamp of a water boy done it. He's after crawlin' through the pipe from the manhole, draggin' a saw behind him, and it's himself that cut me clear, not three minutes ago!"

Two hours later they lifted Mike Carson from the trench. As for Jimmy Wales, he had squirmed his way back through the pipe and emerged again from the manhole. The men raised a cheer at sight of him. Some one suggested taking up a collection.

"Forget it!" grinned Jimmy. "I'm drawing pay from the company. Anything is O. K. if it puts the job along."

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

I hope that mothers will find many helpful hints in this column, and not only ask questions, but write and tell me how they have met some of the problems that confront a mother of today.

Wholesome Food at Regular Hours

If possible, a child should be given his hearty meal at noon and a simple supper consisting of cereal, coarse bread and a glass of milk.

Fruit is better if given at 10 o'clock in the morning, as acids should never be given with milk. Dates, prunes and black figs are very good, where a child is troubled with constipation. Avoid giving sugar and use pure honey on cereals, puddings and bread. Have them drink the vegetable waters, such as onion, carrot and spinach, cooking vegetables in as little water as possible. Most children are very fond of grated carrots (raw) and lettuce with honey on it.

Vegetables at Noon

No question comes to me more often than: "How can I get my child to eat vegetables?"

Children differ so, that it is very hard to tell just what will appeal to them individually, but this is a plan that proved very successful with my little girl of two and a half years. At each noon meal we laid out a garden according to our vegetables, using potatoes for the walk, carrots for flowers or bricks as a border, spinach for the lawn, and the peas were usually the children playing in the garden, for they rolled around. Cauliflower represented trees or bushes, and string beans were soldiers, and so on, until our garden was complete. By digging the garden up, to be in readiness for tomorrow's planting, we had to eat everything. In a week's time my little girl was planning her own garden.

Drinking Milk with Straws

Many mothers find it very difficult to get their children to drink milk, and for this I would suggest straws, such as are used at the soda fountains. These have a fascination for children, and many a dose of castor oil with orange juice has been taken in this way.

To Prevent Chafing

Another of the very common problems is prevention of chafing. If the child wets the bed, be sure and wash him every morning when he arises, with warm water and soap from his waist down. Never use the second time diapers or a piece of clothing

that has once been wet, for it is the urine that scalds. Oil the parts well with paraffin oil. This can be purchased at any drug store.

HOUSEHOLD QUERIES

Soft Soap

Please give me directions for making soft soap out of cracklings.—Subscriber, Riverside.

If the cracklings have been properly pressed they have lost most of the fat which is needed in the making of soap. However, if one has other greases there might be sufficient value in the cracklings to add to the right solution as given by Mrs. L. B. Brown in this department March 18.

Use a coal oil can (top cut out), 2 gallons cold water, 1 can lye. Boil and add 5 pounds lard, stir until it ropes, take from fire and add 3 gallons boiling water, stir until smooth, let cool and if a little harder soap is wanted set in sun to dry.

Recipe Wanted

Will some one please give a recipe for cookies made with steel cut oats?—Subscriber, Sebastopol.

For recipe in answer to this request, sent to Household Department, California Cultivator, 317 Central Ave., Los Angeles, by Saturday, April 15, subscription credit will be given for one year if recipe is published in the Cultivator.

Who Has the Music?

I noticed you printed the words of "The Dying Cowboy" in the Cultivator last week. I wonder if I could get the music for those words from some subscriber. Am willing to pay for it. Please address Ruth Christensen, R. E. Box 177, Fresno.

Sugar Cured Bacon

Please tell me how to make good bacon. We have been trying for three years but always our bacon is too dry.—Subscriber, Sebastopol.

These directions are given by W. V. Cruess in "Home and Farm Food Preservation," an invaluable book for every farm home maker. Mr. Cruess writes from practical experience. He is now a member of the faculty of our state university.

Pack bacon strips in barrel. To each 100 pounds meat allow 8 pounds salt, 2 pounds brown sugar, 2 ounces saltpeter. Dissolve in 4 gallons water and cover meat with brine. For summer use it will be safer to boil the brine and allow it to cool before using. Place board on meat with weights to keep immersed in brine. Bacon strips should remain in brine four to six weeks. In case brine becomes slimy or ropy remove it, wash meat and cover with fresh brine made as the first. When ready for smoking rinse off adhering salt and allow to drain. Hang in smokehouse. If fire is built directly under the bacon, bacon must hang six or seven feet above. Smoke continuously for two or three days or smoke three or four hours each day for about two weeks. Use hardwood or spent tan bark for smoke. The wood should smoulder and smoke, never burst into flame. As soon as sufficiently smoked open smokehouse wide and allow meat to cool. When thoroughly cooled remove and wrap each piece closely in paper. Put wrapped pieces in strong sacks and tie well at top. Sacks should be hung where they are to remain till meat is used. Sacks should be coated with thick paste of lime, water and enough glue to make mixture stick. Do not stack in piles. Hang so pieces do not touch.

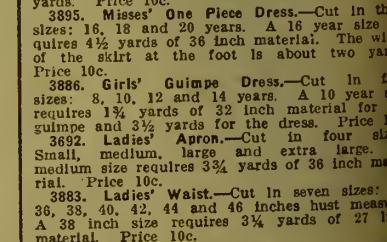
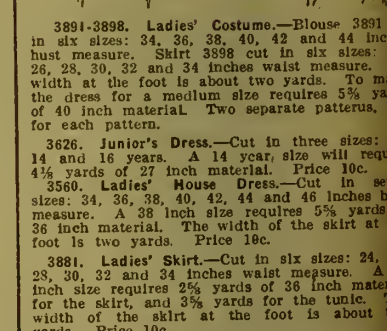
Crackers—Marshmallows

I would like recipe for crackers like those we buy. Also marshmallows.—Mrs. Otis A. Carpenter, Earlimart.

Crackers—Sift 1½ pints flour, ½ pint corn meal, 1 teaspoon baking powder, 1 teaspoon salt. Rub in 2 tablespoons butter, ¾ pint milk; work into smooth fine dough. Place on breadboard, kneading a few times, and roll to quarter inch thickness; cut with small cutter, lay on greased baking tin, puncture top of each cracker with fork, brush over with milk, bake in hot oven.

We have not available a good recipe for marshmallows. Can any of our readers help us out? Please send to Household Department, California Cultivator, Los Angeles, by April 15.

The Cultivator Patterns



3891-3898. Ladies' Costume.—Blouse 3891 cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3898 cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. Its width at the foot is about two yards. To make the dress for a medium size requires 5½ yards of 40 inch material. Two separate patterns, 10c for each pattern.

3626. Junior's Dress.—Cut in three sizes: 12, 14 and 16 years. A 14 year size will require 4½ yards of 27 inch material. Price 10c.

3560. Ladies' House Dress.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 5½ yards of 36 inch material. The width of the skirt at the foot is two yards. Price 10c.

3881. Ladies' Skirt.—Cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. A 24 inch size requires 2½ yards of 36 inch material for the skirt, and 3½ yards for the tunic. The width of the skirt at the foot is about two yards. Price 10c.

3885. Misses' One Piece Dress.—Cut in three sizes: 16, 18 and 20 years. A 16 year size requires 4½ yards of 36 inch material. The width of the skirt at the foot is about two yards. Price 10c.

3886. Girls' Glimpe Dress.—Cut in four sizes: 8, 10, 12 and 14 years. A 10 year size requires 1½ yards of 32 inch material for the glimpse and 3½ yards for the dress. Price 10c.

3692. Ladies' Apron.—Cut in four sizes: Small, medium, large and extra large. A medium size requires 3¾ yards of 36 inch material. Price 10c.

3883. Ladies' Waist.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 3¾ yards of 27 inch material. Price 10c.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Do not expect patterns under **Two Weeks** from date of order.

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Send 12c in silver or stamps for our Up To Date Spring and Summer 1922 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker. Also colored plates.

PATTERN DEPARTMENT

California Cultivator Los Angeles

THE CENTRAL LIVESTOCK MARKET

(Continued from Page 381.)

The Cost

The cost of cattle buying in country will average \$2 per head, as compared with 25 cents per head on a central market. Other and even more serious losses come from a failure to save the waste feed of the ranch by feeding it at home, and that item alone is enough to produce a fairly good animal, but we also lose by not marketing the grain in the animal and from a lack of fertilization of the soil by having animals on the ranch; also by loss to the labor of this section.

Another big expense and waste that centralized marketing would eliminate is the practice of the packers of finishing cattle in their own feed lots. There is a period from April 1 to October 1 (between hay and grass) when the packer must solve his own problem of supplies, depending on the feed lots in California or adjoining states. To fortify himself, he puts cattle on feed around the place and elsewhere so that distribution may not be completely suspended. To say nothing of the extra freight on the feed from the country to the feed lots as against marketing it in the animal, the interest on the valuable land and extra space required for that purpose is a big item. But a more serious item is the loss of a market by the fellow who has finished some cattle and is looking for a place to sell them. Clearly, the packer demand is supplied from his own source, and during that period he is off the market so that the other fellow must ship elsewhere.

A central market would reduce the cost of manufacturing and distribution by furnishing a constant supply of the right kind of animals, require less land for conducting the packing business, and by saving the big expense attending the purchase of animals at the ranch.

The Reason

The present conditions are the result of the cutting up of large ranches into smaller units for agricultural and horticultural development without providing ways and means for the smaller units to take the part they are so well fitted to take in finishing food animals.

The Remedy

There is now, and probably always will be, a very large area in California and adjoining states of mountainous land suitable only for grazing and breeding. Such sections should produce the animals to be finished on the smaller ranches and moved thence to slaughtering or manufacturing points. A central market, where the finished animal and the feeder are in active demand, would bring this about with enormous benefits to the breeder and feeder.

Admittedly, the grass cattle supply is an important part of the meat food supply and there will always be a demand for that class of cattle, but by proper grading the relative value of the grasser as compared with the finished animal will create a basis of value helpful to both classes, just as exists now in the eastern markets, all of whom get their seasonal supply of grass cattle and at the time when the feed lot cattle are also moving. The fact that grass cattle in all sections of the country represent seasonal movements and that something must be done to provide a supply in the interim should be fully recognized and dealt with accordingly. The comparatively short distance from the breeding ground to feed ranches is a condition peculiar to the state of California and an economic advantage of immense importance.

Through the medium of a central market a complete survey of the livestock and feed situation of the state should be inaugurated so that the possibilities of feeding and production may be developed and worked out in an intensive way. Apparently there is no problem today of such great importance to every person in the state. The Iniquities of Country Buying

Leaving out the question of the great waste previously pointed out, here are a few of the things possible under present practices of ranch buying: Opportunity for discrimination between the ranchmen as to price, shrinkage deducted for shipping, division of ranches or territory between packers, grading.

To illustrate: The price is a matter

of agreement without a yardstick to measure the value. A market properly constituted would have market prices at all organized markets and a forecast of receipts. The prospective receipts could easily be obtained for the home market as well as a record of the day's sales and probably strength or weakness of the market for the next 48 hours. This is a part of the work of selling agencies at all markets so that the supply and demand may keep pace. Apparently the penalties of the stockyard law do not reach ranch trading. All trading on the market is subject to federal observation.

As to Shrinkage

It is customary where sales are made f. o. b. shipping point to deduct from the scale weights at such point a certain per cent for transit shrink. Assume that Smith drives his cattle ten miles and Jones drives his 20 to the railroad, both allowing three per cent shrink in shipping. The result is that Jones gets less money for perhaps a better grade. On the market all sales are made after a fill of feed and water, which would largely restore the loss of shrink from the drive and in shipping so that both shippers would be on an equality.

As to Division of Ranches or Territory

There would be no such thing possible on the market.

As to Grading

It is a recognized fact that the average producer knows little or nothing of how the animal looks on the hook or in the beef, and still he matches his judgment in selling at the ranch against the knowledge of years of training and experience of the packer buyer who wants the meat and not the frame, so that in the matter of grading he cannot hope to successfully compete with the buyer. The market has expert salesmen who know the meat yield as well as the buyer and better than the owner. The owner could come to the market and observe the operations and know definitely what his neighbor got for his cattle, and if any substantial difference, the reason for it.

Development of the Packing Business

Modern packing plants utilizing and putting into commercial use many parts of the animal now tanked for fertilizer means a big saving to the industry which will benefit the consuming public. The use only of the meat food or edible part of the animal is a direct tax upon the consumer's purse. Better breeding and feeding and an increased quantity means an expansion of the industry, and the increased demand means better prices to the producers.

Loss by Condemnation

During the year 1920, 18,000,000 pounds of meat were condemned at plants operating under federal supervision throughout the United States, which represented about one-fourth of one per cent of the total amount handled by such plants. This waste resulted from diseased, crippled and bruised animals, and occurred in a section of the country where a great deal has been done by the federal and local governments to eradicate disease and prevent injury to the feed animal. It would be interesting to know what the figures are in Southern California, where there is no organized attempt to save the waste.

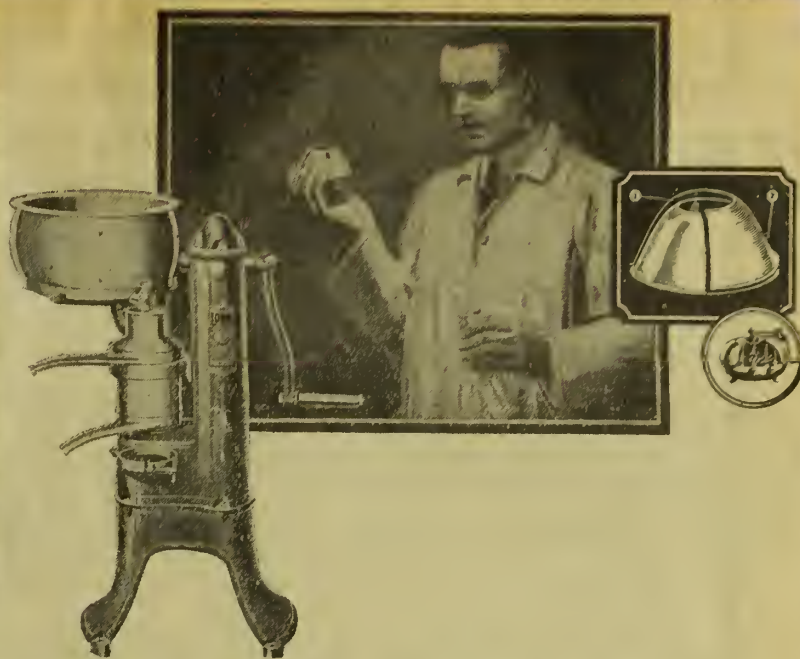
Central Marketing

The Southern Pacific slope is the only section of the United States where the central marketing of livestock has not been put into effect, and in all such cases the results have been of great benefit, in fact, proven the backbone of the agricultural and farming industry, and the marketing points have developed into big and prosperous cities. Iowa, for example, is a feed lot for the Omaha, Sioux City and Chicago markets, and the farmer is wonderfully prosperous. Any other states engaged in livestock production and marketing under the centralized system are equally prosperous. Can it be possible that this marketing plan so successful everywhere else is all wrong and that the present system in the Southern Pacific slope is right?

Transportation Conditions

Generally throughout the United States, stocker and feeder animals are transported at a freight rate three-

(Continued on Page 397.)



The IOWA

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At the Panama Pacific International Exposition the IOWA Cream Separator out-skimmed all competing machines in every test made by the jury of dairy experts. In one test its closest rival left 47 times more butterfat in the skim-milk than the IOWA did.

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Write for new book and full details.

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60 REGISTERED COWS
HEIFERS and BULLS 60Ormondale Ranch, Redwood City, Calif.
Thursday, May 4, at 12 o'clock Noon

The dispersal of this splendid collection of Shorthorns under the auctioneer's hammer will provide one of the most attractive opportunities for purchase yet afforded by the breed in the West.

The female offering will include both Scotch and Scotch topped sorts, ranging from great matrons with calves at foot, to open heifers. Many of the heifers are sired by Imp. Boquhan Guinea Stamp, and the bred females are in calf, either to THE CALEDONIAN, an outstanding prize winning son of Imp. Caledonia, or to COUNT KINGWOOD, a splendid son of Imp. Kingwood.

A female group that attracts particular attention is that of the great producing cow SWEETHEART and her three daughters. She is the dam of the International Grand Champion LITTLE SWEETHEART, and two of her heifers in this sale are full sisters to Little Sweetheart, sired by Golden Goods, Jr., while the third is by Ormondale Itadium.

THE CALEDONIAN and COUNT KINGWOOD both sell, and from every standpoint they command the attention of the buyer who requires a high class herd header. There is also a choice group of younger bulls.

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TERMS OF SALE: Responsible parties may arrange for credit before sale with the sale managers on the basis of one-half cash, balance in six months.

ORMONDALE RANCH is about 9 miles southwest of Redwood City; about 36 miles south of San Francisco. Morning trains will be met at Redwood City morning of sale.

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California Breeders Sales and Pedigree Company

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Public Auction, Stockton, Calif.

(Sale at Fair Grounds)

Thursday, April 20, 1922

40---Serviceable Bulls---40

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Better
the Bull—
the Better
the Steers.Herefords
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Hardy,
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Profitable.

This offering of bulls should prove a real opportunity for the range man. They are the right kind—short legs, blocky, mountain raised and range fed. The kind that produces real steers and makes money for the buyer. This sale will be the last opportunity for California cattlemen to buy Hereford bulls at auction this spring.

10—Cows and Bred Heifers—10

The females have been selected with care and are just the sort for the beginner or the man wanting to establish a herd for the production of registered cattle. They are a splendid lot.

I have recently located in Stockton and this will be my first annual sale in the San Joaquin Valley. Come and get acquainted with my cattle.

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Davis, Calif.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 12, T. J. Gist & Son, Tulare.
April 26 and 27, Fred H. Harvey, Galt.
May 11, E. R. Stalder, Nuevo.
May 23-24, J. S. Gibson Estate; Williams.

June 1 and 2, Burr Farm, Los Angeles.

Milking Shorthorns

April 19, Harrison, Lynch, Roberts and Heckley, Santa Rosa.
May 6, J. D. Rowe & Sons, Davis.

Shorthorns

May 4, Ormondale Ranch, Redwood City.
May 25, Caledonia Farms, West Sacramento.

Guernseys

May 17-18, Walter H. Dupee, Hynes.

Jerseys

May 9, Geo. H. Thomas & Son, Arlington Station; sale at Hynes.

Herefords

April 20, H. M. Barngrover, Stockton.

S. B. Stafford was reelected president of the Chicago Livestock Exchange for his third consecutive term at the annual election February 13. T. E. Swiney was elected vice-president, and T. W. Jerrems, E. G. Fuikerson and W. L. Compton, directors for a term of three years.

President Ellenwood of the California Wool Growers Association is attending the annual of the National Association at Salt Lake.

A Woodland, Yolo County, wool grower has just made sale of a carload of wool at 20 cents a pound.

Announcement is made this week of the annual sale of Shorthorns from the herd of Caledonia Farms, West Sacramento, to be held May 25. Since 1920 the annual sales from this breeding plant have been among the most important events in livestock circles and have served to distribute a class of cattle of superior merit. As usual the offering will make available the blood of the three great Caledonia herd bulls—Imp. Caledonia, Pine Grove King and Gainford Matchless. Between 30 and 40 head of females will be catalogued and at least five high class young bulls will be included. As in former years the sale will be held at the farms and will be under the management of the California Breeders Sales & Pedigree Company. Additional details will appear in due time.

The Holstein-Friesian heifer Pietertje Ormsby Mercedes Frisby has broken the record for fat production in the junior two year class of the seven day division by producing in seven consecutive days 452.1 pounds milk, containing 26.327 pounds fat. She freshened at the age of 2 years, 5 months, 8 days. Her sire is Pietertje Ormsby Mercedes Della; her dam, Colantha Changeling Frisby. In the junior two year class of the seven day division she displaces the heifer Eco-Sylv Belle, whose record for seven days is 24.908 pounds fat from 439.7 pounds milk. Computed on the 80 per cent basis, the equivalent butter claimed for Pietertje Ormsby Mercedes Frisby amounts to 32.908 pounds.

The great herd of registered Holsteins owned by The J. S. Gibson Company, Williams, will be practically dispersed at public sale on its farm on May 23-24. The decision to make this dispersal was made after the recent death of Gion W. Gibson, which was followed shortly after by the death of his mother, Mrs. J. S. Gibson. This herd has for many years held a high place among the great herds of the west, and has contributed some of the largest official records made in California, among others having developed the first cow in the state to make over 1200 pounds butter in one year. Only the younger heifers and a few cows will be retained, of the latter just enough to furnish milk for the young calves, leaving approximately 150 head to be sold.

F. F. Pellissier, Whittier, is developing some excellent records in his herd of registered Holsteins. Among the latest is that of Queen Pride Rouble with 33.06 pounds butter from 548 pounds milk in seven days and 122.91 pounds butter from 2612 pounds milk in thirty days. Miss Pontiac Model Prilly, a junior three year old daughter of the sensational King Segis Alcar-

tra Prilly, made 22.96 pounds butter from 463 pounds milk in seven days. The 11 year old cow Brudorin made the noteworthy record of over 26 pounds butter in seven days.

Herdsmen Harry L. Redd reports some more nice records from the big herd owned by Frank M. Helm, Fresno. Helm Lady Hiske Walker De Kol, a first calf three year old daughter of King Hiske Mead, made 30.12 pounds butter from 588.3 pounds milk, a California record for a first calf heifer. Eldorado May, a two year old daughter of Sir Aaggle De Kol Acme 2nd, made 21.96 pounds butter from 510.8 pounds milk. Stratford Pledge De Kol, a mature cow, made 27.14 pounds butter from 661.7 pounds milk.

The semi-dispersal of T. J. Gist & Sons' herd of registered Holsteins at Tulare on April 12 will provide an opportunity for the purchase of an attractive lot of heavy milking young cows, and as the owners are retaining their open heifers and heifer calves it means that every female in the sale is of breeding or milking age. Thirty-five of the females are bred to King Sylvia Segis Colantha, a son of the \$106,000 bull Carnation King Sylvia.

F. H. Harvey, Galt, has announced a complete dispersal of his dairy herd, which contains 160 registered Holsteins. The herd contains a large number of young cows with official records above 20 pounds butter in seven days, and many with cow testing association records made in the Sacramento-Yolo Cow Testing Association. The sale will be held April 26-27 on the Harvey Ranch, about three miles west of Galt.

George W. Thomas & Sons, Riverside, will make a semi-dispersal of their well known herd of registered Jerseys on May 9, selling all of their milking cows and bred heifers, about 50 in number. This has long been regarded as one of California's most substantial herds of Jerseys, and in view of the present wide demand for registered Jersey females the offering promises to meet with widespread interest.

E. R. Stalder, Nuevo, will make a complete dispersal of his herd of registered Holsteins on May 11. It is reported that following his sale he will be associated with Glenwood Stock Farm, Riverside, a recently organized company which plans to operate on a large scale with registered Holsteins.

The largest sale of registered Guernseys yet held in the west will take place at Hynes on April 17-18, when W. H. Dupee will sell 120 head from Edgemoor Farm, Santee. The offering will include 100 females and 20 bulls, and will help to fill the tremendous California demand for breeding Guernseys.

In order to adjust a partnership existing between E. Burr, G. M. Brown and Kenneth W. Abbott, a dispersal of the noted Burr Farm herd of registered Holsteins will be made on their farm at Los Angeles on June 1-2. The sale will contain approximately 170 head, including the famous \$12,000 bull King Korndyke Pontiac 20th. This herd has earned a place among the top collections of the breed in the west and its dispersal will offer a great opportunity for selection by new buyers and established breeders as well.

The animal husbandry division of the college of agriculture has sold the Perecheron stallion Aglionel to J. C. Wood and C. W. Christensen of Danville. Aglionel has been at the head of the university stud since the fall of 1917 and has proven himself a sire of exceptional merit. He was sired by the famous horse Aglion and is probably as closely related to the great Besigue as any horse of the breed now living. He was foaled in 1915 and stood fourth in the two year old class at the 1917 International. The price received was \$1200.

Fauvic's Star has set a new record for milk production for the Jersey

breed by producing 20,616 pounds of milk, containing 1006 pounds of but-



SEMI-DISPERSAL SALE 50 REGISTERED JERSEYS HYNES, CALIF.

at Rhoades & Rhoades Sale Pavilion
Tuesday, May 9, at 10 a.m.

Here is the opportunity registered Jersey buyers have been hoping for for months past—to find available for purchase a high class lot of Jersey females.

This sale includes every cow and bred heifer in the well known herd of GEO. W. THOMAS & SONS, Arlington, Calif., also the two herd sires. Mr. Thomas and his sons are retaining only their unbred heifers and heifer calves as foundation for their future herd.

THIS IS A HERD OF SPLENDID INDIVIDUALS, IN EXCELLENT PHYSICAL CONDITION, THE ENTIRE HERD IN MILK AVERAGING 38 LBS. BUTTER FAT PER MONTH AT THE PRESENT TIME.

The entire herd was recently tested by a Deputy State Veterinarian, and not a single animal responded to the test. Every animal guaranteed to be a breeder and sold subject to tuberculin test by the buyer.

TERMS OF SALE: Responsible parties may arrange for credit on basis of one-third cash, balance in three, six and nine months before sale with California Breeders Sales and Pedigree Company.

Write for catalog now.
Management
CALIFORNIA BREEDERS SALES
AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento, Calif.
Auctioneer
Col. Ben A. Rhoades, Los Angeles

ter fat. The former record was held by Passport with 19,695 pounds of milk.

The pig club leader of the San Bernardino County farm bureau has announced that all pig clubs formed in San Bernardino County in the future will work exclusively with Berkshire pigs.

A new California Shorthorn breeding firm has been formed at Modesto by F. C. Woodford, L. D. Thompson and G. M. Lock. The firm is capitalized for \$50,000 and is to be known as the Golden West Shorthorn Cattle Company.

J. D. Rowe & Sons, Davis, lessees of the Alexander & Kellogg Innisfail herd of milking Shorthorns, announce a sale of 42 head of selected cows and bulls to be held at their farm on May 5. This herd has been long regarded as one of the very best collections of the breed owned in the west, and for a number of years has occupied a prominent position in the show rings. This herd probably contains more tested females than any western herd and a number of records rank among the best of the breed.

At the Fourth National Milking Shorthorn Congress at Erie, Pennsylvania, March 24-25, Queen Bapton, consigned by the Otis herd, Willoughby, Ohio, was grand champion cow, and Wampatuck Henry, consigned by Robert Saltonstall, Readville, Massachusetts, grand champion bull. The cattle were judged by W. Arthur Simpson, Lyndonville, Vermont. The congress and sale was under the management of the American Shorthorn Breeders Association, Chicago, represented by J. L. Tormey. The bulls averaged \$400 and the females \$277.

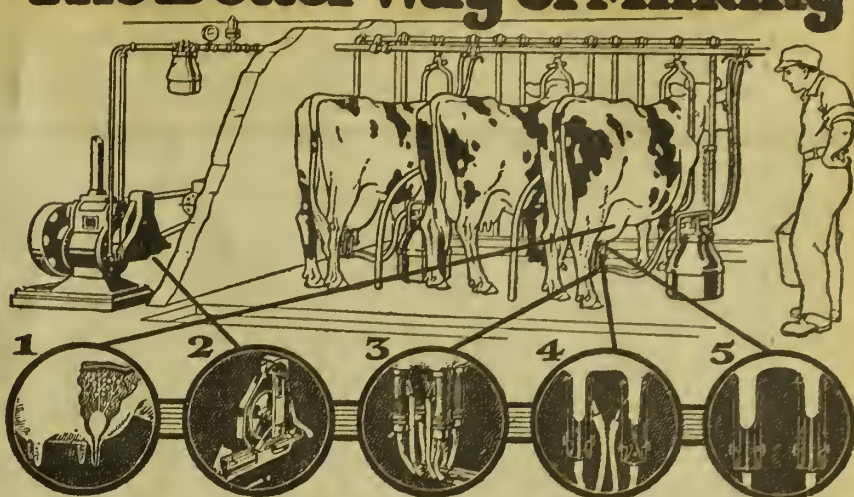
The Hartsook ranch at Lankershim has just finished some more dandy yearly records in its Holstein herd. Bessie Snow, a full aged cow, finished her work with 1,121.8 pounds butter from 27,050 pounds milk, while May Altona Pontiac made 1,106 pounds from 25,500 pounds milk. Parthena Paul Segis, who was grand champion at the Los Angeles County fair in 1920, finished with 967 pounds butter from 25,550 pounds milk.

Roy Bratzler of Algonquin, Illinois, arrived in California last week with three carloads of pure bred Holsteins. Thirty head of two and three year old heifers went to Ross Flintjer of Riverside. Mr. Flintjer is located on the ranch the California Hotel Company maintains at the head of the Box Springs grade to supply poultry and dairy products for its three big hotels in Pasadena. Twelve of these heifers are daughters of King Segis Pontiac.

A. McMinn is moving his herd of Ayrshires from Litchfield, Arizona, to Corona. Mr. McMinn is well known in California as he has shown here for a number of years with uniformly high results.

Manager Judy of the Ocean View Stock Farm at Oxnard has returned to his first love in hogs by the purchase of a fine foundation of Berkshires from the Italian Vineyard Company at Guasti. Mr. Judy was a breeder of Berkshires in the East but since being in California has been working with other breeds until recently. When the chance arose to stock the Ocean View ranch with hogs he sought out the Italian Vineyard and purchased two bred sows and ten bred gilts. Superintendent Alex Wilson fitted him out with some dandy females bred to such boars as Winona Leader Champion, the great son of Laurel Champion, who is at the head of the Guasti herd; Rincon Leader, who formerly headed the Muddox herd, and Model Leader 3d, who was grand champion at the American Berkshire Congress show at Riverside. Up to date five of the gilts have farrowed a total of 48 pigs, of which 46 are being raised. One gilt dropped the prize package of 11 sow pigs sired by Model Leader 3d. On account of the low price of sugar Ventura County is going in very largely for dairying and hog raising. Mr. Judy has his quarter section mostly in alfalfa and with the fine feed available and the excellent foundation herd of hogs he has chosen he will undoubtedly be a leader in his section.

The Better Way of Milking



(1) It Works in Harmony With the Cows

A cow's udder is extremely delicate and sensitive, and responds best to certain methods of milking—and it is due to the fact that the De Laval Milker works in harmony with the cow, in observance of the principles of milk secretion, that better results are obtained with it than with any other way of milking.

(2) Uniform Pulsation Action

Cows like and respond best to uniformity of pulsations or squeezes. Pulsation speed of the De Laval Milker is governed by a master control which is geared to the pump, and is as regular and uniform in its action as the pendulum of a clock. Every milker unit runs at exactly the same speed as the master control and cannot be changed at the whim of the operator. The De Laval is the only milker which has this feature.

(3) Pulsator Close to Udder

Vigorous and stimulating action, which cows like so well, is secured with the De Laval because the pulsator is located close to the udder. Pulsations reach the teat-cups in the shortest possible time and produce vigorous action and abrupt periods of release and massage so stimulating and soothing to the cows. The pulsator has only one moving part, is non-adjustable, re-

quires no oiling, and will run for years without attention. No other milker has these features.

(4) Alternating Action

The alternating action of the De Laval causes milk to be drawn from two teats, while the other two teats are given a massage and brief rest period. In this manner an even and continuous flow of milk is drawn from the udder—another reason why the De Laval is so successful and milks faster and better than any other way.

(5) Self-Adjusting Teat-Cups

De Laval Teat-cups fit all sizes of teats. No metal touches the teat, and the rubber liner fits snugly about the teat, permitting the vacuum to be applied only to the point of the teat and not to the sides. This, together with other exclusive advantages, accounts for the pleasing and gentle action of the De Laval Milker, and is one of the many reasons why the cows like it so well.

There are thousands of satisfied De Laval Users, many of whom state that they would get rid of their cows if they couldn't have a De Laval. Others say they wouldn't be without it for twice the price it cost, while practically all agree it produces more and cleaner milk, saves time and makes dairying more pleasant and profitable. Write for full information.

De Laval Pacific Company
61 Beale Street San Francisco

Sooner or later you will use a De Laval Milker and Cream Separator

THE SALE YOU HAVE WAITED FOR!

60 Registered Milking Shorthorns

SANTA ROSA STOCK FARM

Santa Rosa, Cal.

Wednesday, April 19

FROM THE FOLLOWING HERDS:

Santa Rosa Stock Farm, Santa Rosa; John Lynch Ranch, Petaluma; W. T. Roberts, Penngrove and R. Heckley, Santa Rosa.

40—FEMALES—40

All the mature cows have records of milk production and the heifers are from dams of proven production. As a whole or individually they are a superior lot of correct type and producing bloodlines.

16—YOUNG BULLS—16

The bulls comprise as strong a lot as were ever offered in the West. A number of herd bull prospects of high order and all are capable of implanting increased milk production in your herd.

The sale will feature the get and services of the noted bull, Count Ticksford, champion at many shows and counted one of the best bulls of America.

For any information write

Thos. Harrison, Sales Manager, Santa Rosa Stock Farm
Santa Rosa Calif.

These free booklets on Farm Sanitation

tell you how to prevent disease among livestock and poultry and describe in detail the many uses of

KRESO DIP No. 1

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Parasiticide and Disinfectant

No. 151—FARM SANITATION. Describes and tells how to prevent diseases common to livestock.

No. 157—DOG BOOKLET. Tells how to rid the dog of fleas and to help prevent disease.

No. 160—HOG BOOKLET. Covers the common hog diseases.

No. 185—HOG WALLOWS. Gives complete directions for the construction of a concrete hog wallow.

No. 163—POULTRY. How to get rid of lice and mites, also to prevent disease.

Write for these booklets.

Animal Industry Department

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POULTRY

Profitable Poultry News—Capacity, 200,000 Chicks, hence prices surprisingly low for quality. Customers say: "March 22, 1922. Your last year (200 Ancona) chicks remained in depot over night, yet I raised every one. They have laid 83%. Have never had sick bird. Want 200 more; 3000 White Leghorns are keeping up standard in production, are beautiful birds. One County Agent has already bought this spring 12,450 chicks. For years his people have tested them. These strains are 180-290-egg Leghorns—Reds, Rocks, Anconas, Minorcas, Wyandottes, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys (21 varieties, each under specialist)—lead many egg-laying contests; build foundation flocks, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guarantee; booking for immediate, future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery **ORANGE COUNTY HATCHERY**, Santa Ana, California.

Have you
had satisfaction
with your
BABY CHICKS?

If not, give us a trial.
Our chicks give satisfaction.

DAY OLD DUCKS
on orders.

STEELE'S EGG RANCH.
Phone Gardena Exchange 692.
Moneta, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks hatched in Petaluma Incubators are a superior class. Strong, vigorous, sturdy, grow rapidly, lay early. Buy chicks from hatcheries using Petaluma Incubators. You will find one near you. If not, write us. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

THE MISSION HATCHERY

Barred-White Plymouth Rocks, R. I. Reds, Black Minorcas, White and Brown Leghorn, Baby Chicks and Hatching Eggs. Quality high—prices low. Circulars free. Mission Hatchery, Box 27, Campbell, California.

White Leghorns—Eggs for hatching our specialty; produced right, selected right, shipped right; 100% fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, Calif.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks, F. & L. Downing, Los Gatos.

Parks' P. R. Pedigreed Cockerels and Eggs for hatching (230-egg strain); breeding pen direct from Parks, Altoona, Pennsylvania. Cockerels, \$5.00. Eggs, \$5.00 for 15. E. B. Williams, R. D. No. 2, Fillmore, California.

White Leghorn Chicks from Hoganized vigorous two and three-year-old hens on free range. 287-egg strain. Prices reduced. Hatch each week. Safe delivery guaranteed. Mrs. Robert Goddard, Los Gatos, California, R. A. Box 122.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$5.50 per hundred. Mrs. Flora Cox, Anaheim, California, R. 2.

Peafowl For Sale—Old and young. Stamp. Hiram Yoder, Tuleta, Texas.

Dark Strain Rhode Island Red Hatching Eggs, \$2.00 for 15. Frank Barnett, Delano, Calif.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pairs. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. VENTURA: First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

Baby Chicks, Barred Rocks and Rhode Island Reds from carefully selected stock. You want the best, we have it. All chicks shipped by parcel post. We pay all charges. Prices for April and May: 25 chicks \$5; 50, \$9.50; 100, \$18. Order early as we are heavily booked. Established 1915. Hargett & Son, Route 2, Box C, Compton, California.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. To-bener Hatchery, Route 2, Box 306, San Jose.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Barred Plymouth Rocks, "Wonderful Layers" champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voddan, Los Gatos, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grismes Ave., RR 2, Box 130, Burbank, Calif.

Better Be Safe Than Sorry and order your chicks from the Stevenson Hatchery (Always Reliable), 19 Center Street, Watsonville, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. **BABY CHICKS**, Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504A, San Jose, California.

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Thoroughbred White Wyandotte Eggs, \$1.75 per setting, postpaid. Mrs. Chas. Dougherty, Norwalk, California.

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Walter Hogan Stock White Leghorn baby chicks. All our eggs come from one flock of over 5,000 mature hens that are now laying their best and will produce fine, strong chicks. We are now selling at \$12.50 per 100, \$125.00 per 1,000, F. O. B. Gardena. \$2.00 deposit on each 100 with the order, balance C. O. D. Chicks shipped by parcel post, guaranteed to arrive safe. Don't buy chicks that come from many different flocks, some of them might not be very good. Lyon Hatchery, Gardena, California.

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. **BLUE ANDALUSIANS** high class stock \$3.50 setting. **GOLDEN CAMPINES** and **LAKENVELDERS** from best yards in America. Mature early, heavy layers of white eggs, \$6.00 setting. Anconas—\$2.50 setting. Postpaid. J. B. Crawford, Route 2, Compton, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 11. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 351a, Lodi, California.

Baby Chix: White Leghorns (Tancreds), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. Enoch Crews, Seabright, California.

Ancona Hatching Eggs from selected laying stock. Mated for beauty and heavy egg production. By the setting or hundred. Write for Mating List. R. G. Baugh, 3534 Allendale Ave., Oakland, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Thoroughbred Barred Rock Hatching Eggs. \$2.00 per 15 postpaid. Orders booked for Ringneck pheasant eggs. W. Leland Smith, Fair Oaks, California.

Light Brahmas—A few young cocks. Setting eggs \$5.00 per 15. Keys Ranch, El Monte.

Light Brahma Eggs for Hatching, \$2.50 per 15, large stock. J. M. Sigler, Puente.

MISCELLANEOUS

U. S. SURPLUS TENTS & HOSE,
ABSOLUTELY NEW

Tents, 6' 8"x 6' 8"	10-ounce duck	\$7.75
Tents, 9' x 9'	10-ounce duck	\$10.00
Tents, 10' x 12'	10-ounce duck	\$12.50
Tents, 12' x 12'	10-ounce duck	\$14.00
Tents, 15' x 15'	10-ounce duck	\$22.50

We have 5000 of these tents which are absolutely new and complete. Sold f.o.b. cars, Oakland, until disposed of. Also have 10,000' of ¾" 7-ply new hose. Sell any quantity at 14c per lineal foot. **AMERICAN MACHINERY CO.**, 518 Fourth Street, Oakland.

Homespun Tobacco—No. 1 Tennessee red, 5½ lbs., \$1.80; No. 2 smoking 5½ lbs., \$1.65; 5½ lbs., choice burley smoking, \$2.75. All prepaid. Satisfaction or money back. Farmers' Association, Dukedom, Tenn.

Hemstitching and Picotting Attachment: fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Kentucky Natural Leaf Tobacco—Smoking, 10 lbs., \$2.50; 20 lbs., \$4; chewing, 10 lbs., \$3; 20 lbs., \$5. R. F. Veal, Agt., Sedalia, Kentucky.

Homespun Smoking or Chewing, 5 lbs., \$1.50, 10 lbs., \$2.50. Valuable formula. Smoking 5 lbs. \$1.00. Pigeon Roost, Sedalia, Ky.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Free Smoking Tobacco—Smoke on us. Write for free sample. Hawesville Tobacco Co., Hawesville, Ky.

PIGEONS

Pigeons for Squab Raising—Carneaux and Homers. Mated breeders and young stock for sale. Also pheasants and pheasant eggs for hatching: Golden, Silver, Ringneck. Pasadena Pigeon Farm, Route 1, Box 139, Pasadena.

SEEDS AND PLANTS

SUDAN GRASS SEED

(The Great New Hay Crop)
First introduced in the United States 1909 from Sudan, Africa.
Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, it grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings.
Pasture. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.
Price—5 lbs., \$1, 10 lbs., \$1.50; 50 lbs., \$5; 100 lbs., \$8; 500 lbs., \$35; 1000 lbs., \$50.
BOWMAN'S HDWE & IMP. CO.
721 J St. Sacramento, Calif.

FOR SALE: GENUINE CERTIFIED HAIRY PERUVIAN ALFALFA SEED. DULY CERTIFIED AS COMING FROM INSPECTED FIELDS. EACH LOT NUMBERED AND IDENTIFIED WITH FIELD ON WHICH GROWN. IF YOUR DEALER DOES NOT HANDLE MY SEED, WRITE OR WIRE TO ME FOR PRICES, SAMPLES AND STATISTICS.
E. F. SANGUINETTI
ESTABLISHED 38 YEARS
YUMA, ARIZONA

For Sale: 500 pounds Klondyke Watermelon seed, best brown varieties, at \$2.00 per lb. 100 pounds black seed Chilians \$1.00 per lb. All seed guaranteed to grow if planted at proper time. Sam Oskey, 2005 Audrey Street, Los Angeles, California.

30,000 Brandywine crossed with wild; 20,000 Arizona Everbearing Strawberry plants, \$1.00 per 100; \$3.00 per 1000. Arizona Improved Perpetual Bearers, \$2.00 per 100. Grown 3000 ft. elevation. I pay parcel post. B. E. Wilhite, Aguanga, California.

Strawberries, 21,600 boxes per acre, July to November, 1921, from Ilcitt's Improved Mountain Grown Progressive Everbearers. Yields enormous crop first year. 100 plants \$2.50, 1,000 \$20 prepaid. Carl Hewitt, Summit, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

For Sale—Millions of Stone tomato plants. Write for price list and particulars. Reference: Chamber of Commerce, any bank or business man in Pomona or Gardena. L. C. Johnson, Pomona or Gardena, California.

50,000 Rootings—Thompson, Malaga, Sultan, Emperors, Zinfandel and Zante Currants and Muscats, \$18.00 a 1000. Also seeds and plants. Write for circulars. Box 501, Fowler, California.

Cory Thornless Blackberry—Extra large plants, from experienced grower and shipper. 12—\$2.25, postpaid. Satisfaction guaranteed. Illustrated folder. Write Chas. E. Mortenson, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred, \$3.00; 2 year old, per dozen, \$1.00; 2 year old, per hundred, \$7.00. Currier Bulb Co., Santa Cruz, California.

Cory Thornless Blackberry—Extra large well rooted plants now ready. You get the genuine from the Pioneer Grower Wm. Mortenson, Route 1, Lodi, California.

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000, F. O. B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

California Wonder Corn for Seed. Greatest producer wherever grown. Write for leaflet. James McKee, Riverside Calif.

Alfalfa Seed—Certified Hairy Peruvian Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Plant Our Six Weeks' Potatoes—Earliest biggest producer known. J. L. Lawson, San Jose, California.

Royal Purple Raspberry—Largest and sweetest known. Fine plants reasonable; 44 Post Street, San Jose, California.

Sour Orange Seed, fresh from Florida immediate delivery. Milo Hunt, White, California. Phone 250.

WANTED

Wanted—Job on ranch by chemist experienced in soil, fertilizer and milk analysis; rodent, scale, bug and worm extermination. Have own laboratory equipment. American, 28, married, reliable. Have handled and repaired autos, trucks, tractors, steam, gas, water and electrical machinery, done carpentry, farm explosure and concrete work. Not hunting soil job or fat salary. Can speak Spanish and handle men. Four years on last job. Good references. Address H. G. N., car California Cultivator, 317 Central Avenue, Los Angeles.

Want to Hear From Owner Having Farm For Sale; give particulars and lowest price. JOHN J. BLACK, 116th Street Chippewa Falls, Wisconsin.

DUCKS

Mammoth White Pekin Ducklings—An quantity. Place your order now. Weishoon Duck Ranch, Cedar Street, between Palm and Lennox, Lennox, California. Route 1, Box 791, Inglewood, California.

Mammoth White Pekin Ducklings—Ten days old, 25c each; \$25.00 per hundred. A. Surtman, Petaluma, California.

TREES

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

White Winter Pearmain, Yellow New-town Pippin apple trees, Royal apricot on apricot root, red nectarines, Phillip and Tuscan cling peach, Placenta-Perfection walnut trees, berries and grape vines. Stock first class, true to name. Los Nietos Valley Nursery, Phone 692, Downey, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f. o. b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

For Sale—4000 Calimyrna and 1000 Capri Figs, \$150.00 per 1000. Black Walnuts, 1000—\$10.00 per 100; 500 Mammoth Black-berries, Himalayas, \$30.00 per 1000 in ground. Roses and ornamentals. South Street Olive Yard, Corning, California.

Valencia Navel and Lemon Association Buds, first class pedigreed buds, about 5,000 trees left. I am going out of business; make a good price for the whole lot. Oscar Lehner, 3120 Colton Avenue, San Diego, California.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Seedlings—Apple, pear, plum, peach. 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 100 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Grafted walnut trees, also cit-rus and deciduous trees. Order now for 1922 delivery. Get my prices. Ket-cher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Avocados—We have a nice bunch of Puebla, Fuerte, a few Spinks, Knight, Queens and Blake. Well grown trees in fine condition. Coolidge Rare Plant Gar-dens, Pasadena, California.

Nursery Stock for Sale—Navel and Va-lencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. Phone 75-W-1.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 85, Phone Colorado 6044.

Reliable Trees and grapevines at a fair price. Write us for price list. We ship on approval. J. F. Miller & Sons, Healds-burg, Calif.

For Sale—Royal Apricot and other decid-uous Fruit Trees. Also Palmetto As-saragus roots. Van Nuys Nursery Com-pany, Van Nuys, California. Phone 12.

For Sale—Athen or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—Sacks and burlap for baling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

CATTLE

Guernseys—Grape Wild Farms—Ber-kshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

nnisfall Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 15 females of Register of Merit stock and an outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Jesses, Davis, California.

Redwood Ranch—Registered Herefords. Choicely bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Corre-spondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Registered Polled and Horned Yearling Hereford Bulls for the farm and range or sale, in line with present market values of cattle. Babbitt & Cowden, Office: 424 Heard Bldg., Phoenix, Arizona. Phone 6438.

Jerylwood Stock Farm—Breeders of reg-istered Holstein cattle and Duroc-Jer-sey swine. Every cow an A. R. O. and C. B. tested. Bulls and females for sale. C. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Early Record Holsteins—Bulls from 500 to 1000 pound dams and by World Rec-ord sires. A. W. Morris & Sons, Wood-land, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, Cal-ifornia.

Polled Herefords and Durocs—Diablo Stock Farm, G. W. Emmons, Prop., Danville, California.

Herefords—Veramont Stock Farm, H. M. Barngrover, Prop., Stockton, Cal-ifornia.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1573 W. 46th St., Los Angeles.

FARM LAND FOR SALE

Sale or Trade—Ideal Stock or Dairy Ranch. 500 acres, one mile from town and railroad, fully equipped with all necessary implements and tools, horses and grade and registered Shorthorn Dur-hams. Fine house, large barn, black-smith shop, garage, bunk house, pumping plant at creek and house, water runs in creek all year, well fenced and cross fenced, over 100 acres bottom plow land, burr clover pasture, variety of fruit trees around house, over 200 acres can be put into fruit and alfalfa if desired, about 2000 cords of oak and pine on stump, ele-vation 800 ft., 32 miles east of Stockton. Would consider residence and mercantile business in trade. Price \$40,000—terms 7%. For further information apply to owner, H. W. HANMAN, Valley Springs, California.

198-ACRE MISSOURI FARM 4 HORSES, 2 COLTS, 12 CATTLE Hogs, vehicles, implements included; near high school town; 100 acres produc-tive tillage, spring-watered pasture; wood; 50 apple trees, other fruit; comfortable 6-room house, barn, two other houses and barns; poultry houses. Other interests compel sacrifice; all \$3200, part cash; easy terms. Details page 103, New Illus. Cata-log, 1200 Bargains. FREE, STROUT FARM AGENCY, 831 HK, New York Life Bldg., Kansas City, Mo.

WHERE CROPS ARE THICK Rich bottom lands, where crops are thick, make farmers wealthy. We have such lands, with an irrigation system. We will sell you a farm here in Sutter Basin, on surprisingly liberal terms. A crop on the land now.

SUTTER BASIN COMPANY, 304 California Fruit Bldg., Sacramento, California.

5 to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. D., electric and telephone service; adapt-ed to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for two years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 324 Yuba St., Redding, Shasta County, Cal.

For Sale—20 or 40-acre DAIRY RANCH, part alfalfa, bal. barley. Good buildings, plenty water or would sell 23 cows, etc., and lease place. H. Beatty, RD 3, Santa Ana, California.

18 Acres Fruit and Walnut Land—On road being paved. Mile from State Highway. Good for chickens. Good water, engine, etc. Oil rights included. Price \$3500. Frank Littig, Nipomo, California.

Paradise, the Fruit Grower's Opportunity. Water, electricity, telephone, good roads, healthful climate. Write: C. H. Nielsen, Paradise, California.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, Cali-fornia.

TURKEYS

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Mammoth Bronze Eggs—Foundation stock "Gold Nugget" and other prize strains. For six generations we have hatched only selected eggs from 2-year-old hens, then have kept only best birds for breeding stock. No inbreeding. Eggs guaranteed. Andrews & Andrews, Bo-K-Haunt, Hemet, California.

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Gold-bank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 88A, Merced, California.

Thoroughbred White Holland Turkeys, eggs 60c; setting of 10, \$5.00. Chinese Ringneck pheasants, pen of 3, \$12.50; eggs \$5.00 setting. 2 year female Silver, \$7.00. Pause Pheasantry, Fair Oaks, California.

Choice White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Rob-inson, Hemet, California.

For Sale—1 Bourbon Red Tom, \$10.00. One Mammoth Bronze Tom, \$15.00. Thoroughbreds. Mrs. G. E. Rasdell, Shawmut, California.

Eggs from Purebred Mammoth Bronze Turkeys—\$10.00 for 13. Mrs. M. L. Trehitt, R. F. D. B, Box 47, Hanford, California.

Mammoth Bronze Turkey Eggs 35c, 50c, \$1.00 each. Fertility guaranteed. A few breeders left. Keys Ranch, El Monte.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, Cal-ifornia.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALI-FORNIA.

BLUE HOGS

Blue Hogs—Really blue in color, large, growthy and prolific. Great show hog. Mention this paper for discount. The Blue Hog Breeding Co., Wilmington, Mass.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nurs-ery, seed and florist trade; half-tone cuts of many standard plants. Correspond-ence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

MACHINERY

Wm. F. Lutz Company, Santa Ana, Cal-ifornia. Farm implements, tractors, trucks, trailers. A full line of imple-ments, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 120 N. Main; Yds. 816 Yale, L. A.

For Sale—Case threshing machine, 20-36, complete, in running order; also 7-foot John Deere Blinder, both good as new. Henry Colpien, R. A. Box 239, Tulare, California.

For Sale—Yuba 12-20 and necessary tools for orchard or field. Good condition. Bargain or will trade for good car or horses, or what have you? O. E. Lol-maugh, Hemet, California.

One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drcw Carriage Co., Ontario, Cal.

For Sale: New Case Thresher, 22x36, for beans and grain, fully equipped. A bar-gain at \$900.00. F. A. Hackmann, Wat-sonville, Calif.

For Sale—One Hardie Sprayer never used. W. S. Coffin, Ontario, California.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nalls and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street, Phone Bdway. 5401. Los Angeles, Calif.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, Cal-ifornia. Established 50 years. Send for free book on patents.

THE CENTRAL LIVESTOCK MARKET

(Continued from Page 393.)

fourths of the rate on fat or finished animals. In California, except in case of a few special rates between certain points, the stocker and feeder animals pay the same rate as fat cattle. This is not the result of any policy of the railroads to burden the industry, but is due to a lack of concerted action to demonstrate the need of encourag-ing production by a system of more favorable freight rates. The railroads are vitally interested in more business and may be relied upon to do the fair thing when they understand the great benefits that will come to Cali-fornia from a centralized market-ing system, properly organized and operated.

Financing the Livestock Industry

The finish feeding of the animal on the ranch in California will prove a safe and an extensive investment for financial institutions and will do much to stimulate the business generally. Range paper is not so easy to redis-count, and the volume quickly ties up a lot of money. Feed lot paper is easily re-discounted, especially where there is a near-by market for the sale of the animal at any time at fair rela-tive prices, which cannot be reflected under the present system of purchase and sale. The financing of stockers is also a difficult thing because of the lack of a market for that class of ani-mals. It is too difficult and expensive without a market to try to find buy-ers in order to liquidate that class of loans, so that, unless other security is furnished, such loans are not elig-ible to re-discounting and conse-quently not usually taken. Bearing in mind that the small rancher must be depended upon for our future supply of finished meat food animals, his dis-advantage today is apparent.

The Opportunity

The slaughtering of meat food ani-mals in the city of Los Angeles is al-ready a big business, but with the increasing population of the city and surrounding country, must be ex-panded. Capital is ready to put in new plants whenever a supply of live-stock is available, but will not engage in the business on account of the ex-pense of country buying, and is unwill-ing to try to split the limited supply with concerns of long standing in this country whose personal acquaintance and schooling in the practice of ranch purchasing counts against the new-comer, but he is willing to take his chances on the open market. The opportunity for increased production lies in the development of irrigation and the use of the range lands of Southern California, that great sec-tion of country in Southern and South-eastern Nevada, the states of Utah;

Idaho, Western Wyoming, Southwest-ern Montana, Western Colorado, New Mexico, the state of Arizona, the southwestern part of Texas and old Mexico, a country which will rapidly develop agriculturally, and particularly so under the stimulus of a near-by livestock market.

The expansion of the packing busi-ness to manufacture and distribute the increased livestock supply bound to come out of this immense country, calls for a broader distribution, and with the splendid harbor facilities and rapidly growing steamship service, the logical outlet is to the Orient, west coast of South and Central America, Mexico and Alaska.

But, perhaps the greatest gain will come from a distribution of the \$25,000,000 paid to the livestock pro-ducer, who now gets paid at home and spends his money there. Under the central marketing plan, the owner would come to the market, get his money, and spend part of it at least at home. The banks would also get a substantial part of the proceeds of sale, so that the business interests would soon reap the benefits of the development of the country that be-longs to them.

Urgent Need of Market

No fair minded person will dispute the urgent need for a livestock market. Admittedly, it is the biggest conservation problem confronting Cal-ifornia at this time. In addition to what has already been said, the dairymen, purebred representatives, sheep interests and horse and mule people are anxiously waiting for a central trading point, so that not a moment should be lost in getting be-hind the movement now well under way.

There should be no plan put into effect that will cause any class or locality any hardship or force the adoption of the central marketing sys-tem by those large producers who pre-fer and are equipped to ship in train-load lots to eastern markets, although the time is near when even such large operators will feel the knife of sub-division. But no plan, however good, should be shoved down the throat of the people; rather let the plan work out the situation of its own weight, and in the meantime, ranch or range buying should not be abruptly ter-minated.

The marketing facilities should be established without packer money, and the policy of the management should be for greater and better pro-duction, which can only come from a plan that helps the producer.

SPERRY FLOUR WINS

Officials of the Sperry Flour Company are elated over cable advices to the effect that the Victory Challenge Cup, annually presented at the Glasgow Bakers' Exhi-bition, again has been awarded to Sperry flour. The cup last year was won by Sperry flour also. This exhibition in Scot-land is an annual event watched with in-tense interest by milling and baking cir-cles in Europe and this country. The fact that Sperry flour was the only flour from the United States used in the bak-ings shows how rigid are the require-ments for entries in this contest.

Ask for particulars about the New Line of



A Silo For Every Need

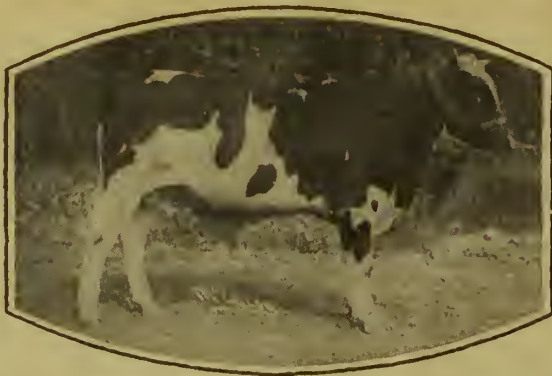
BETTER AND CHEAPER FEEDING

The new complete line of National Silos makes it unprofitable for you to do without proper silo equip-ment any longer. Get prices.

County Representatives Wanted.

National Tank & Pipe Company 155 Columbia Boulevard Portland Oregon

Sir Prince Aaggie Mead



CONSIDER THE TREMENDOUS PRODUCTION AND DEMONSTRATED ABILITY TO TRANSMIT PRODUCTION ON BOTH SIDES OF HIS PEDIGREE.

His sire, King Aaggie Mead, is a son of the 1,000 lb. foundation cow Aaggie Acme of Riverside, who produced the 1,331 lb. world's strictly official record cow, Aaggie Acme of Riverside, who in turn produced California's only 1,000 lb. junior 2 year old, Miss Aaggie Acme Burke.

His dam, Miss Valley Mead De Kol Walker, with two records above 1,000 lbs. butter in one year, and now making a yearly record that promises to exceed her previous best record of 1,113 lbs., is a daughter of the 1,011 lb. 4 year old De Kol of Valley Mead 2d, who in turn is out of the foundation cow, De Kol of Valley Mead.

HE IS BEING GIVEN HEAVY SERVICE IN BOTH OUR HERDS. KEEP ONE OF HIS SONS IN MIND FOR YOUR HERD SIRE.

OWNED JOINTLY BY
Fred Hartsook and **A.W. Morris & Sons Corporation**
LAKERSHIM, CALIF. WOODLAND, CALIF.

A REAL ARISTOCRAT

A few days ago a bull calf of splendid, sturdy type put in his appearance at the J. S. Gibson Company's ranch at Williams, Colusa County. His dam is Aaggie Korndyke of Nevada, the cow that recently completed her year's work, a 365 day semi-official record of 1,297.3 pounds butter from 30,669.5 pounds milk. The dam of Aaggie Korndyke of Nevada is a daughter of the great transmitting sire, Aaggie Cornucopia Johanna Lad, and her sire a son of Pontiac Korndyke, sire of King of the Pontiacs. His sire is Winnie Korndyke DeKol Alcartra, whose dam was Winnie Korndyke Cornucopia DeKol, with a record of 1,201.6 pounds butter from 31,034.2 pounds milk in 365 days, she being a daughter of Aaggie Cornucopia Johanna Lad. The sire of Winnie Korndyke DeKol Alcartra is Prince Alcartra Korndyke, the oldest son of Tilly Alcartra, with several daughters in the Gibson herd with records over the 30-pound mark. The young bull calf has the honor of having the first three nearest dams with an average of 1,276.5 pounds butter from 31,709 pounds milk in 365 days, and we believe this to be the highest average for the three nearest dams of any bull in the world.

There is in this same herd a one year old heifer that is a full sister to this young bull. This wonderful progeny is the result of the many years of intense study and breeding on the part of the late Gion W. Gibson.

NEW DAIRY BUILDING AT UNIVERSITY FARM

With the \$195,000 appropriation from the board of regents of the University of California and additional funds from the last legislature, a dairy industry building will be constructed at the university farm at Davis. The state legislature in 1917 appropriated funds for a building for the dairy industry department but the United States entering the war at that time made it undesirable to start its construction.

The building will consist of a two story main structure of hollow tile, 234 feet long with a dairy manufacturing wing running back 128 feet from one end of the main building. The first floor of the building will include laboratory for butter and market milk, commercial testing, student testing, farm dairy and bacteriology, and a sales room, offices and student locker room. The second floor will be occupied by three lecture rooms, seminar, reading and dairy products judging rooms, and office and storage space. The manufacturing wing will house the large creamery laboratory which will be used for teaching advanced students and those electing practice work in butter, cheese, ice cream, market milk and milk condensing.

A distinctive feature of the new dairy building is the provision for small units of equipment in each department, making it possible for each student to work independently. The increased equipment will make it possible for instructors to teach larger sections, thus accommodating a larger number of students.

SOME COWS POOR CUSTOMERS

The average man very naturally pays a great deal of attention to the amount he receives for corn, wheat or hay when he sells it on the market. He also watches the price of the butterfat very closely and it is well that he should.

But how many persons can tell how much they get for the feed consigned to their cows? The Missouri cow testing associations under the supervision of the college of agriculture, are bringing to light some interesting demonstrations along this line, according to E. M. Harmon, dairy extension specialist. In one county all of the cows in 32 herds were divided into four classes according to production of butterfat. It was found that the cows which averaged 100 pounds of butterfat per year returned 253 pounds of butterfat and 6,250 pounds of milk for each \$100 worth of feed. The cows which produced 200 pounds of butterfat per year returned 478 pounds of butterfat and 9,524 pounds of milk for each \$100 worth of feed. Those averaging 400 pounds of butterfat per year returned 560 pounds of butterfat and 10,870 pounds of milk on the same amount of feed.

In other words, one cow returns

268 pounds of butterfat and 6,250 pounds of milk for each \$100 worth of feed while her stall mate returns 56 pounds of butterfat and 10,870 pounds of milk for the same feed cost. Labor, interest and other items were considered the difference would be far greater. Certainly this is the most serious leak in our system of marketing feed and dairy products. The cow testing association is steadily reducing the waste of feed material.

For the Prevention of

ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.

For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS

(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each

Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum

(Simultaneous Treatment)

Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

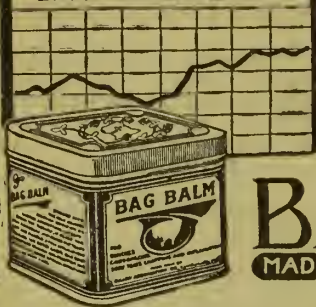
CONSULT YOUR VETERINARIAN

ANIMAL INDUSTRY DEPARTMENT OF

Parke, Davis & Co.
DETROIT, MICH.

Keep the Production Line Unvarying

DAILY MILK CHART



Avoid milk-loss by keeping every cow's udder and teats, soft, silky and comfortable—clear of all cuts, scratches, chaps, inflamed or tender spots. A prompt application of Bag Balm, the great healing ointment, insures complete udder comfort and easy milking. Caked Bag responds quickly to the softening action of Bag Balm. A great help in the dairy; keeps little hurts from getting big.

Big 10-ounce package at reduced price of 60¢—at general stores, feed dealers, druggists.

DAIRY ASSOCIATION CO., INC. Lyndonville, Vt.

BAG BALM

MADE BY THE KOW-KARE PEOPLE

Kow-Kare and Bag Balm distributors for California, Germain Seed and Plant Co., Los Angeles, Cal.

OWNED AND OPERATED BY THE PEOPLE OF LOS ANGELES COUNTY

It is our aim not only to have the best possible class of stock for the sake of the revenue they produce, but to furnish breeders and dairymen of this vicinity with the highest grade of seed stock for the improvement of business and values throughout the County.

We believe that in selecting the famous De Kol of Valley Mead strain, typically Californian and for twenty years leaders in production and show ring, we are taking advantage of the greatest constructive breeding work of the past and bringing you THE BEST.

We have the son of De Kol of Valley Mead, the son of her best daughter (1011 lbs. at 4 years), the son of her highest record granddaughter, under full age (1140 lbs. at 4 years), and offer their sons from ARO dams at farmers' prices.

LOS ANGELES COUNTY FARM Hondo, California. Three Miles South of Downey on Downey-Los Beach Blvd.

THICK, SWOLLEN GLANDS

that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

ABSORBINE

also other Bunches or Swellings. No blister, no hair gone, and horse kept at work. Economical—only a few drops required at an application. \$2.50 per bottle delivered. Book 3 R free. ABSORBINE, JR., the antiseptic liniment for man-kind, reduces Cysts, Wens, Painful, Swollen Veins and Ulcers. \$1.25 a bottle at dealers or delivered. Book "Evidence" free.

W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means \$1000 extra in ordinary years, double that in dry years. No risk—no experience needed. Outfits for Getting Water Anywhere. Earth augers, rock drills and combined machines. Engine or horse power. Write for easy terms and free catalog. **LIS' MFG. COMPANY** Box 716 Clarinda, Iowa

Cattle Owners!

Save Your Calves



We will send you absolutely free valuable information on

Abortion in Cows

We will tell you how this disease can positively be prevented and overcome—why two treatments a few days apart are sufficient and how you can apply it yourself at small expense.

We Guarantee Our Treatment

WRITE TONIGHT

THE STREBOR LABORATORIES
76B West Monroe Street, Chicago, Ill.

R Expert
H Livestock
O Auctioneers,
A 1505 So. Main St.
D Los Angeles, Cal.
E Sales Pavilion
S Stock Yards at
S Hynes, Cal.

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& WE CONDUCT
SALES OF
REG. DAIRY CATTLE
R GRADE CATTLE
H GEN. FARM SALES
O in all parts of
A Calif. and ad-
D joining States.
E Satisfaction
S guaranteed.
Write for dates
and terms.

TOSANTOS Herd

See Our CONSIGNMENT April 5th

GUARANTY SALE

E. D. Barry, Jr. Covina, Calif.



Hurt?

WHAT if it does? Just reach up on the shelf and get that bottle of good old Gombault's Balsam. Rub just a little on the sore spot gently. It immediately relieves! One more application and every bit of the ache disappears. IT IS equally effective for bruises, cuts, burns, sprains, sores, rheumatism, stiffness of all kind, sore throat, and chest colds. In addition to its remarkable healing qualities it is absolutely safe and a perfect antiseptic.

IN thousands of homes it is the one remedy that cannot be spared. You'll feel the same way yourself after you've tried it.

GET a bottle of Gombault's Balsam today! Keep it always on hand for any emergency. It's so effective one bottle lasts a long while.

Sold by druggists, or sent by parcel post on receipt of price \$1.50 per bottle. AS A VETERINARY REMEDY Gombault's Caustic Balsam has no equal. It supercedes all cautery and firing; and never leaves a scar or discolors the hair.

The LAWRENCE-WILLIAMS CO. Cleveland, Ohio

GOMBAULT'S BALSAM
The Imported Liniment
HEALING and ANTISEPTIC

A. M. Easton Wm. A. Ward

Blackhawk Ranch Shorthorn Cattle

One of the most select herds in America. Only Scotch females of the best families headed by COLLYNIE PRINCE LAVENDER our imported bull that was grand champion at San Francisco.

SHIRE HORSES

A number of good sound young stallions and mares, well bred and priced right. For prices and particulars address

E. LOVELL, Mgr.
Diablo, Contra Costa Co., California

IMPORTED Corston Masher

Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and helpers, some with calves at foot, and rebred to the above bull. Most of the helpers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

Warm Creek Land and Livestock Co
J. Selby Badt. Pres. & Mgr., Wells, Nevada

DIAMOND G HEREFORDS

I now offer 10 extra good open registered helpers, at real bargain price, sired by a son of an International Champion. Start your herd with these.

H. H. Gable Esparto, Cal.

When Writing Advertisers Please Mention Cultivator.

keted in the mangers of low producing cows.

EARLY GAINS WITH HOGS ARE CHEAPEST

As pigs become heavier more feed is required per pound gained in weight. This general experience is sustained by definite figures recently given out by A. G. Hogan of the Missouri college of agriculture. In the summer of 1921, according to Mr. Hogan, the college conducted an investigation to find out what was the relation between the amount of feed consumed by swine and the quantity of pork produced.

Pigs weighing 100 pounds each were placed on a ration of corn, shorts and tankage and grown to weigh 300 pounds. One pig was killed and analyzed at the beginning, and others at weights of 200 and 300 pounds. All pigs were fed the same ration and kept in a dry lot so the exact amount of feed consumed could be determined. In this way it was possible to estimate the grain required per pound gain in live weight, in fat and in lean meat.

The result agreed with general experience in regard to weight. As the pigs became heavier more feed was required per pound gain. In growing from 100 to 200 pounds, 4.3 pounds grain were required per pound gain, while in growing from 100 to 300 pounds, five pounds grain per pound gain were required.

It was somewhat surprising that as the hogs became heavier the amount of feed consumed per pound gain of fat became somewhat less. While the pigs were growing from 100 to 200 pounds, 10.8 pounds feed were consumed for each pound of fat gained, and in growing from 100 to 300 pounds, 9.3 pounds feed were consumed per pound gain.

In regard to the production of lean meat the results were more favorable to the lighter hogs. In gaining from 100 to 200 pounds, 12.5 pounds feed were required for each pound gain in lean meat, and in growing from 100 to 300 pounds, 20 pounds feed were required for each pound of lean meat gained. The result indicated that when a heavy grain ration is fed, lean meat is not produced economically after a weight of 200 pounds is reached, while fat is produced most economically from that point up to and beyond 300 pounds.

SUNFLOWER SILAGE GIVES GOOD RESULTS

Sunflower silage gives as good results in fattening steers as more expensive feed, as is proven by an experiment just finished by the Washington experiment station.

This is the first of a series of experiments to be made on the feeding value of sunflower silage, the price of which per ton is \$4, as compared with \$46 for corn silage, \$48 for alfalfa hay and \$40 for cottonseed meal.

Twenty-five Shorthorn and Hereford steers were fed, 13 receiving an average daily ration of two pounds cottonseed meal, 13.2 pounds cut alfalfa hay and 39.6 pounds corn silage to each steer. The other 12 steers were fed 2.1 pounds cottonseed meal, 12.5 pounds cut alfalfa hay and 43 pounds sunflower silage.

Both lots gained 1.2 pounds per head each day of the 75 days of the test, the total gain per steer being a little over 90 pounds. The cost of feed for each steer receiving the sunflower silage was \$13.50, as compared with \$15.97 for each of the other steers. No difference in condition in the two lots could be detected.

The tops in both lots of the 18 head sold brought \$7.25 per hundredweight, the others bringing \$6.50. The steers averaged about 1,050 pounds at the close of the test. They cost about \$5 apiece as feeders.

"It is evident that there is sufficient margin for profit," said Jerry Sotola of the animal husbandry department, discussing results. "The returns from the sunflower silage fed cattle were higher than those from the corn fed cattle, because the corn was \$2 a ton higher in price."

E. A. Stuart of Seattle, Washington, owner of the Carnation Stock Farms, has been elected president of the Pacific International Livestock Exposition, Portland, and Thomas T. Miller, Shorthorn breeder of Hollister, will represent the California livestock interests on the board of directors.

SEMI-DISPERSAL

REGISTERED
60 HOLSTEINS

T. J. GIST & SONS HERD

TULARE, CALIF.

Wednesday, April 12, at 10 A.M.

T. J. Gist & Sons will sell in this sale all of their milking females and bred helpers, retaining only their open helpers and heifer calves for foundation of another herd.

THERE ARE A LARGE NUMBER OF HEAVY PRODUCING FRESH COWS IN THIS SALE, MANY WITH OFFICIAL RECORDS UP TO OVER 26 LBS. BUTTER IN 7 DAYS.

This well known herd represents most substantial breeding, the females are practically all young, and they will be presented in excellent physical condition.

35 COWS AND HEIFERS IN THE SALE ARE BRED TO KING SYLVIA SEGIS COLANTHA, A GOOD SON OF THE \$106,000 BULL CARNATION KING SYLVIA.

The sale will be held on the T. J. Gist & Sons Farm, about five miles north of Tulare. Every animal guaranteed to be a breeder; no tuberculin test certificates.

TERMS OF SALE: Responsible parties may arrange terms, if done before sale, of one-third cash, balance in three, six, and nine months with note bearing eight per cent interest. Applications for credit should be made to sale managers.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneer: Col. Ben A. Rhoades, Los Angeles

DISPERSAL SALE

161—Registered Holsteins—161

112 Females—49 Bulls

F. H. Harvey Herd, Galt, Calif.

Selling on the Farm—about Three Miles West of Galt

April 26-27

At 10 A.M. Each Day

In order to devote his time to his many other interests, Mr. F. H. Harvey has decided to make a complete dispersal of his big herd of registered Holsteins. The herd represents many of the highest producing blood lines of the breed and is of high average type.

A LARGE NUMBER OF THE FEMALES HAVE OFFICIAL RECORDS UP TO OVER 26 LBS. BUTTER IN 7 DAYS. MOST OF RECORDS MADE AS 2, 3 AND 4 YEAR OLDS.

The herd contains a considerable group of the daughters of the \$2 lb. bull SUPREME GLISTA PIETJE, whose daughters have consistently shown a high percentage of butter fat.

Many of the females sell bred to KING PONTIAC SEGIS INKA, a splendidly bred son of King of the Pontiacs, and the bull himself will sell.

DAIRYMEN SHOULD NOT OVERLOOK THE OPPORTUNITY TO BUY A PURE BRED REGISTERED BULL IN THIS SALE. THERE ARE FORTY-NINE BULLS TO SELL, MANY OF SERVICE AGE, AND THERE ARE BOUND TO BE A GREAT LOT OF BARGAINS.

TERMS OF SALE: Responsible parties may arrange before sale, with sale managers, for credit on the basis of one-third cash, balance in three, six and nine months, with notes bearing eight per cent interest.

Guaranteed Breeders—No Tuberculin Test Certificates

Auctioneers:

Col. Ben A. Rhoades, Los Angeles
and John A. Davis, Manteca

Management

California Breeders Sales and Pedigree Co.
J. M. Henderson, Jr., Pres. C. L. Hughes Sales Manager
Sacramento, Cal.

HOLSTEIN Fred Hartsook CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

E. R. STALDER

NUEVO, CALIF.

Will Disperse His Entire Herd of
50 Registered Holsteins

At HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Thursday, May 11

at 10 A.M.

MANY A. R. O. COWS with official records up to over 32 lbs. butter in 7 days.

MANY COWS AND HEIFERS bred to King Pontiac Netherland Segis 3d. This will be the very last opportunity to buy females bred to this great proven sire, now dead.

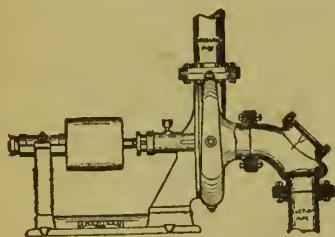
DAUGHTERS AND GRAND-DAUGHTERS of King Segis Pontiac.

COWS AND HEIFERS bred to King Segis Pontiac Aero, the youngest son of King Segis Pontiac. Such noted producers as Locust Terrace Gold Drop, Stanislaus Princess Cleopatra and others will appear in this sale. The calves they carry will be worth what the dams will probably bring.

GUARANTEED BREEDERS
NO TUBERCULIN TEST
CERTIFICATES

Write for Catalog
Management

CALIFORNIA BREEDERS SALES
AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento, Calif.



American Centrifugal Pumps

Every American Pump is guaranteed to meet all conditions specified and to perform the work for which it is sold. If your water problem can be solved with any pump it can be solved with an American. Write for catalogs of horizontal and vertical centrifugal pumps and deep-well turbines and name of your nearest dealer.

CALIFORNIA HYDRAULIC
ENGINEERING & SUPPLY CO.
72 Fremont St. 420 Third, Dept. H.
San Francisco Los Angeles

SAVE YOUR ROOF



15c a gallon; containers extra. Write for free sample and information.

WOOLNER OIL CO.
2951 W. 4th St. Los Angeles, Calif.

SANTA ANA NURSERY

Citrus stock, grown in the frostless belt, free from disease.
Association Buds prices on application. Phone 1746
Third and Bush Sts., Santa Ana

Los Angeles Markets

Los Angeles, April 5, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 35 cents.

CHEESE

Brokers' prices:

California flats, 20@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 25; case count, 22½; pullets, 22½.

POULTRY

Price to producers: Hens, 25; colored, 31; broilers, 29@37; roasters, 38; old roosters, 14; fryers, 40; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, April 4.—Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 10.00; 175 to 225 lbs., 10.50.

Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 7.00; 150 to 225 lbs., 8.00.

Sheep: Ewes, 5.00@7.00; lambs, 11.50@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 4, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 80@90. Stocktons: Burbanks, per cwt., best mostly 2.00@2.25; poorer, 1.75@1.85; ungraded, 1.40@1.60 per sack. Idahos: Russets, best, 1.75@2.25; mostly 2.00. New stock: Carlsbad, 8@12 per lb., according to quality.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 75@90; poorer, 60. Arkansas: Nancy Halls, 4@5 per lb.; per bu., mostly 1.85@2.00.

Onions: Demand light, market firm. Stocktons: Per cwt., White Globes, best, mostly 12.00@12.50; browns, best, mostly 10.00@10.30; Australian browns, mostly 10.00@10.50; small lot lugs, 11 per lb. Garlic: 7@8 per lb; poorer, 5@6, by sack.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, April 4, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Artichokes: Northern, large, fancy, 1.00@1.25; medium, 75@90; small, 50@75. @90.

Asparagus: Local, 25@30 per lb. Northern, best, 25@30; poorer, 15@22.

Brussels Sprouts: 18@20 per lb.

Bunched Vegetables: Per doz. bunches: Turnips, 35@40; carrots, 70@80; poorer, low as 65; beets, 60@70; radishes and parsley, 20; spinach, 30@35; mustard, 17½@25; watercress, 25@30.

Cabbage: Per field crate, mostly 1.75@2.00; poorer, low as 1.25@1.50.

Carrots: Sack, 2.75@3.00.

Caiflower: Quality fair to poor. Per field crate, best, 1.75@2.00; few, 2.25; poorer, low as 1.50.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.50@6.00, according to quality. San Diego, cold storage, 7.00@8.00; poorer low as 4.00.

Eggplant: Mex., 25 per lb.

Lettuce: Demand good, market dull. Locals: Quality ordinary, best mostly 2.25@2.50; poorer, 1.50@2.00 per field crate according to quality.

Parsnips: 1.25@1.35.

Onions: Green, 15@17½ bunch.

Peas: San Pedro, best, mostly 16@17; poorer, 14; Imperials, 12@14 per lb.

Peppers: Demand moderate, market steady. Mexicans, Chilis, 12@14 per lb.; Bells, fancy, mostly 25@30; few best, 27.

Rhubarb: Special brands, packed box, 1.60@1.85; other varieties, 1.25@1.50.

Tomatoes: Market firm. Mexicans, per repacked lug, 3.25@3.50; original lugs, best, 3.00@3.25; loose, per lb. best, 10@12; poorer and overripe, low as 4 lb.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Loquats: Lb., 10@20.

Strawberries: 7.00@9.00 per crate.

CITRUS FRUITS

Grapefruit: Market firm. Californias: Northern, packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.25@2.50; poorer, 1.50@2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 6.00@6.75; market pack, 4.00@5.00; culls, 50@1.00 per field box; few best, 1.50@1.75.

Tangerines: Market firm, 9@10 lb.

GRAIN

Prices on L. A. Grain Exchange.
Barley: 100 ton lots, April delivery, 1.46½. Milo, 100 ton lots, April delivery, 1.70.

San Francisco Markets

San Francisco, April 4, 1922.

BUTTER

Firsts 32½
Prime Firsts 32

CHEESE

Dairy Exchange quotations:
California Young America, fancy 22
California Flats, fancy 21½
California Flats, firsts 20½

Oregon Trips 25
Oregon Young America 25

EGGS

Dairy Exchange Quotations:

Extra 27
Extra Pullets 26½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1¼ lbs., 35@38 lb.; 1¼ to 1½ lbs., 43@46; 1½ to 2 lbs., 40@43.

Colored Fryers: 2½ to 3 lbs., 42@46.

Colored Young Roosters: 3½ to 4 lbs., 40@42 per lb.; over 4 lbs., 35@38 per lb.; staggy showing spurs, 25@30 per lb.

Colored Old Roosters: Slow, 18@29 per lb.

Leghorn Old Roosters: Slow, 15@18 per lb.

Leghorn Hens: Weak, movement slow, supplies increasing. 2½ to 3 lbs., 21@23 per lb.; 3 lbs. and over, 24@26 per lb.

Large Colored Hens: 30@32 per lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@40 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7¼@8¼; second quality, 6¼@6¾; cows and heifers, No. 1, 5½@6½; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 8@9 per lb.; ewes, 6@7.

Lambs: 12@13.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½ per lb.; do., 200 to 250 lbs., 10½ per lb.; do., 250 to 300 lbs., 9½ per lb.; light sows, 9½ per lb.; heavy, 8½ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Hanford, March 29

86 150 10.80

1 car, 2 consignors, \$1,397.52.

Wasco, April 1

109 163 10.65

45 172 10.65

25 208 10.15

5 270 9.65

12 325 40 7.15

196 hogs

2 cars, 29 consignors, \$3,651.90.

Total for week, 282 hogs, 3 cars, 31 consignors, \$5,049.42.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 16.00@17.00 crate; poorer, 14.00@15.00 crate.

Asparagus: 8@15 lb.; graded, 17½.

Beans: 40 per lb.

Bunched Vegetables: Carrots, 50@60 per doz.; turnips, 45@55 per doz.; beets, 50@60 per doz.; parsley, 15@20; radishes, 36 per doz. bunches.

Cabbage: 2.00@2.55 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 sack.

Caiflower: 1.25@1.50 doz.

Celery: Crate, 4.00@5.00.

Chicory: 2.25@2.50 crate.

Cucumbers: Hothouse, fancy, 2.00@3.00 per doz.; small, 3.50 per crate; English, 2.50@2.75.

Eggplant: 15@25 lb.

Endive: 40@55 lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Imperial Valley, iced, 4.25@4.75 per crate; Los Angeles, 3.50@4.25.

Mushrooms: Ordinary, 10@30 per lb.

Olives: 5@7 per lb.

Onions: Australian cold storage browns, 8.75@9.00; white globes, nominal; green onions, 1.50@1.75 per box.

Parsnips: 1.75 per sack.

Peas: So., 12@17 per lb.

Potatoes: Rivers, fancy, 1.80@2.10; Oregon Burbanks, 1.85@2.10; Idaho Netted Gems, 1.85@2.25; off grades lower; Salinas, 2.25@2.75 per cwt.

Peppers: Florida and New Mexico, Bells, 15@25; Chilis, 5@12 lb.

Pumpkins: 70@1.00 per 90 lb sack.

Rhubarb: Sebastopol, 6@9 per lb.; Bay, 6@8 per lb.; Southern, 1.50.

Squash: Hubbard and Banana, 6@8 lb.

Spinach: 2 per lb.

Sprouts: 14@15 lb.

Sweet Potatoes: 3.50@3.90 per cwt.; Arkansas and New Mex. yams, 1.75@2.00 per 50 lb. crate.

Tomatoes: Mexican, repacked, 2.50@3.00 per Los Angeles lug; off grades, 1.50@2.25.

Turnips: 1.25@1.50 per sack.

FRESH FRUIT

Avocados: Tahiti, 1.00@6.00 cr.

Bananas: Best Eastern and Hawaiian, 6½@8 lb.

Loquats: 20@25 lb.

Pineapples: 6.00@7.00 doz.

Strawberries: 3.00@5.50 cr.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack, 3.50@4.00; Arizona, 4.25@4.50 box.

Lemons: Special pack, 4.75@5.25 box; Choice, 4.00@4.50 box; Lemonettes, 2.00@2.25.

Oranges: Special pack, 126s-160s, fancy, 6.00@6.50; 125s, 5.75@6.25; 200s-216s, 5.50@6.00.

Tangerines: 2.50@3.50 per half orange box.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

Choice In 50s @12½
Extra choice @13½
Fancy 15 @15½

Apricots

Slabs @18½
Standard 18½ @19½
Choice 22 @23
Extra choice 23 @25
Fancy 26 @28
Extra fancy 28 @30
Moorparks, fancy 29 @30
Moorparks, extra fancy 31½ @33

Figs

California Peach and Fig Growers' prices:

White—
Standard (in 50s) 07½
Choice (in 50s) 08½
Fancy (in 50s) 11
Bricks, 12 No. 10s 1.10
Bricks, 24 No. 8s 1.80
Bricks, 50 No. 6s 2.80
Bricks, 70 No. 4s 2.95
Layers, 10 lb., 4 row 1.60
Layers, 10 lb., 5 row 1.40
Calimyrna—
Bricks, 24 No. 8s 2.05

Peaches

California Peach and Fig Growers' prices:
Slabs (in 25s) 10
Standard (in 25s) 10½
Practically peeled, Standard (in 25s) 11½
Cartons, 30 11 oz., per case 3.10
Cartons, 60 11 oz., per case 6.00
Cartons, 24 2 lb., per case 6.50
Cartons, 10 5 lb., per case 6.60

Pears

Standard In 25s @12½
Choice @15½
Extra choice @17½
Fancy @19½

Prunes

120s up (in 50s, per lb.) @ 5½
California Prune and Apricot Growers' prices:

Size Basis Price Per lb. In 25 lb. Boxes
30-40s 10 @10½ 13½ @14
40-50s 8½ @ 8 11½ @12
50-60s 7 @ 7½ 9½ @10
60-70s 6½ @ 6 8½ @ 9
70-80s 6 @ 6½ 7½ @ 8
80-90s 6 @ 6½ 6½ @ 7
90-100s 6 @ 6½ 6½ @ 7
100-120s (in 50s, per lb.) @ 6

Raisins

California Associated Raisin Company's prices:

Seedless—
Sun-Maid, 16 oz. 14½
Bakers (in 25s) 13
Loose Muscatels—
4 crown (in 25s) 15
3 crown (in 25s) 13½
2 crown (in 25s) 12½
1 crown, re-cleaned (in 25s) 13½
Seedless—
Thompsons, 16 oz.
Thompsons, bulk (in 25s)
Thompson, bakers (in 25s)
Sultanas, bulk (in 25s) 13½
Bleached Thompsons—
Choice, sulphur (in 25s)
Fancy, sulphur (in 25s) 19
Extra fancy, sulphur (in 25s) 22
Soda dipped (in 25s)
Oil dipped (in 25s) 15½
Bleached Sultanas—
Soda dipped (in 25s)
Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points
Black grapes (in 25s) 16½
Layers—All grades withdrawn.

RICE

Rice Association prices:
No. 1 Paddy, 2.65.

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eastern yellow, No. 2, 1.40@1.43; No. 3, 1.25@1.27; kaffir, in bulk, 1.70@1.73; do, No. 2, in bulk, 1.70@1.73; white Egyptian, 2.00@2.10; California red milo, 1.85@1.90; do, bulk, 1.75@1.80; eastern red, 1.75@1.77½.

Citrus Markets

Los Angeles, April 5, 1922.

The first Valencia's to be offered sold around \$6. Navels are continuing strong and selling from \$6 to \$7. Separated fruit is still commanding slightly under protected or frostless oranges.

Lemon shipments are very light. Market satisfactory.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 10,908 cars; lemons, 3,088; total, 13,996. To same date last season: Oranges, 14,597; lemons, 2,981; total, 17,578. From Central California to date this season: Oranges, 4,311; lemons, 102; total, 4,413. To same date last season: Oranges, 4,379; lemons, 124; total, 4,503. From Northern California to date this season: Oranges, 372; lemons, 8; total, 380. To same date last season: Oranges, 305; lemons, 5; total, 310.

AT THE AUCTIONS

March 31

New York: 13 or. Nav. 5.60@7.55, Tange halves 3.50.

Boston: 8 or., 2 lem. Nav. 5.05@7.10, lem. 4.15@5.75.

St. Louis: 5 or., 1 lem. Nav. 5.85@7.55, lem. 3.20@4.50, Ruby halves 3.15.

April 3

New York: 36 or., 3 lem. Nav. higher 5.85@7.95, Val. 5.60@6.15, Mikes 5.25@6.60, Sweets 5.70@6.45, Ruby halves 3.55@3.95, lem. 4.25@5.10.

Boston: 18 or., 3 lem. Nav. 4.20@7.25, lem. 4.00@5.55.

April 4

New York: 20 or., 4 mix, 2 lem. Nav. 5.05@7.80, Val. 5.00@5.45, Sweet 6.30, St. Mike 6.95, Blood 5.95@6.50, Tange 6.05, lem. 3.35@3.95.

Boston: 8 or., 2 lem. Nav. 5.95@7.25, Blood 6.30, lem. 3.50@5.55.

Philadelphia: 5 or., 1 lem. Val. 5.05@6.75, St. Mike 2.60@6.25, Sweet 5.50, lem. 3.60@4.15.

Book Review

FARM MANAGEMENT

"Farm Management," a text book for the student and investigator, by R. L. Adams, professor of farm management, University of California, published by McGraw-Hill Book Company, Inc., 370 Seventh Avenue, New York, at \$4.

This is a 672 page book, containing 27 chapters touching upon general considerations of farm management, selecting farming as an occupation, selecting the farm business, selecting the farm, organizing, soil factors, calendar of operation, equipment, building equipment, fencing stock and implements, capital requirements, profits, financial forecast, management surveys, bookkeeping, cost accounting, costs of producing crops, costs of producing livestock and stock products, marketing, labor, tenancy, lease forms, law, farm management, etc. Prof. Adams is a long time resident of California, was agricultural expert and adviser for the Spreckels sugar factory and has for many years been connected with the faculty of the University of California. His abilities in farm economics, marketing and management are well known and this book will find wide reading in California. An idea of the scope of the book is best secured through a reading of the preface, the first three paragraphs of which we quote.

"The business of farming is complex and almost infinitely diverse. At the outset both the observer of its conditions and the collector of its data face variations between the widest ex-

tremes not only of soil, water, climate, topography and size of holdings, but also of individual opinion, experience, practice and ideals.

"For instance, the man so situated that possible crops are apples, peaches, oranges, lemons, walnuts or lima beans will reap different rewards from one who can raise only alfalfa or grain or who is confined to buckwheat, rye, wild grasses or pasture. Distance to and receptivity of the market are other influences which affect in a marked way such things as vegetables, poultry products, berries, whole milk, and, to a lesser extent, grains, beans, potatoes, pork, beef and sheep. For the same crops there are variations in yield because of differences in soil type, climatic conditions, age of planting, choice of variety, availability of water, need of drainage, presence of alkali, market conditions and farming method.

"The necessity to provide a proper standard of living is the basis upon which all financial estimates must stand. It is the keynote to a discussion of the financial side of agriculture. Yet ideas differ widely as to what sum is needed to provide proper living for the average family. These differences may arise from size of families, age of members, standards of living, conditions of childhood, environment, personal tastes and degree of spending activity of members of family. Thus the comforts of one family will be the luxuries of a second and the necessities of a third."

If this season's pullets in California were all to be hatched by the patient setting of the old hen there would be many thousands of her in action at this moment. But the world do move and the old hen has had to move and devote her energies to the production of eggs rather than to the rearing of chicks. So the wooden hen has come, likewise the brooders where thousands are cared for instead of "settin's." This has called for the construction of great incubator and brooder houses. One of these incubators capable of turning out 40,000 chicks every week is that of the Holly Ranch over in the San Fernando Valley. This is a really great institution and worth a visit by every poultryman.

WEATHER REPORT

San Francisco, Cal., April 1, 1922.

—Rainfall—

Temp.

Stations—

Week.

Seas.

Norm.

Max.

Min.

Eureka.....1.68.....31.17.....38.70.....53.....42

Red Bluff......53.....15.75.....21.49.....70.....44

Sacramento......32.....13.17.....17.04.....70.....44

San Francisco......64.....18.63.....19.54.....70.....48

San Jose......16.....13.89.....14.68.....70.....42

Fresno......24.....10.08.....8.27.....68.....42

San Luis Obispo......18.....22.27.....18.12.....68.....42

Los Angeles......06.....18.87.....14.02.....76.....48

San Diego......03.....18.03.....8.86.....64.....52

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST, 1912, of California Cultivator, published weekly at Los Angeles, Cal., for April 1, 1922.

STATE OF CALIFORNIA,

County of Los Angeles, ss.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Frank J. Ironmonger, who, having been duly sworn according to law, deposes and says that he is the publisher and business manager of the California Cultivator and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: NAME OF— POSTOFFICE ADDRESS Publisher, Cultivator Publishing Co., Los Angeles, Cal. Editor, C. B. Messenger, Los Angeles, Cal. Managing Editor, None

Bus. Mgr., Frank J. Ironmonger, Los Angeles, Cal.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding one per cent or more of the total amount of stock): Cultivator Publishing Co., Los Angeles, Cal. R. M. Teague, San Dimas, Cal. Frank J. Ironmonger, Hollywood, Los Angeles, Cal. J. H. Yetter, Los Angeles, Cal. W. R. Wood, San Dimas, Cal. E. H. Sanford, Claremont, Cal.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages, or other securities are: (If there are none, so state). None.

4. That the paragraphs next above, giving names of owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect, in the said stock, bonds or other securities as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

FRANK J. IRONMONGER, Business Manager, Sworn to and subscribed before me this 29th day of March, 1922.

(SEAL.)

Notary Public in and for Los Angeles County, Cal. (My commission expires Jan. 16, 1926.)

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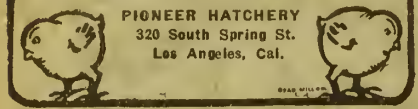
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Principles of Brooding

By Jean A. Koethen



HERE are just three essentials to the successful brooding of chicks in either large or small flocks; heat, fresh air and a chance to run out-of-doors. Everything simmers down to these three things. The chick must be kept warm, but if it is kept too warm or too constantly warm, with no opportunity for becoming hardened to outdoor air it is soon stunted. If it is not warm enough it dies of chill. Without its feet on the ground, the sun on its back and its lungs filled with fresh air, it becomes a useless exotic, too weak and tender for this rough world. Knowing these principles, how shall we plan our brooder houses?

Brooder Types

The last time I wrote on this subject I said there were three methods of brooding in general use; large flock brooding, small flock brooding and fireless brooding. Today I doubt if any such division can be made. The hover system of brooding in flocks of 100 in separate runs has been superseded on practically all commercial ranches by the brooder stove or electric hover, brooding 500 or more chicks in one flock. Where it can be had at reasonable rates, electricity takes precedence of all other methods of supplying heat. It is safe, clean and easily controlled, and can be used in any sort of building. Electric hovers for flocks of from 50 chicks to 1000 may be had now at reasonable prices from the big supply houses as well as from a good many specialty dealers.

Where electricity is not available the Kresky or some other make of stove makes a splendid artificial mother, and all these stoves may be had in various sizes. I have seen them so small that several were used in one house, exactly as the hot air and hot water brooders were used, to brood 25 or 50 chicks apiece, and so large as to furnish heat for 2000 chicks around a single stove. In purchasing either electric hover or brooder stove, the purchaser has only to decide how many chicks he wishes to brood in a single flock and then order according to his needs.

Of fireless brooders and the outdoor brooders which were in quite general use a few years ago I shall not speak, except to say that I believe the hen is a far more satisfactory brooder than either. If over 500 chicks are to be raised in a season, a brooder stove or electric hover which will brood them all at once is most economical. If fewer than 500 chicks are the ultimate aim of farmer or back-lotter, he will make no mistake if he sticks to hen mothers, providing a tight coop and wire run for each mother and giving each a maximum of 25 chicks.

Why Large Flocks?

There has been some discussion as to the advisability of brooding chicks in flocks of 500 or more, but to date the ayes seem to have the best of it. Losses are greater, but labor and expense of equipment are less, and there is the great advantage of getting out all the chicks at one time, or at the most, in two flocks a month apart, rather than having them coming along all the spring in successive groups. A woman who brooded 2000 chicks around a single stove, with less than 10 per cent loss, told me she preferred them all in one flock, because if she raised them in two lots of 1000 each the second lot never did quite so well. Yards and house were not so clean, and unless birds of different ages were entirely segregated, the younger were at a great disadvantage. If she must brood two flocks, she said, she would put them several months apart, to give time for purifying the soil of their run with a crop of grain.

The large flock requires more exacting care. Ventilation, cleanliness and feeding must be guarded with unceasing vigilance; overcrowding and overheating prevented at whatever cost, but the task is soon finished, the pullets at six weeks of age ready for colony coop or laying house, cockerels gone to market, and the hatching season is over, as far as this ranch is concerned.

Brooder Houses

The typical brooder house, as I have

seen it on many ranches, is a house about 12 feet square, with its south side mostly glass. Such a house contains brooding space for 500 to 750 chicks. For 1000 chicks the house should be somewhat larger, say 16 or perhaps 20 feet square. As far as I know, there is no exact rule for cubic feet of air space per hundred chicks. Much depends on ventilation and management, but it would not be wise to attempt to brood 500 chicks in a house smaller than 12 feet square.

This brooder house or room may be supplemented by a playroom, of the same size or smaller, in which the chicks have a chance to exercise in cooler air, or it may open directly into an outside run. Both plans seem equally successful. If the outdoor run is on the south and protected from wind, an indoor playroom is only necessary in localities where high or damp winds prevail, but it will be found convenient in windy or cold weather anywhere.

I described recently a tar paper colony house, which was successfully used for brooding, and not a few poultrymen put their electric hover or Kresky stove in an empty laying house and brood their chicks there without the expense of a separate brooder house. As I said in the beginning, warmth, fresh air and exercise on the ground, are the essentials. Any house in which the chicks can be kept warm will do for brooding, but warm they must be the first few weeks, and at night always till they roost.

Study the hen and make her your model. She gives the chicks heat when they need it, exercise in cooler air when they want it, and fresh air all the time.

Poultry Queries

Conducted by Jean A. Koethen

Sick Turkeys

I have lost several turkey hens lately. One was very fat, another died a few minutes after laying, a third was weak for two or three days. All are confined. I have given ipecac and potassium permanganate in the water without results. They have grain, mash; plenty of greens and sour milk. Am I overfeeding them, and do you think they had cholera? How much grain should be fed daily to five turkeys? Where can I get 1-5000 bichloride tablets for cholera?—Subscriber, Lankershim.

I believe the main trouble with your turkeys is lack of exercise. You cannot keep them indefinitely in as small a pen as you are using without bad results. Turkeys must exercise or they cannot be healthy, and a pen 30 by 15 gives little room for exercise. You do not say what grain you are feeding. If it is corn that may explain the trouble in part. Barley and wheat are the best grains for turkeys except when they are being fattened for market. Potassium permanganate in the drinking water is of no use for either cholera, blackhead or indigestion. The ipecac, if properly given, might relieve blackhead, but I do not believe your turkeys had anything but plain indigestion. Let them out if you can, cut down their supply of grain for a few days, and be sure they have an abundant supply of shell or grit as well as of green feed. There is no rule for amount of grain to feed to turkeys. Some breeders keep grain and mash before them constantly. If the birds have free access to growing green feed they will not eat too much grain. Directions for making the 1-4000 solution are on the bottle in which the ordinary bichloride tablets (1.82 grains) come. One tablet in a pint of water makes the 1-4000 solution. To make 1-5000 add one-fourth pint (half a teacup) of water to the 1-4000 solution.

Flavor of Eggs

Although I am feeding just as I have always fed, the eggs from my hens even when perfectly fresh have a taste which spoils everything. Is

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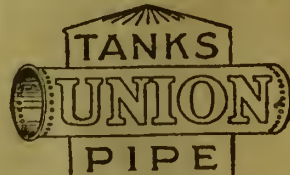
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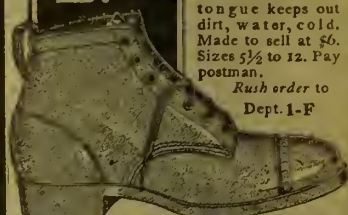
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is from kafir corn? If not, what causes it?—Subscriber, Upland.

Kafir corn could not flavor the eggs, but beef scrap, if fed in large quantities, has been known to affect the flavor decidedly. Is it possible that our mash contains more scrap than in former years or scrap of poorer quality? You can easily find out whether the trouble is in the beef scrap by changing your mash if you are using one commercially prepared, or by purchasing a different kind of beef scrap if you mix the mash yourself. You know, of course, that onions or any other food with strong flavor will affect the eggs if fed heavily. Lack of green feed sometimes forces the hens to eat too heavily of mash and consequently of scrap.

Sore Eyes

About a dozen out of my flock of 250 White Leghorns have an affection of the eye. This is similar to roup in that they all wheeze more or less but is different from the cases I have seen. Some of the hens have a swelling under the eye, some a sore right in the eye which runs water and pus, while others have a cankerous growth in the mouth on the swollen side. I have removed this and painted with vasoline. The hens do not seem very sick but none are laying. Houses are clean and well ventilated and flock on free range.—Subscriber, Santa Rosa.

The hens that have the sore in the eye may have gotten something in the eye or nasal passage that is causing irritation, but all the symptoms you mention are those of roup, which has more than one form. Something must be wrong with your housing or management. Are you sure the hens are not crowded in their house or that there is not some dampness in or about the house which is causing this condition? Hens are peculiarly sensitive to dampness. All the sore eyes should be washed with boric acid solution. You can drop it in with an eye dropper or from a bit of absorbent cotton. Wash eyes twice a day and at night anoint with white vasoline. If there is pus in the swelling under eye, open and cleanse cavity with peroxide of hydrogen, full strength. The canker in throat may be swabbed out with peroxide, mixed with water, half and half. Dipping heads in solution of potassium permanganate is sometimes effective but it loses its strength too quickly when exposed to air in drinking water to be of any use there.

Four Dollar Flock

May I ask one or two questions about the feeding program outlined in our article, "A Four Dollar Flock?" Are the layers fed scratch at 6 a. m.? What amount of mash is fed daily? Does the 30 pounds of scratch mentioned constitute the entire scratch ration for the day? How much green stuff is fed per hen? What is feed meal?—Subscriber, Upland.

No scratch is given in the morning. If any is left from the night before the hens have that. If not they are obliged to eat mash, the supply of which is unlimited and fed fresh each morning on top of that in the hopper, which has been picked over the day before. Thirty pounds of scratch to 400 hens is the entire ration for the day. In this Mr. Horswill follows Professor Dougherty's theory that the amount of scratch can be considerably reduced and the birds still remain healthy. The less scratch they are given the more mash the birds are obliged to consume, and it is mash that produces eggs. The amount of green feed is limited only by supply. If fresh greens can be kept before the hens all day so that they can eat as they would on range, the better for them. Feed meal is a coarsely ground cornmeal which is commonly used for poultry.

What Ails Her?

One of my hens eats heartily but is very thin and weak. Every few seconds she slings her head to one side or the other as if she were trying to throw something from her bill.—Subscriber, Altadena.

Have you looked in her throat? The trouble may be there or the movement of her head may be the result of a nervous affection. As she is thin and weak I would not waste much time doctoring her. If you find any growth in the throat swab it out with peroxide if possible. Otherwise the best remedy is the ax.

Mating Leghorns

I would like to know how to mate and line breed my White Leghorns so as to secure a high egg yield and still not have them related. I have 20 blue ribbon pullets mated to a male from a 260 egg hen. How shall I mate next year's pullets? — Subscriber, Arroyo Grande.

Mating for high egg production is one thing and line breeding to secure exhibition birds is another. Which do you want? You cannot mate for both eggs and feathers at the same time. The best cockerels from this mating should be kept to head your breeding pens next year. If this year's male is unrelated to his hens you can mate next year's cockerels back to their mothers (1) and the best pullets to their sire (2). The next year mate cockerels from (2) to pullets from (1) and to their mothers or such of them as are good enough to keep over. Cockerels from the above matings (3) can be mated the year following to the hens used in (2). In this way you keep two separate groups, distantly related, but growing more distant each year. Of course you will use only the best birds each year, hens that have proved to be heavy layers in their pullet year and cockerels of strong vigor and the best type. If any prove to be of exhibition quality you will have to separate them from the others and breed for the characters you want. Show them to a judge or other expert and ask him to tell you which birds should be mated for best results. No one can tell you how to mate for type and color without seeing the birds.

Keeping Chickens Healthy

Is there anything to put in the drinking water to keep old and young stock healthy?—Subscriber, Fresno.

Clean water in clean fountains, clean houses, clean yards or range, clean food with plenty of green, pure, clean air at night, and room to grow in is the best rule for keeping chickens healthy. There is no short cut.

Roosts

How far apart should roosts be?—Subscriber, Arroyo Grande.

It depends on the size of the birds. For Leghorns the roosts are about 18 inches apart and about one foot is allowed on the roost for each hen.

Selecting the Male

I should like to know how to select a good breeding rooster. How should the pelvic bones be for finger measurement?—Subscriber, Fresno.

If you are really anxious about pelvic measurements, consult Walter Hogan's book, "The Call of the Hen." The main thing in a breeding male is vigor. He should be an upstanding bird, with good, firm comb, large wattles, legs far apart, long back, blocky in head and build, up to standard in weight, inclined to walk with legs far apart, beak not too long, chivalrous to his harem, a good crower, and above all things, a fighter. If you have a bird that picks your feet whenever you enter the pen and wants to tear you to pieces if you pick up a hen, put him in the breeding pen.

Black Down

Our chicks this year have some little spots of black down. We have raised White Leghorns a number of years but never had this happen before. Our roosters this year are all new, bought from good stock. Have we been stung or is it liable to happen this way?—Subscriber, Bakersfield.

I believe it sometimes happens that pure bred Leghorns show these little black specks, which disappear when the feathers come, but it sometimes happens, too, that Leghorns apparently pure, throw back to Black Minorca crossings. In either case you have not been stung, for these Leghorns with Minorca blood are fine layers, but you will not wish to use any birds with black spots in the breeding pen.

Black Spanish

I am unable to find White Faced Black Spanish listed in the Cultivator. Can you tell me where I can buy pure bred stock of this breed?—Subscriber, Los Altos.

I have no names of Black Spanish breeders. Can some one send us the name of a California breeder of these birds?

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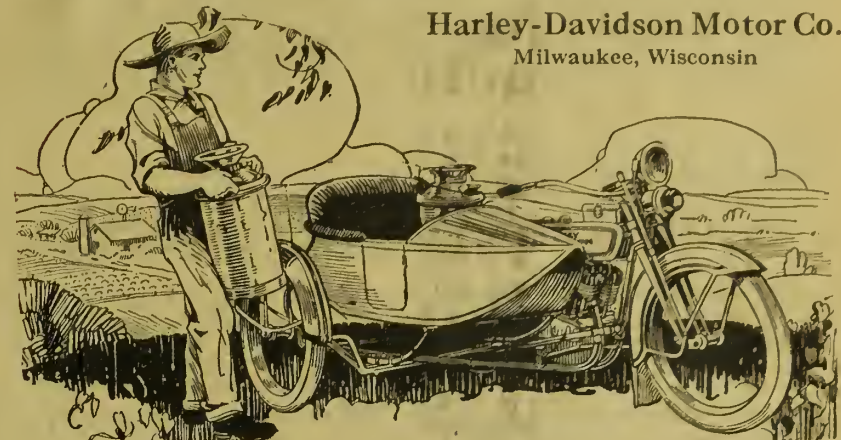
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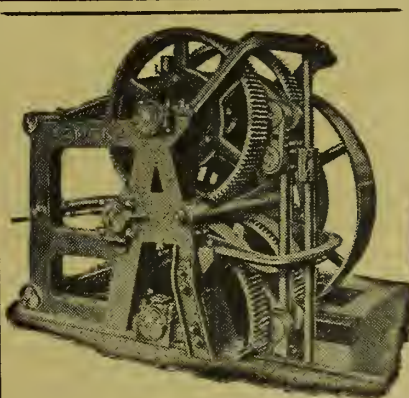
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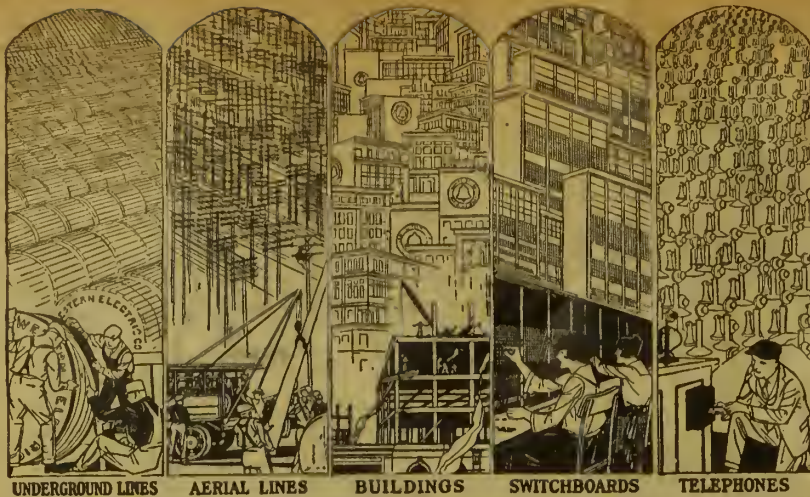
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When Writing Advertisers Please Mention the Cultiva

CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

April 15, 1922

No. 15

AREAS OF THE UNITED STATES UNDER PLANT QUARANTINE

REVISED BY

Lee A. Strong
Chief, Bureau of Plant Quarantine

By Order of **DIRECTOR OF AGRICULTURE**
STATE OF CALIFORNIA

G. H. Keck
Director of Agriculture



Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916

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Ernest Branton, Associate.
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The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, April 15, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Some of the painstaking work performed by the bureau of plant quarantine of the state department of agriculture is shown in the chart or map given on the Cultivator's cover of this issue. The various indicators make plain some of the effectiveness of state quarantine regulation. At one time California stood almost alone in plant quarantine. Even yet there is lack in this respect in nearly all of the Atlantic entry ports, which has made California's work more difficult. Note in the lower left hand corner of the map under legend "Citrus canker, (all states except Arizona)." California found in preventing the entrance of citrus canker that states other than Florida often shipped citrus fruits or other carriers of the canker into California. Illinois, for instance, proved a good shipping point for Florida grapefruit destined for California consumers. Hence, the general quarantine, excepting only Arizona which is working in harmony with California in the citrus canker quarantine.

As general as is the recognition of the necessity for protecting California's great citrus industry, it is strange there is so little understanding as to the menace of introduced diseases. Only during the last few weeks the president of a great railway system, which profits to the extent of millions each year because of the citrus shipments, visited this state in his own private car. State quarantine officials made the discovery that his car was stocked, amongst other things, with a supply of Florida grapefruit brought into the state in violation of quarantine regulations. Still worse, the confiscation and destruction of the fruit by the state department met with strong protest.

All quarantine regulations are liable to affect the comfort or desires of some of us, but he who would gratify his own selfish desires at the expense of one of the state's greatest producing industries should be appealed to to let a more enlightened selfishness dictate.

Observe the great extent of the map of the United States covered by the parallel diagonal lines running downward to the right. Nearly all this district is east of the Mississippi. Arkansas only is on the west bank, then there is a great jump across some four or five states clear to Nevada. These lines indicate the dreaded peach yellows. Years ago Nevada did not care; she knew nothing of quarantine and peach trees with peach yellows from some enterprising nurseryman east of the Mississippi were shipped and planted there. While Nevada is our nearest neighbor and we regret the quarantine, yet these shipments may endanger our peach growing industry so we are compelled to stand at the border of the state and stop them.

Note the fine checker board effect with which Mr. Strong indicates the alfalfa infested states and portions of states. Washington, California and Arizona are still free. We are all holding our breaths and asking "How long will we be free from the pest?" The efficiency of the quarantine service of our state department of agriculture is our only protection.

All told that map is wonderfully interesting "reading." Director Hecke and the entire plant quarantine service are to be congratulated on presenting at a glance such a fund of information as to the state's service to the producing industry.

One of the farmer's everlasting and always present uncertainties is the weather. This has been a year of "some weather." The rains have been abundant; they are worth millions. Drying winds have come occasionally and taken away some of the moisture. The January frosts came and injured some of our fruits. Even the longer days and warmer sunshine of April have not entirely taken the crispness out of the atmosphere, and the information comes from some of our richest valleys that blossoms and embryo fruits are injured. How serious this will be we do not yet know. We still hope the entire state production will be nearly up to normal.

The Cultivator is asking its subscribers to send in estimates as to injury and as to probable percentage of normal production. We wish every reader would report as to his county or community prospects. It is early, and mistakes will be made, yet to all

of the producing interests early information is vital. The first of a batch of returns from our request are given on third page of this issue. There will be a vastly greater number next week.

Hoover is speeding up the Boulder Dam movement. Traffic regulations may control Hoover's speed somewhat but strength to his arm—or weight to his foot as it rests on the throttle. The next meeting of the Colorado River commission will be in Santa Fe, New Mexico. At that time a pact between the seven states will be formulated and submitted to the legislators of those states for ratification. The work on the dam will begin immediately after ratification.

Almonds, citrus fruits, raisins, dates, olives and some other California products received favorable attention in the administration's tariff bill. The new bill is now before congress but will not be called up till April 20.

The other day we saw it stated: "The trouble with cheap things is that they cost too much. This applies to everything from harnesses to thoughts." We carried it along as far as the harness perfectly easily, but, as to cheap thoughts—well, really, we don't know that there is anything cheaper than cheap thoughts. We can see where they cost too much.

THE FIGHT ON JACK

A large number of California fruit growers are standing ready to remark to Jack Frost: "Here's your hat, what's your hurry?" In fact we do not think there was ever such a general desire for vengeance, but as yet Jack Frost still hangs around. One manifestation of displeasure was made at Covina last week when orange growers gathered and discussed windmills, electric fans, centralized heating plants, tall stack heaters and even old time "lard bucket" smudge pots. No united action was determined upon excepting that there must be another more general meeting to discuss and, if possible, join in an effort to secure the effective frost fighting methods. To this end the larger meeting will be called at Covina late in this month.

The Fruit Growers Supply committee is still in action and has confined its work entirely to securing the nearly - as - possible - perfect orchard heater somewhat along the line of the present down draft short smokestack heater. It is fairly definite that the tall smokestack is now down and out because of its partial failure this season.

The Claremont Pomological Club will discuss frost prevention at its next meeting. Especially will it consider a central compressed air heating plant. The inventor of this plan recommends the use of compressed air which at a high temperature is admitted to a series of pipes which will deliver the air under pressure to practically every tree in the orchard. He estimates the plant may be of sufficient capacity to handle a 20 acre orchard.

Others are discussing tents over the trees, canopy covering the entire orchard, boilers creating steam for delivery over the orchard, coal and other forms of heaters, some of which have been tried out years ago and found wanting. But these investigators are searching for some modification or change in minor plans which will make for efficient frost fighting.

"You can't farm against climate."

Neither do Californians propose to make over their climate. At the same time they do propose to discourage some of the idiosyncrasies which our weather men have been showing.

TOO BUSY

Some of us are so busy doing trivial things that we "haven't time" to do some of the really worth while big things, opportunity for which sometimes comes our way. Sometimes we have to choose between the really worth while and the duties which may become secondary.

When we were kids and got our lickin's on our birthday the one last lick, "one to grow on," was the one we dreaded most of all. But we had to grow and still have to no matter how old in years and we can only grow as we should through the proper use of time. Let us not be so busy at any time that we do not use our odd moments in improving and fitting ourselves for higher duties.

CALIFORNIA VALENCIA ORANGE SHOW

The growth of the Valencia orange industry in northern Orange County led to the establishment at Anaheim last year of the California Valencia Orange Show. The second annual will be held May 23-30 of this year.

In two decades Valencia orange culture has grown until now it absorbs four-fifths of the citrus shipments from Orange County. This is shown by figures recently compiled by the horticultural commissioner of Orange County. Out of a total citrus valuation of more than \$20,000,000, the Valencia crop totaled \$16,000,000; Lemons, \$3,000,000; Navels slightly under the \$1,000,000 mark. The Valencia crop fills the vacant period in Navel production during the late spring and early summer and serves to make the citrus crop of California a continuous one.

The chamber of commerce of Anaheim last year recognized the value of exploiting their major crop and the First Annual California Valencia Orange Show resulted. It met with instant approval of all of the municipalities, civic organizations and Valencia distributing associations in the district. This year the show will be housed in three tents instead of one, the number of feature exhibits has been more than doubled, and the space reserved in the rack exhibit multiplied many times over last year.

APRICOT GROWERS TO CONVENT

The apricot growers of Southern California are to meet at Santa Paula, Ventura County, on April 28 at 10 a. m. in the high school auditorium. Special problems which are Southern California's alone will be dealt with as well as the industry's problem from a national standpoint.

Program for this first apricot institute held under the auspices of the farm bureau:

Address of welcome, Chairman A. L. Shively; Need of an Institute, Farm Adviser C. C. Staunton; Apricot Industry as a Whole, D. Coleman, Santa Jose; The Apricot Grower, the Farm Bureau and the Extension Service, President W. S. Rosecrans; Los Angeles County Farm Bureau. Luncheon served by domestic science class of the high school. Marketing Conditions, Foreign and Domestic, H. G. Coykendall; Better Drying Methods, A. W. Christie, University of California; Irrigation and Soil Moisture Control, Professor J. W. Nelson, U. of C. Constructive Cooperative Marketing Studies, C. C. Teague.

California Cultivator

Vol. LVIII, No. 15

Los Angeles, April 15, 1922

One Dollar Yearly

THIS nation is rich in money, in goods and credit, but its potential wealth is far greater in undeveloped land, minerals and water power. The pessimist who bets against our finding the way toward a better economic distribution of profit and consequent prosperity will surely lose. We suffer now from a culmination of a modern development, following a great war, a distinct overbalance through the power existing in control of sources originally designed to be subordinate and helpful to production.

Our banks are bulging with money, but the three essential producing industries of agriculture, mining and livestock are operating at present loss, and consequently there are millions of idle men. A further complication exists in the wide spread between what the producer receives and the consumer pays. This aggravates labor unrest because living costs have not declined in proportion to wage reductions.

A few years after Watt discovered the use of steam as motive power in 1765 on the threshold of new industrial methods, the father of modern economics, Adam Smith, wrote with emphasis that production was the wealth of nations and that agrarian well-being brought national prosperity. This simple conclusion, forgotten in recent years, is now affirmed in a period of national depression by a few thinkers in the citadels of finance and in political forums.

Steam power was applied to ships and railroads; electricity brought the telegraph, the telephone, and recent facilities in lighting, communication and motive power. Watts' discovery brought the steam auto, and the steam auto developed into the gas engine with an exploding electric spark. These evolutions developed new methods of production and economic usage, with a resulting change in rural life, in the distribution of population and in volume of possible production. The modern tractor that in one day can plow as much land as 40 primitive ox teams has had much to do with bringing into farming new problems of surplus grain production and soil fertilization. Greater production is but one phase, for the tractor, in addition to facilitating the cultivation of vast acreage, annihilates the grain and feed demand for those 40 ox teams. Fertilization of the land farmed by the ox team was self-maintained.

Without doubt the tractor has had much to do with forcing a crisis in agricultural effort through surplus, although the present lack of stability of profit margin is the direct result of the middle marketer's efficiency and producer's neglect of that part of their business. The present financial trust combines have been formed within the business career of our present captains of industry. Watered stock and the relation of value to interest return rather than actual investment cost became general practice during the last 25 years. Gigantic combinations of capital in steel, oil and other commodities were met by equal organization of employed union labor. Middle marketing applied an efficiency to increase and protect profits. Meat packers took on poultry, cheese, fruit and canning. Wholesalers of food organized, brokers organized, and retailers had powerful associations. Organized self protection took the farmer's product frequently through money advance even before a matured crop, but the farmer remained free—and helpless.

After the war the organized middle marketers were loath to forego profit, and power bled the agrarian producers for billions by lowering prices to producers while maintaining them to consumers. For a period this kept up a fictitious city prosperity. The inevitable happened when the agrarian industries, bled white from

Organized Effort Wins

By A. L. Spellmeyer

loss, quit purchasing the city products, for factories in a hundred lines closed and 5,000,000 men lacked employment.

In 1820 people engaged in agriculture comprised 87 per cent of this nation's population. Today, through modern facilities, there is a greater production proportionately from 30 per cent so engaged. The greatest shift in population was in the period from 1840 to 1870, when the agricultural population declined from 77.5 to 47.5 per cent.

An impartial analysis clearly proves that our present economic ills are the result of progress in production and a progress that gives an unequal profit distribution because agrarians have not balanced the 2½ city control and middle marketing efficiency with associated self protection. It is known that every new colonist to Australia or New Zealand who goes into farming or livestock permits 2½ more city men to live in the manufacture and marketing of products.

A just economic distribution may be secured either by the producers completing their operation and product control to the consumer or by the retailer extending his interests in a direct production. A diversified farm, producing meat, butter, eggs, cheese and vegetables, may be owned by a large hotel or restaurant, or the diversified farm may own a restaurant, hotel or retail market. The hotel taking on a production burden assumes a loss in the consequent higher product cost than the present low market affords in open purchase, but the diversified farms that have taken on a marketing connection have proven profitable.

The complete control of a product from the ore to the consumer has brought enormous profit to Henry Ford. Identical procedure in Europe on the part of Hugo Stinnes in control of raw product, transport and marketing has enabled a tremendous

expansion when general business is chaotic. Repeated examples prove this a fact where a complete control of a product is maintained. Tobacco is sold at a slight margin and no profiteering occurred in its retailing, though it was often handled at a loss, and invariably other commodities sold by the merchant must help to pay the deficit in business sales overhead. A thousand great firms are today operating profitably where they control and complete their operation. The realization of this is so keen that there is in this time of national depression a great advertising increase in papers and magazines aimed at the consumer for a market and freedom from middle control, and it may apply to paint, canned milk, shoes, wall board or auto tires.

Examples of achieved success exist in agriculture where a cooperative effort has been extended to the marketing and handling of a product. The citrus association of California is a pioneer in applied cooperation, although it uses the present wholesale and retail facilities and the auction system of price. The walnut, and raisin and prune associations prove that the citrus plan is no fluke, but a consistent fact, by their success in maintaining quality pack, price and consumer's good will and by making profits in hard times on what many consider food luxuries. The difficulties faced by livestock men or by grain farmers are small to what have been overcome by these associations. There exist in some states successful examples of cooperative success applied to dairies, alfalfa and other products. Secretary of Agriculture Wallace has realized the existing necessity of applied cooperation.

The present situation in agriculture is loaded with dynamite, and its pos-

sibilities are menacing with concealed threat from several angles. It is a pertinent question for political parties, and one that may disturb the apex of power that finance has reached in the last few years. The farming and livestock industries of the nation have paid heavily for several years, and they comprise but a third of the population, but there exists a chance to collect with heavy interest those payments from the two-thirds of the population who must consume. Restricted output is no chimera, and the desire for a fair profit is prevalent, even though it must mean a coalition with former enemies, the middle marketers, to force the public to pay that profit. The orange crop cost \$125,000,000 to transport and market, whereas the producers secured \$75,000,000. Many products stand a double, triple or greater price to the consumer than the producer pays. Several cooperative producer efforts are today halting through a divided opinion as to the wisdom of completing a market operation or forcing price profit through present facility alliance.

Ruinous market prices and heavy taxation have forced a measure of group association in all farming lines, though the present upward tendency may divert agrarians from scheduled plans. A close knit cooperation and association standard of pack, quality and price should interest the public as it insures fair dealing and prevents an uneven power being held by middlemen or producers. The citrus, walnut, prune and raisin associations guarantee to the consuming public both quality and standard, and further, a price based not on the power to demand but on cost and fair profit due.

The same sources that built up with complete accord with modern tendencies in finance are those sources which hold the land mortgages and bonds. They are the ones which control the big bank which controls the bank groups which control the multitude of loans on livestock and farms. All the government money is loaned through some established bank or loan source and backed by them. A partial instance: Seventy-five per cent of the western cattle and sheep, and that means over half our total of the latter, are under the direct dictation of banks, bond houses and loan companies. Three banks in New York's different groups extend their affiliations to these loan sources that hold the cattle and sheep paper and mortgages on the lands they graze or leases they range. When the banker owns a cattle outfit he becomes a livestock man in his viewpoint. When a million men in farming and livestock, or five million, owe heavy bank loans, their creditors are interested in their business success. These same powers did not hesitate to make 1000 per cent in an industrial combination, and neither will they hesitate at any profit their power can obtain after they become livestock men and farmers in direct or indirect ownership.

The consumer is vitally interested in the agricultural situation for the price of his food, for the fertile soil of a nation, and for the national production and independence raw material production gives to any country in peace or in war. One thing is certain for the public need, and that is it is far better to promote and encourage reliable, fair dealing and restrained producer associations than to permit the foreclosure and change in ownership that must result from a continuance of the low farm product prices and heavy taxation.

What Will the 1922 Harvest Be?



CALIFORNIA'S fruit production for the year 1921 was slightly under that of 1920.

As reported by the cooperating service of the United States and state departments of agriculture the tonnage was: Peaches, 320,000, as against 360,000 and 430,000 for the years 1920 and 1919 respectively. The return in dollars for peaches was about half that of 1919 or about \$13,000,000 as against \$25,000,000 in 1919. In apricots the 1921 tonnage was 105,000, value \$5,250,000, as against 175,000 in 1919 which was valued at \$14,000,000. In apples the 1921 production was 6,500,000 bushels; pears, 78,000 tons; prunes, 90,000 tons; oranges, 22,500,000 boxes; lemons, 5,300,000 boxes; raisins, 130,000 tons; grapes (wine), 310,000 tons; grapes (table), 125,000; cherries, 13,000; plums, 40,000; olives, 8,200; figs, 8,000; almonds, 5,500; walnuts, 19,500 tons.

What will the production of 1922 be? Nobody on earth can answer that question this early in the season. There are yet possible storms of wind or rain or there may be frosts which will affect any estimate given this early in the season. For instance we may refer to the fact that Monday morning's paper contained items as to severe frost in Santa Clara Valley and in the northern end of San Joaquin Valley. One report stated: "Between 4:30 o'clock and sunrise the temperature dropped from 29 to 26

degrees Fahrenheit above zero." "Many orchardists report apricot crop a total loss while some of the more fortunate think their losses will amount to at least 25 per cent of the crop. Smudge pots were resorted to." "Apricot buds had in most cases been replaced by the embryo fruit crop especially susceptible to the cold." The normal apricot yield for the Santa Clara Valley is about \$4,500,000, and it is to be hoped that the early estimates of damage are greatly exaggerated.

A far greater number of the early estimates will be given next week. So far as they have begun to come in this week they are as follows:

A. E. Bottel, Horticultural Commissioner, Riverside County

In regard to fruit conditions in Riverside County the following estimate is given: Almonds, 100 per cent. Apples, 100 per cent. Apricots, 75 per cent. Cherries, 75 per cent. Peaches, 75 per cent. Pears, 85 per cent. Prunes, 85 per cent. Grapes, 85 per cent.

A. L. Shively, Santa Paula, Ventura County

Apricots are two weeks late; a heavy bloom is set, during which a light freeze has occurred, but it is thought little damage is done.

(Continued on Page 423.)

Agricultural News Notes of the Pacific Coast

Northern California

Colusa County fair will be held at Colusa instead of Arbuckle as in the past.

The Lassen national park bill has passed the house and is now before the public lands committee of the senate.

Twenty-three carloads of dried fruit left Winters during January and February. Stocks are practically cleaned up.

The section from Red Bluff to Arbuckle in Colusa County will raise 100,000 turkeys this year according to a poultry dealer at Willows.

A public auction sale of state scrip will be held by Surveyor General Kingsbury at the state capitol, Sacramento, Monday, May 1, 1922, at 10 a. m.

The state board of control has authorized plan of State Forester Pratt and Surveyor General Kingsbury for exchange of school lands within federal forest reserves.

Orchard accounting will be discussed April 17; orchard spraying, fruit growing as a business, April 21; closing days of farm bureau short course at Newcastle, Placer County.

Farm bureau meetings in Shasta County: Directors, Redding, April 15; Cottonwood, 17; Bella Vista, 19; Hat Creek, 21; Fall River, 22; Mountain, 23; Millville, 25; Palo Cedro, 26.

The Fruit Growers Supply Company has contracted with the government for one billion feet of lumber in Lassen national forest at a net price of \$3,314,000, the cutting to extend over 31 years.

The Wyandotte Olive Growers Association has been processing fruit of members for two seasons, last season putting out 15,000 cases of canned ripe olives; 50 per cent of the crop was made into oil.

The University of California has signed a five year contract with the California Almond Growers' Exchange for the marketing of crops from almond acreage at the Davis farm school in Yolo County.

The North Side Water Users' Association has protested applications of Sacramento for waters in Eldorado County which it is claimed belong to irrigators of Cool, Pilot Hill, Georgetown, Garden Valley and Greenwood sections.

The Mills Orchard Company has planted at Hamilton and Maxwell 3050 Bartlett and Nelis Pears, 1364 French, Robe, and Imperial prunes, 2576 Royal, Tilton and Blenheim apricots, 1200 Muir peaches, 500 Nonpareil and Drake almonds.

The California Farm Bureau Exchange announces that a contract had been signed with George Wills & Sons, Ltd., of London to handle all of the California grain passing through the exchange and intended for consumption in Europe and the United Kingdom.

According to the reports of the United States bureau of markets total egg receipts at San Francisco, January 1 to March 24, 1922, 190,607 cases; same period last year, 231,570; 219 cars shipped from Petaluma to points other than San Francisco; last year 206 cars. Stored at Petaluma 18,433 cases, last year 13,730. Comparison indicates egg production in Central California about 8.3 per cent less than last year.

Central California

Valencia picking will soon begin in the Porterville district.

The 1922 Raisin Day celebration will be held this year on Thursday, April 27.

Directors Merced irrigation district are receiving hundreds of applications for extension of canals.

A field meet and basket picnic of the state Grange will be held in Monterey County May 27, place to be announced.

Estimate of land planted this year in Turlock irrigation district shows increase of 204 acres over last year.

The California Peach and Fig Growers is building a \$100,000 plant at Dinuba. It will be ready for the coming season.

The California Peach and Fig Growers will this year handle Kadotas of its members, refusing to release this variety for sale outside the association.

Fruit growers of Hilmar have been conferring with the cannery people to see if sufficient acreage can be secured to warrant opening of the local plant this year.

The farm home department of Kings County is planning meeting at Hanford, April 18, to be addressed by Mrs. Max West of Berkeley on child nutrition.

The board of directors of the California Dairy Council meets today, April 15, at Tulare. Managers of dairies in Kern, Kings and Tulare Counties also meet with them.

The Fresno bureau of state employment agencies placed 1,293 persons on jobs during March, the greatest numbers being with agricultural industries, transportation and public utilities.

County Horticultural Commissioner Brann of Tulare is making plans for clean-up campaign against rodents this summer. Especial attention will be given to the Alpaugh section, which was passed over last year.

Kings County supervisors have passed meat inspection ordinance providing that no beef, veal, pork or mutton may be sold in the county without state inspection. This inspection will allow shipment to any point where city inspection is now enforced or similar county ordinances.

Clovis will hold its annual spring festival April 22. The program will include open house at the grammar and high schools 9 to 10 a. m., parade at 10:30 a. m., track meet at 1 p. m., rodeo at 2:30 p. m., and dancing in the evening. The prize winning floats will be entered in the Raisin Festival parade at Fresno.

At a meeting of the San Joaquin River Conservation Association at Newman it was resolved to ask all "concerned with the use of the waters of the San Joaquin River to join in a prompt and mutually considerate study and settlement of controversies" and to secure comprehensive survey by qualified engineers.

Fresno figs and grapes have been preserved for period of six months by cold storage experiment of the University of California. Ripe figs were placed in syrup and frozen solid, keeping the juice and flavor intact. Emperor grapes were packed in redwood sawdust with the result that the color and flavor were unimpaired.

Southern California

Santa Ana and Anaheim will join in construction of an outfall sewer.

Ventura County fair directors are actively preparing for the fall show.

Imperial will send out 29 carloads of grapefruit in addition to many express shipments.

A demonstration of date pollinating was given at the Swann place near El Centro last week.

The annual meeting of the Hemet Valley chamber of commerce was held at Hemet, April 7.

Farm home department meetings in Imperial Valley: Westmoreland, April 18; Lantana, 19; Meloland, 20.

Permits to seine for carp in Lake Elsinore have been granted by the fish and game commissioners.

Lettuce growers of the Imperial Valley report offers of more than \$1,000 an acre for their crops of lettuce.

Two avocado meetings are planned for May in Los Angeles County to discuss top-working to more profitable varieties.

The San Fernando Mission Park committee is planning a two day fiesta to obtain funds for restoration of the Old Mission.

Field station will be maintained at Brawley by the United States crop reporting service to keep cantaloupe growers informed of daily changes in markets.

Cotton growing interests of the state headed by A. W. Morrill are petitioning for early hearing of complaints against present quarantine regulations.

State Viticulturist Nougaret suggests that Coachella Valley grape growers experiment to find an early maturing grape better adapted to their conditions than either Thompson or Malaga.

Palo Verde Valley Produce Association is the new marketing organization of the cantaloupe growers of that valley. Directors are: E. A. MacDonald, L. E. Speer, A. E. Bente, Herman Bahls and O. F. Rudd.

The Imperial Valley Vegetable and Melon Growers' Association on March 30 shipped the first carlot of peas from the Imperial Valley. It was sent by express to New York City and contained 492 crates.

Bloomington and Colton are demanding that the supervisors of San Bernardino County take action on the nuisance of the Fontana garbage farm. It is claimed that Los Angeles garbage not only is fed to hogs but spread as fertilizer.

C. E. Jordan, former supervisor of the Inyo County forest reserve, has been appointed supervisor of the Santa Barbara forest, succeeding Thomas Sloane, who has been made assistant supervisor of the Angeles reserve.

The agricultural extension service is arranging with about 25 citrus growers throughout Los Angeles County to conduct citrus fertilizer tests on the use of quickly available nitrogen fertilizers in the spring, application of gypsum and lime, and organic fertilizers.

The San Bernardino County Beekeepers Club has placed its cooperative purchasing of supplies in the hand of a committee composed of Frank Bedell of Redlands, L. E. Alfred for Ontario and Upland, E. J. Miller for Colton, Rialto and San Bernardino; T. O. Hatter of Highland.

The Coast and General

Arizona is shipping asparagus.

Arizona pioneers held their second reunion at Phoenix, April 11-12.

Brazil's 1922 coffee crop will be short from present indications.

Arizona reports early planted cotton coming on nicely and growing rapidly.

Ten carloads of lettuce are being shipped daily from Eloy, 50 miles west of Tucson, Arizona.

Owners of 1550 cows have signed up with the Yakima, Washington Dairymen's Association.

California is the second largest producer of tomatoes in the United States; Maryland ranks first.

Live steam blown on the water hyacinth infesting streams of Louisiana and Florida is said to be an effective killer.

An international grain and hay show will be held at the Union Stockyards Chicago, during the Livestock Exposition.

The National Livestock Producers Association has established a commission association at the Union Stockyards, Chicago.

Because of cool weather first cuttings of alfalfa in the Salt River Valley of Arizona delayed to last of April or first of May.

Guernsey breeders of Thurston County, Washington, have formed an association, electing as president C. H. Bergstrom of Olympia.

J. L. Smith of Spokane, Washington, has been selected as superintendent of the livestock department for the next Spokane Interstate Fair.

Range in the Fort Apache Indian reservation and White Mountain section is in excellent condition. Snow has disappeared; water supply adequate.

The grain pool of the Maricopa County farm bureau has sold 1,250 tons of Salt River Valley wheat to Arizona mills. The price was \$2.40 per hundredweight.

The Cochise-Graham Cattle Growers' Association will meet at Douglas, Arizona, April 10. President Boice of the Arizona Cattle Growers will be one of the speakers.

Advices from Sonora, Mexico, are received that 11 successive frosts have destroyed practically half of the season's Garbanzo crop. The crop last year was valued at \$3,000,000.

April 24-29, United States Good Roads Week, United States Good Roads Show, United States Good Roads Association and Bankhead National Highway Association meet at Phoenix.

The Black Hills Cattle Growers Association in its annual meeting at Camp Verde, Arizona, elected R. E. Perkins, president; Ralph Monroe, vice president; David Wingfield, secretary and treasurer. A committee was appointed to secure salt for the members.

Announcement was made recently that as result of the Columbia River being made a port of entry for the import of livestock, E. L. Westover, representative of the American Guernsey Cattle Association, is perfecting arrangements for the importation of no less than 200 head of Guernsey cattle from the Isle of Guernsey this summer. The animals will be brought direct to Astoria.

THE septic tank is an unventilated, water tight compartment into which all raw sewage from the household is discharged in order that the more solid materials may be liquified, largely deodorized and rendered less dangerous preparatory to final disposition. It is not a so-called cesspool, neither is it a panacea for all sewage disposal ills. It should not be relied upon to purify the sewage; that is, the effluent from a septic tank is not much less dangerous than when the sewage

The Septic Tank

By William B. Herms and H. L. Belton,
University of California

years. A tight fitting cover (to allow access in case of trouble or possible cleaning) is necessary in order to permit the formation of a certain amount of pressure from gas in the dead space

six or eight inches above ground level so that drainage nearer the surface may be obtained. If soil conditions are good for drainage there is no objection to having the top of the tank 12 to 15 inches below the ground.

Style of Tank

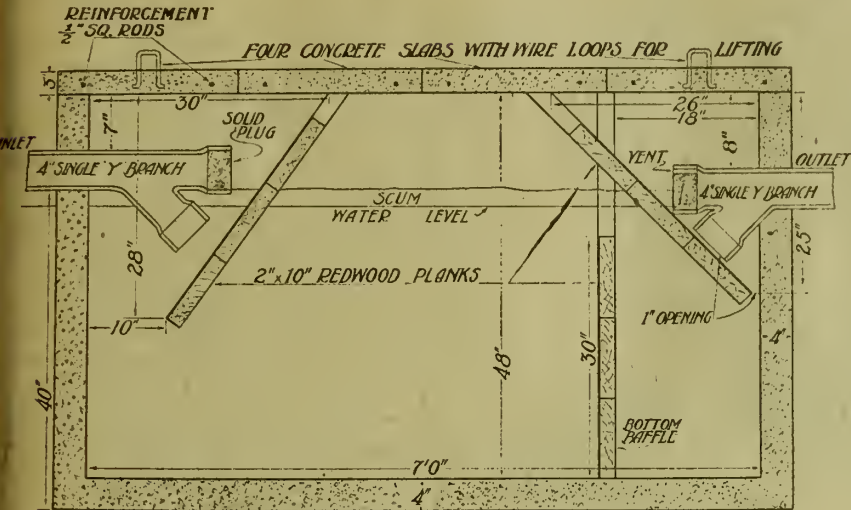
The tendency in septic tank plans is in the direction of simplicity. Many different types have been recommended from time to time, commonly multiple chambered. For all practical purposes, based on about 10 years' experience in California, we recommend a single chamber septic tank provided with baffle boards with outlet about one inch lower than inlet (Figs. 1 and 3), or in the absence of these baffle boards the inlet and outlet elbows

portion of fine and coarse materials. The inner surface if rough and porous may be finished with a cement mortar consisting of one part cement to 1½ to 2 parts sand, brushed or troweled on the wet concrete immediately after removing the forms. The tank is usually built so that the top is either flush with the ground or slightly lower. If drainage nearer the surface is desired or abrupt surface contours are involved the tank may be placed partly above ground. The tank cover, consisting of four concrete slabs, should be reinforced with bars or heavy fencing (see Fig. 1).

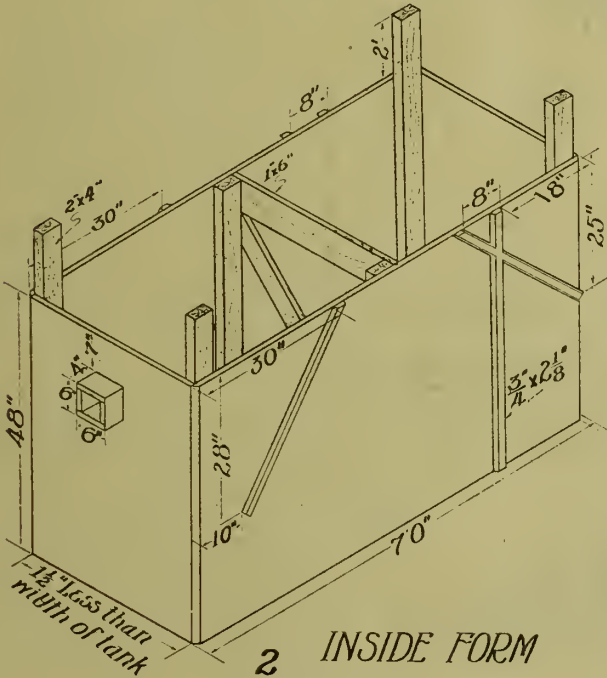
A fairly satisfactory tank may be constructed of two-inch redwood if made waterproof in creosote and the crevices properly calked. However, concrete is much more durable, is far more satisfactory, easily handled, comparatively inexpensive, and is recommended.

Final Distribution of Effluent

The effluent from the septic tank is ordinarily discharged through four-inch (sometimes six-inch) distribution



LONGITUDINAL SECTION 1



2 INSIDE FORM

MATERIAL

One part Portland cement; two parts sand, fine to 1/4 inch in size; four parts rock, 1/2 to 3/4 inch in size. Amounts: For smallest size tank, 10 people, two single branch Y's, vitrified tile; 1 1/2 cu. yds. 1/2 to 3/4 inch crushed rock, 3/4 cu. yds. sand, 12 bags cement. Reinforcements: Use woven wire or bars.

SIZES

No. of People	Inside Width	Inside Length	Depth	Sides	Thickness of Ends	Thickness of Floor	Thickness of Top
10	3 ft.	7 ft.	4 ft.	4 in.	4 in.	4 in.	3 in.
16	3 1/2 ft.	9 ft.	4 ft.	5 in.	5 in.	4 in.	3 1/2 in.
20	4 ft.	10 ft.	4 ft.	6 in.	6 in.	4 in.	4 in.

Purifying tile: A minimum of 100 ft. of tile is suggested, more to be added if soil does not readily absorb the effluent.

enters the tank, but it can be much more readily disposed of and that in a thoroughly safe manner.

The useful bacteria which cause liquefaction are already present in the sewage and require only proper conditions—namely, excluding air from the sewage—to carry on their good work. This condition is secured by the dark, unventilated tank, which is provided with baffle boards (or with deep elbow inlet and outlet) to prevent agitation and to allow the entering sewage to settle quietly to the bottom where the bacteria are at work. The products of liquefaction are to a large extent dissolved in the water of the sewage, giving a liquid which may be readily disposed of and leaving behind in the tank a small portion of the solid organic matter reduced to a comparatively inoffensive substance known as sludge and forming sooner or later a scum on the surface. Cleaning out the tank is usually unnecessary for several

above the level of the contents, thus further excluding outside air.

Typhoid stools and other infectious matter should be disinfected, preferably by boiling, before being discharged into the toilets. Disinfectants must not be added in quantities to the sewage, as this may destroy the useful bacteria in the tank.

Location

The septic tank if properly constructed of concrete may be placed as near the house as circumstances permit, even beneath the porch if necessary, thus allowing for an adequate final disposal system even with very limited yard space. Ordinarily the tank should be buried in the ground and covered with earth. It must be kept in mind that a leaky septic tank near a well or spring is dangerous. A high water table at certain seasons of the year, heavy clay loam, or hardpan near the surface may make it advisable to keep the top of the tank

must reach to within about 18 inches of the bottom of the tank, the outlet slightly shorter than the inlet.

Size of Tank

The size of the septic tank depends, of course, upon the number of persons contributing to the sewage. For a household of 10 persons or less the inside dimensions of the tank should be approximately three feet wide, seven feet long and four feet deep. A smaller tank than this for smaller families is not recommended.

Construction

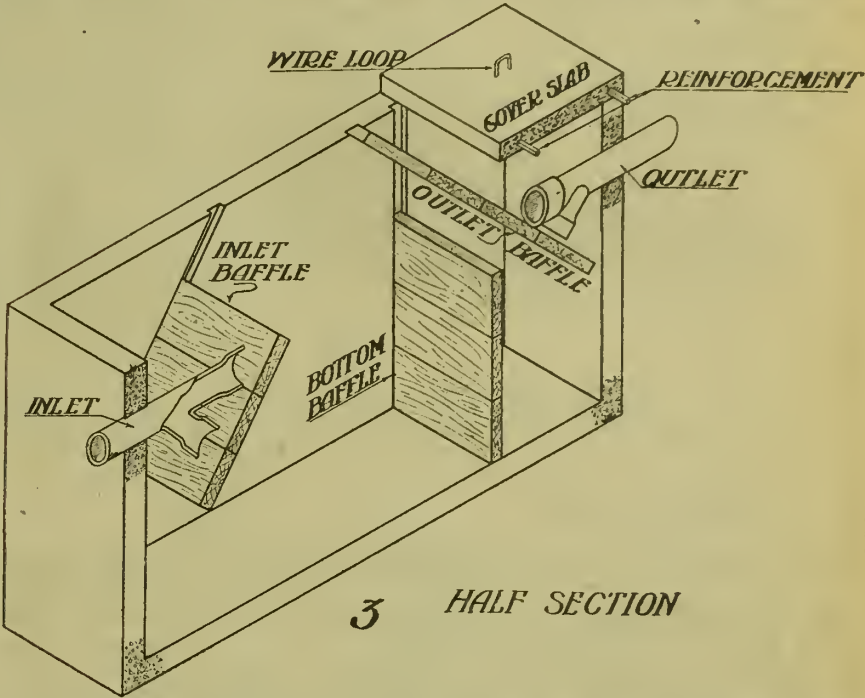
The pipe leading from the house to the septic tank should be of vitrified four inch sewer pipe with cemented joints laid at a grade of not less than nine inches per 100 feet. The tank should be constructed of concrete with four to six-inch sides and floor according to size of tank; the roof must be reinforced and three to four inches thick. A 1:2:4 mixture of concrete materials is recommended; i. e., one cubic foot or sack of cement, two cubic feet of sand, four cubic feet of crushed rock. Both the sand and the rock should be clean and free from foreign matter. The sand should vary from fine to one-quarter inch in size, the rock from one-half to three-quarters inch in size. Enough water should be added to give the entire mixture a jelly like consistency. Too much water is harmful, as the strength of the mixture is reduced by adding more water than is necessary for a workable mixture. Creek gravel should not be used unless it is clean and screened and remixed to the pro-

tile, the first eight or ten feet of which may have tight (cemented) joints; the rest should have open joints covered on top with burlap, tar paper or other material to keep out loose earth. The arrangement of the disposal tile after the first eight or ten feet of the line may be in the form of a three or four-tined pitchfork, herring bone or grid-iron in order to conserve space and to assist if desirable in subsurface irrigation. The disposal lines should have a fall of not to exceed one inch in 50 feet in order to prevent the water from rushing to the end and there waterlogging the soil.

The length of the disposal lines depends upon the nature of the soil, except that generally not more than 100 feet of tile should be used in any one line. A minimum of 100 feet of tile is suggested if soil conditions permit, more tile to be added in case the soil does not readily absorb the effluent. When drainage conditions are very poor, or if the tile must be laid close to the surface for other reasons, it is recommended that the drain tile be laid upon 12 to 18 inches of rock or loose gravel in a ditch about 12 inches wide.

The effluent may be utilized for the subirrigation of alfalfa, berries or trees, or possibly certain surface vegetables, such as squashes and beans, but certainly not for vegetables which may be eaten raw.

Where room is not available for the above described drain tile system, or where there is no natural fall to insure proper drainage from the tank,



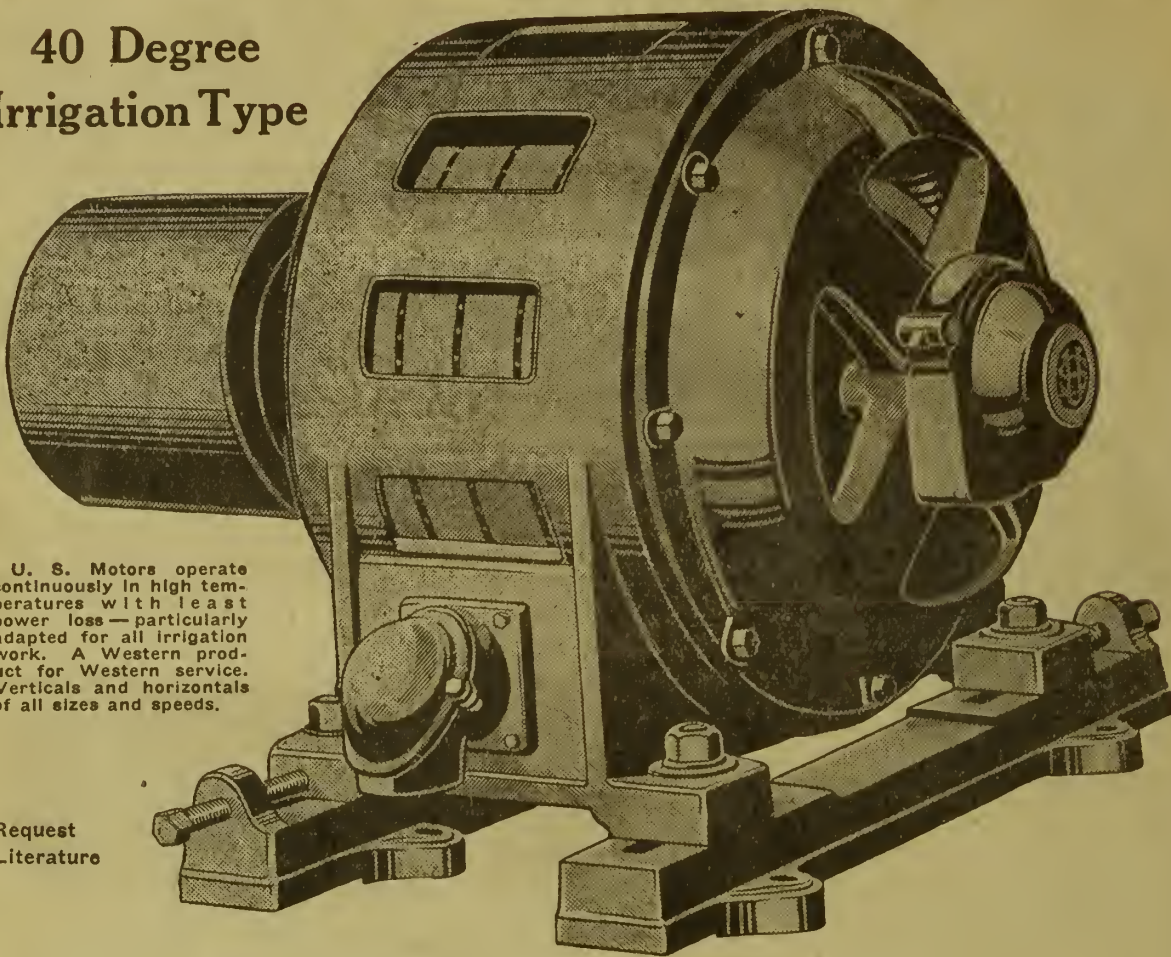
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It becomes necessary to connect the tank with a dug cesspool into which the liquid sewage is discharged, connection being made as for drain disposal system described in plans.

Under such conditions the sewer well should be located (as in the draught method) as far away from the source of drinking water as possible to prevent contamination by seepage. No fixed rule can be given for distance, since local conditions must be considered.

Dug wells for this purpose are commonly made from 16 to 18 feet depth. These, if drainage is inadequate, must be regularly pumped out, a simple matter owing to the fact that only liquids are involved.

Directions for Building:

Excavate a hole in the ground eight inches longer and wider than the dimensions, and four inches deeper to allow for four inch walls and floor. If the soil cannot be used as an outside form one must be made of lumber to dimensions given above for hole.

Make form of smooth lumber, to outside dimensions to correspond inside dimensions of the tank when finished, and the corner studding extending some distance above frame (Fig. 2).

Nail 1/4 by 2 inch cleats on outside of form (Fig. 2) to form grooves to receive baffle boards. These cleats should be slightly beveled to be easily removed from the concrete.

Place boxes 6 by 6 by 4 inches in form at exact location of inlet and outlet pipes (Fig. 2).

Suspend form in hole four inches from bottom, using 1 by 6 inch piece nailed firmly to four corner studding and anchored to stakes driven in ground a distance from each corner.

Pour concrete evenly about the form so as not to push it out of place. This method forms bottom and walls at one process and prevents leakage joints. Tamp and smooth the floor before concrete hardens.

Level off ground nearby and cast slabs for cover in frames four inches deep. Four slabs for the average tank is a convenient number. Reinforce slabs with bars or fencing and insert wire loop for lifting. Covers of rough wood plank have been used in many cases.

After concrete has set, chip box from walls and remove form. Cement inlet and outlet pipes into place, using a rich mixture of cement and sand. Plaster or brush tank surface if necessary.

Cut and insert baffle boards. Connect tank with sewer pipe and drainage system. Place cover slabs in position, using a lean cement mortar bed them firmly to the tank walls. After the cement joints in the sewer line and inlet and outlet pipes have set firmly, the tank is ready for use. If the tank top is below the surface of the ground, cover it to ground level.

GOVERNMENT PEACH GRADE ISSUED

United States grades for peaches have been reissued by the United States department of agriculture. The grades contain only minor changes from those recommended in 1921.

In past years peaches have been graded chiefly with regard to size. The United States grades are based upon market quality. Under this system are included such factors as color, maturity, general appearance and freedom from insect and fungous injury. Minimum sizes have not been specified for the various grades but numerical count and minimum size or style of pack must be stamped on each package. This is a well established practice in handling box apples and citrus fruits.

The No. 1 grade is designed to meet the normal commercial needs of the trade and consuming public by eliminating damaged stock which might cause loss in transit. It also provides that the peaches shall be of one variety, firm, mature and well formed and free from growth cracks, cuts, skin breaks, worm holes, and from damage caused by dirt, scab, scale, hail, disease, insects or mechanical other means.

The No. 2 grade includes peaches of one variety which are firm, mature and free from worm holes or serious damage caused by disease, insects or any other means.

A Fancy No. 1 grade is also provided for those who desire to pack an

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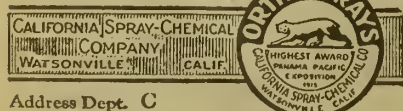
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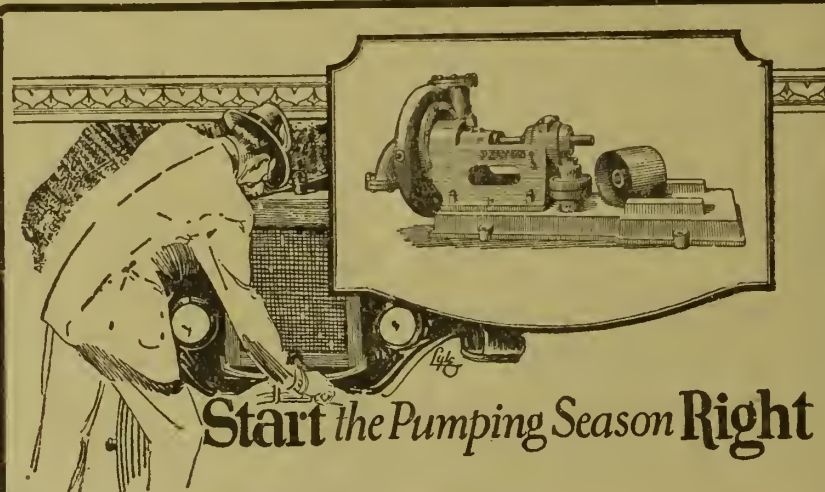
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pecially fine product. In this grade will be packed only peaches which are free from all damage by insects or diseases and which in addition have a specified amount of red color. This amount has been fixed at 50 per cent for such varieties as Carman and Hiley and at 25 per cent for Elberta and J. H. Hale and other similar varieties.

The department's action in reissuing the grades is the result of the favorable acceptance and use of the grades last year by growers associations, state marketing officials, and the trade generally. During the early investigations by the department there was considerable skepticism as to the practicability of formulating grades which would be uniformly acceptable to both Northern and Southern districts, but actual use of the grades on a large scale under the supervision of specialists of the bureau of markets and crop estimates has won over many of even the most conservative operators.

In addition to the recommended grades for peaches, the bureau of markets and crop estimates has prepared grades for 13 other important fruit and vegetable crops; asparagus, barreled apples, strawberries, cabbage, celery, cauliflower, cucumbers, lettuce, Bermuda onions, Northern grown onions, white potatoes, sweet potatoes and tomatoes. Copies of any of these grades may be secured without charge on application to Bureau of Markets and Crop Estimates, Washington, D. C.

RAISIN WEEK

When the California raisin industry set aside the week of April 23 to 29 to be nationally recognized as "Raisin Week" it established but another milestone in the romantic and progressive history of this delicious fruit.

The grapes from which California raisins are made were first grown in southwestern Asia and the bordering countries of the European continent. Today their largest field of production is in the beautiful San Joaquin Valley, a sunspot in the very heart of California, and the thousands of growers who have interested themselves in the development of the California raisin are today enjoying a prosperity seldom accorded any such industry. Entire success of this business is attributed to the painstaking care with which the vineyards were planted and cared for and the consequent merit of the product when it reached the people.

California raisins are today marketed throughout the country and exported to several of the foreign nations with the same success they are enjoying here. The successful institution known as the Sun-Maid Raisin Growers, and formerly the California Associated Raisin Company, will probably achieve greater things as time goes on, but its success in putting so much effort behind the industry in general will stand forever as a worthwhile achievement among the co-operative growers associations.

Tracing the romantic history of the fruit, historians state that the raisin grapes grown in California, constituting 90 per cent of the raisin grapes of the world, are of the same species planted by Noah after the flood and those discovered in the Promised Land by the scouts sent out by Moses.

These raisin grapes contain about 75 per cent of pure fruit sugar in practically predigested form. Is it any wonder, then, that the California raisin is so full of energizing nutriment and blessed with such a delicious flavor?

Step by step, as this industry has developed, the raisin has become more and more popular with the American public. Now it is seemingly at the acme of its popularity, yet the men associated with it in the Golden State believe that a Raisin Week will serve to introduce raisins into households where hitherto they have been regarded as tid-bits of luxury, instead of a healthful fruit food which should have a place in every home and which should be served often in the various, but simple, ways in which they can be prepared.

Broccoli handling investigations in the Willamette Valley and southern Oregon this season will be made by R. R. Palthrop of the federal bureau of markets, who will direct the work of a small corps of men in an effort to determine what causes discoloration of the "jacket."

FIRE PREVENTION WEEK

Governor Stephens has issued a proclamation, urging the observance of "Forest Protection and Fire Prevention Week," April 16 to 22, in which he says: "The forests of California, with proper care and protection from fire, will supply by their recurring growth for generation after generation the needs for timber of all of our citizens. During the summer of 1921, forest brush, grass, hay and grain fires devastated 698,357 acres in California, causing a direct monetary loss estimated at \$942,977; killing young trees, the value of which 50 years hence can not be estimated; destroying pasture that should have fed hundreds of cattle, sheep and horses; denuding watershed areas of growth needed to conserve water from winter storms for summer irrigation and electric power purposes; leaving barren waste in place of sylvan beauty. With our growing population our forests are becoming more valuable, both for timber and for the enjoyment and recreation of our populace and tourists from other states. By reasonable care and protection this great loss can be greatly reduced, our forests preserved, our hay, grain and pasture conserved.

"Therefore, I do proclaim the week April 16 to 22, 1922, Forest Protection and Fire Prevention Week, and call upon all of the citizens of California to pledge themselves to exercise

watchful care against the starting of fires, either in forest, pasture or grain areas, and to extinguish them promptly, when by mischance they do occur, knowing that so to do is to perform one of the most important services that can be rendered to the present and future welfare of our state."



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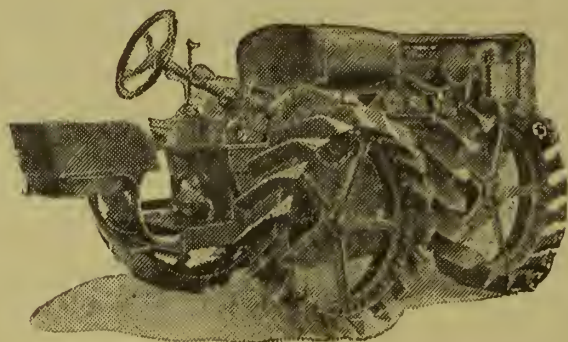
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QUALITY

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department. Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Son Signed Father's Note

A note was signed by father and son some ten years ago. The father died. The son gave his share of the property to the mother. Can either the son or the mother be required to pay the note?—Subscriber, Escalon.

It probably would be the case that the note is outlawed by this time unless the son acknowledged the indebtedness in writing within the past four years or unless the note has matured within the four years. The note should have been presented during administration of the estate in order to hold any of the property of the father, so that the mother is in nowise liable.

Heir Paying Taxes on Estate

Heirs do not agree with respect to certain real property. Taxes are becoming delinquent. May one pay these taxes and obtain reimbursement?—Subscriber, Los Angeles.

Any heir is fully entitled to pay taxes on the property, and he is invested with a lien upon the whole property for the shares of the other tenants in common, which must be repaid to him whenever there is any partition of the property. This also applies to other necessary expenses as to the upkeep of the property.

(In this statement it is assumed that one who pays the expense or tax is one of the heirs).

Selling Lot Bought Under Contract

A house and two city lots were sold upon contract, payable in monthly installments. Can the vendee sell one of the vacant lots?—Subscriber, Owensmouth.

The only thing that he can sell is his interest in the lot, whatever that may be. He could not convey title because that is in the name of original owner. It would require the act of the original owner, together with the vendee to transfer a clear title to any party.

Note Drawing No Interest

Is a note or a contract lawful that does not provide for payment of interest?—Subscriber, Owensmouth.

There is no requirement with respect to a matter of interest in this state, and such note is entirely valid.

Poison Out

If a person puts out poison for squirrels and rabbits, and if domestic animals eat it, is the person liable in any way?—Subscriber, Owensmouth.

A person has a right to put poison on his own premises for the protection of his property, having due regard for the safety of human life, and will not be liable for damages to one whose animals eat the poison while trespassing; but if he places poison not to protect his property, but with the intent to kill the animals, then he will be liable. The penal code provides that every person who wilfully administers any poison to an animal, the property of another, or maliciously exposes any poisonous substance with the intent that the same shall be swallowed or taken by any such animal, is punishable by imprisonment in the state prison not exceeding three years, in the county jail not exceeding one year or by a fine not exceeding \$500. There are many provisions throughout the game laws with respect to the killing by poison of various wild game; otherwise it is perfectly proper.

One Not an Officer Making Arrest

If I should see a person steal property, have I, not being an officer, the right to interfere? Have I a right to go so far as to do bodily injury or shoot the thief?—Subscriber, Turlock.

It is a rather delicate proposition for a private person to make an arrest. He is, however, entitled to make arrests in the following ways: For a public offense committed or attempted

in his presence; when the person rested has committed a felony, though not in his presence, and has reasonable cause for believing person arrested to have committed. He may orally summon as many persons as he deems necessary to him in making the arrest. In making the arrest he must inform the person to be arrested of his intention to rest him, the cause of the arrest and his authority therefor, except when the arrest is made of a person actually engaged in the committing attempt to commit an offense, or pursuit immediately after its commission, or after an escape. He must do without unnecessary delay take the person arrested before a magistrate or deliver him to a peace officer. It has been held that a private person making an arrest in case of a felony or breach of peace may overcome such resistance as is offered with such force as is reasonable to accomplish his purpose. It has also been held that in arresting for a felony a private person may, if necessary, kill a felon who resists or flees so that he cannot otherwise be taken; but there is justification for killing a person upon mere suspicion of felony. The matter of the extent of the force to be used in making any such arrest is always a question of fact to be determined by a jury.

Animals Trespass

I have 80 acres of mountain land in the center of which I maintain orchard and garden. There is fence. Stock as well as other animals have made serious depredation. Have I any remedy?—Subscriber, Owensmouth.

There is one old act which applies to the following counties or parts thereof: San Bernardino, Alpine, Dorado, Colusa, Tehama, Humboldt, Merced, Solano, Santa Barbara, San Joaquin, San Luis Obispo, Sacramento and Los Angeles. Under this act it is unlawful for any animal, the property of another person, to enter upon any land owned by or lawfully in the possession of any person other than the owner of such animal. For a violation of this act the owner of the person in lawful possession of the land is entitled to recover from the owner of the person in possession of or chargeable with the care of the animal, the damage sustained by reason of the trespass, with costs of suit. This act does not require that the property be fenced, and it has been held that trespass acts which do require that the property be fenced, do not apply to the counties or parts of the counties to which the above named act does apply. Therefore, you would undoubtedly be entitled to recover damages in the case stated.

Right of Way for Drainage

In 1913 three land owners belonging to an irrigation district made a verbal agreement to drain flood water through a natural draw on the land of one of the parties. A ditch was made to better effect this agreement and the parties all drained their water up to the present year. A new party has now purchased the land over which the drain runs and he has plowed up this ditch. Would he have a right to do so?—Subscriber, Clovis.

It is quite apparent that the three parties made an agreement whereby easement was given for the drainage of this water and have continued the practice thereof more than five years. It is very probable that the two parties whose water drains through this ditch would have a right to have the ditch maintained for the use for which it was given.

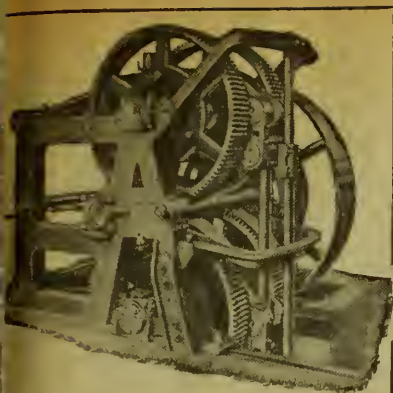
Homestead

Land has been set aside to a widow as a homestead. How can she secure a farm loan?—Subscriber, Hughson.

If you are unacquainted with the location of any farm loan association in your neighborhood you can write to Federal Farm Loan Bank, Berkeley, California, and they will either inform you of such association or give you full information.

Cows Not as Represented

In November I purchased two cows guaranteed to calve in December. They did not do so. I told the vendor and wanted my money back, but he has not given it yet. What would be



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the best way to collect damages?—Subscriber, El Monte.

Your best action probably would be to bring suit for the difference between the value of the animals as represented and the value which they now have.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Poisoning Rabbits

How best to dispose of the rabbit pest is one long question. The orchardist usually prefers fencing with rabbit tight wire, but so often this is impossible that rabbit drives and poisoning campaigns are resorted to. Answering queries from several localities we would suggest first neighborhood drives if possible. However, poison grain at this time of the year is fairly effective. Later as the green grass disappears the rabbits are very fond of watermelon rinds, pieces of apple or other bait, which may be poisoned by the use of strychnine. The formula for the poison grain, especially recommended for squirrels, also recommended for rabbits, as given in the California Cultivator of September 24, 1921, is: Barley (clean grain), 16 quarts; strychnine (powdered alkalioid), 1 ounce; bicarbonate of soda (baking soda), 1 ounce; thin starch paste, 3/4 pint; heavy corn syrup, 1/4 pint; glycerin, 1 tablespoon; saccharin, 1-10 ounce. Mix thoroughly 1 ounce of powdered strychnine and 1 ounce of common baking soda. Sift this into 3/4 pint of thin, hot starch paste and stir to a smooth, creamy mass. (The starch paste is made by dissolving 1 heaping tablespoon of dry gloss starch in a little cold water which is then added to 3/4 pint of boiling water; boil and stir constantly until a clear thin paste is formed.) Add 1/4 pint of heavy corn syrup and 1 tablespoon of glycerin and stir thoroughly. Add 1-10 ounce of saccharin and stir thoroughly. Pour this mixture over 16 quarts of clean barley and mix well so that each grain is coated.

Twig Budding for Navels

Is twig budding practical for Navel oranges? When and how is it done? Is it as successful as single budding? I wish to bud over a few lemons to Thompson Navels. —Subscriber, Visalia.

Twig budding is no longer used commercially for top-working citrus. A much simpler and better method is to insert the buds directly under the bark on the larger branches, using well cured bud wood and large buds. It is still a little early for budding, the best months being May and June. In the hands of an expert twig budding is successful, but the average person secures much better results using a single bud. As to the supply company not being able to furnish buds, I would suggest taking the matter up directly with C. S. Milliken, Manager Bud Selection Department, Fruit Growers Supply Co. I know of no reason why the supply company cannot furnish buds, as there is still plenty of citrus which was not frosted.—R. W. H.

Lettuce Seed

I intend to plant 15 acres to lettuce next November. Would you advise raising my own seed, planting now? How much seed is required per acre for drilling in?—Subscriber, Carlsbad.

It cannot be done, as insufficient time is allowed. Planting should be done in August and September and seed harvested in May and June. This seed will not germinate until November or December, even though planted in August. It must have time for proper curing. It is not advisable for one to raise his own lettuce seed unless he "knows the game." It would be necessary to "rogue" or weed out all but the best types, select closely, and even then, unless the very best seed was originally planted, the risk is great. Why risk a valuable crop on 15 acres unless you well understand the seed growing game? The amount needed is two and a half pounds to the acre.

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All other materials—pure linseed oil, pure zinc and pure colors—are of the same high quality—the quality which is essential to the making of best paints.

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Floor Paint: Fuller's Rubber Cement Floor Paint—a sanitary, waterproof and durable paint for floors of kitchens, closets, etc. Attractive in color and gloss. Dries hard over night—12 colors.

Implement Paints: Fuller's Pacific Wagon Paint, adapted for repainting agricultural implements, farm wagons, farm machinery, wind mills. A glossy, durable finish—7 colors.

Also makers of Fullerwear, an all-purpose Varnish, Silkenwhite Enamel, Fifteen-for-Floors Varnish, Decorative Washable Wall Finish, Auto Enamel, Fuller's Hot Water Wall Finish (kalsomine), Poreh and Step Paint, Silo Paint, Milk Can Enamel, PIONEER WHITE LEAD, Tractor Paint, and Fuller's Oil Stains.

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Please send me, without charge, a copy of "Save the Surface" and your "Home Service" booklet.

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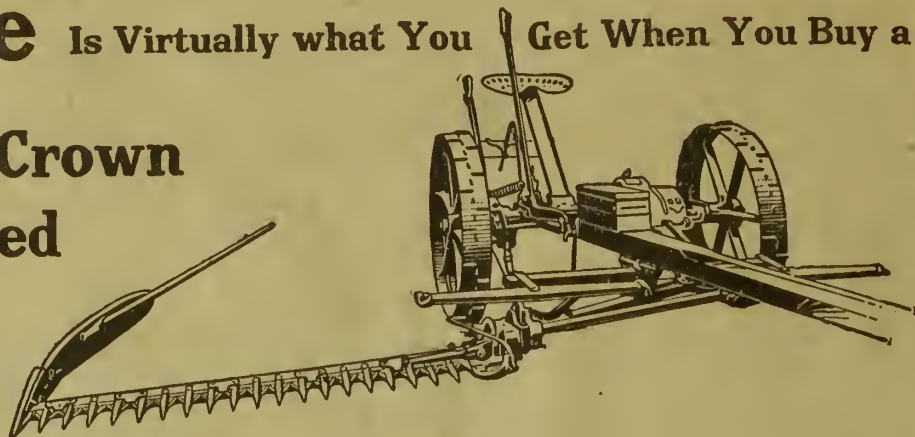
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necessary to do the work, an extra burden is placed on the team, with no corresponding benefit. Again, the higher the speed the greater is the tendency to heat; hence more oil must be used—and oil costs money.

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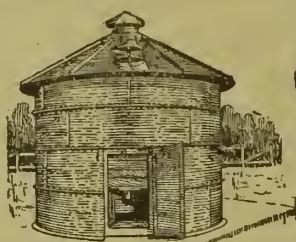
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You market your *whole* crop when you handle your grain in CALCO METAL GRAIN BINS. None of it leaks away; none of it goes for free lunches for squirrels and mice; none of it is destroyed by fire or exposure to early rains.

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Cauliflower Seed

How can one raise good cauliflower seed? If I keep just the choice heads will they mix with cabbage or other vegetables? Is it necessary to cover them?—Subscriber, El Monte.

Would not advise growing cauliflower seed by anyone who does not thoroughly understand the work. It is technical work, very exacting, and we know of none who has made much money at it, even over a term of years. Planting for commercial crop is done in July, but for seed crop the planting time is September. The July planting would have blossoms and seeds caught by frosts, while September planting throws the crop into late spring after frosts are past.

Hot spells may then come and seed are "cooked," especially inland, for cauliflower does best in cool weather. Cauliflower runs 7,000 or 8,000 heads to the acre, but one would have to choose but a few of the best and choose knowingly. Birds also swoop down in flocks and practically eat the entire crop. Good growers often get but 25 pounds to the acre. Among frosts, heat and birds, the risk is great. There is so much to tell that should be known, and so technical in detail, that subscriber is advised against such seed growing until he visits and consults at length some one already in the business.

Dying Fern

What can we do for Boston fern which seems to be dying? It was badly infested with brown apricot scale and we were advised to put soapsuds on it, which we did, but afraid we got them too strong. Is there any help for it?—Subscriber, Sebastopol.

In such case would advise cutting off entire top, watering well once, and no more until new top has started. If you poured the strong soapsuds on the soil the fern is probably dead, at least not worthy of attempted resuscitation. If leaves only were saved proceed as advised and get a new set of leaves.

Buds and Grafts

Is it best to bud or graft seedling carob trees, and at what age and time of the year should the work be done? Should rose bushes be budded or grafted to change to other varieties? What good variety of plum blossoming from two to four weeks later than Satsuma, would be a good pollenizer for another plum?—Subscriber, San Diego.

Both budding and grafting is practiced on carobs, but grafting is the more general and more successful. Right now, in the month of April, is an ideal time, and when seedlings are as thick as lead pencils is the best stage of growth. It is better to bud than to graft rose bushes. Burbank, Wickson and Abundance are three good varieties that generally blossom in the relative season you mention.

Pruning Thompson Seedless—Mildew

How long should a high standard grape vine like the Thompson Seedless be left from the main stock—third year—and how many canes also short and medium varieties? Many grapes last year split open and soured about the time they began to color. There were bugs on them that looked just like bean weevil. Can you tell me the cause and cure?—Subscriber, San Diego.

In pruning young Thompson Seedless grape vines it has come to be the common practice to establish a comparatively high head. This is done by leaving a single cane 30 inches or more in height, and forming a head at or near that point. The number of canes which may be left on a three year old vine depends on its vigor, which is not usually so great that more than two canes will be required.

It is very probable that mildew was the cause of your grapes splitting and souring. I doubt very much if the bugs mentioned had anything to do with the condition of the fruit. This could not be told, however, by the examination of a specimen. To prevent recurrence of this condition, providing, of course, it is mildew, your vines should be very thoroughly sprayed at frequent intervals throughout the season, beginning when the shoots are six to eight inches in length.—F. K. H.

Household Department

CHRIST IS RISEN!

By Ruth P. Dougherty

"Christ is risen! Christ is risen!"
Happy voices join His praise,
"Christ is risen! Christ is risen!"
Lord of Life through endless days.

Clouds of greed and hate are riven,
Fading creatures of the night;
Mists of fear and doubting scattered—
Lo, where streams His glorious light!

Love that came to Bethlehem's cradle
On that Holy Christmas Day
In the risen Christ now speaketh,
"I am with you all the way."

Loving Christ, our risen Saviour,
We as children turn to Thee,
Longing hearts and hands uplifted;
Pure and holy we would be.

Risen Christ, in love triumphant,
Healeth now the sad world's need.
Weary heart, look up, rejoicing.
He is risen, is risen indeed.

NEEDLE NADDLE'S EASTER GIFT

By Annette Squire

ONE MORNING not long before Easter, Peggy Weggy and Jerry Dumppling discovered Needle Naddle, the Redbreast, chirping and singing on the tip-top of their father's garden spade. And below him, grinning at him, was Pussy Cat.

"Pussy Cat makes me laugh," sang the robin, "I am not afraid of cats! I am not afraid of dogs either! That is, usually I am not. But I don't like

"Mother Goose had a house; it was built in the wood," answered Jerry quickly.

"An owl at the door for a sentinel stood," added Peggy.

"Right! You can tell it by the owl. Are you afraid of dogs?"

"Not a bit," said Jerry.

"Then will you carry my precious Easter gift to Mother Goose? Look, here it is at the foot of the lilac. Carry carefully what is so beautiful."

The children looked, and saw only an ugly ball of dry grasses—grasses wrapped round and round, and round and round.

"Take it," said the robin and flew away.

"We'll have to take it," declared Peggy, "if we can. But do you think it is beautiful, Jerry? I think it is a queer, ugly thing for an Easter gift."

"Could something be inside of it?" wondered Jerry. "What could be inside of it? Carry it carefully, Peggy Weggy."

Very carefully they carried, first one and then the other. They had never gone so far into the wood before. But deep, deep in the wood they found a little house that they knew must be Mother Goose's house, because an owl sat over the door. And there was the fussy little dog, too. Out he ran, barking fierce and fast.

CHRIST IS RISEN!

In the end of the Sabbath as it began to dawn toward the first day of the week came Mary Magdalene and the other Mary to see the sepulcher. And, behold, there was a great earthquake; for the angel of the Lord descended from heaven and came and rolled back the stone from the door and sat upon it. His countenance was like lightning and his raiment white as snow * * * And the angel * * * said unto the women, "Fear not ye, for I know ye seek Jesus which was crucified. He is not here, for he is risen as he said." * * * And as they went to tell his disciples, behold, Jesus met them, saying, "All hail." And they came and held him by the feet and worshipped him. Then said Jesus unto them, "Be not afraid; go tell my brethren that they go into Galilee and there shall they see me." * * * Then the eleven disciples went away into Galilee, into a mountain where Jesus appointed them. And when they saw him they worshipped him; but some doubted. And Jesus came and spake unto them, saying: "All power is given unto me in heaven and in earth. Go ye, therefore, and teach all nations, baptizing them in the name of the Father and of the Son and of the Holy Ghost, teaching them to observe all things whatsoever I have commanded you; and, lo, I am with you alway, even unto the end of the world."

fussy dogs. There is a very fussy dog down in the woods near Mother Goose's house. He barks at every little bird that comes near. He seems to think that she ought to have only owls and geese. Do you know where her house is?"

"Bow, wow, wow," mocked Peggy, "whose dog art thou?"

And he barked back, "Little Tommy Tucker's dog, bow, wow, wow!"

"Well, then," scolded Jerry, "why don't you go home?"

And that took the little dog so by surprise that he turned tail and ran yelping away—toward Tommy Tucker's house.

The funny old owl blinked, looked rather pleased, and nodded his head. "Who-oo, who-oo?" he inquired.

"Just Peggy and Jerry Dumppling," they told him, "and we have brought an Easter gift to Mother Goose from a robin."

"A robin," cried a gay old voice, and out of the door came Mother Goose, settling a pink bonnet on her gray curls and smiling.

"An Easter gift!" she said, taking the ugly ball, "then there is in it something of life and beauty. Look!"

Mother Goose took off the dried grasses that were wrapped round and round. One by one they fell down until at last she held in her hand—did you guess it?—four beautiful blue robin eggs!

"I shall care for them," she said, "I shall find the Mother Robin to keep them warm, and at Easter they will blossom into four new little Robin Redbreasts for my woods!"

HOUSEHOLD QUERIES

Yellow Dye Stain

I wish to know how to remove yellow dye from white clothes caused by a lingerie ribbon inadvertently left in the laundry.—Subscriber, Waitsburg, Washington.

Put lemon juice on stained spot, then apply javelle water, let stand a moment then rinse with hot water and soap. This procedure may be repeated if stain does not come out the first time. Javelle water is made of 1 pound washing powder, 1 quart boiling

When Will There Be A Disarmament Of Dining Tables?

Suppose everybody would recognize the fact that there's no gain but much loss in keeping up hostilities with the stomach!

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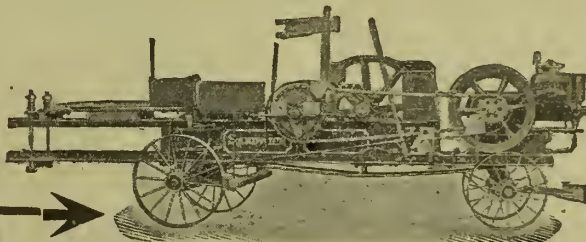
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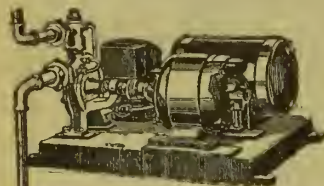
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water, ½ pound chloride of lime, 2 quarts cold water. Put soda in agate pan and add boiling water. Mix lime in the cold water and pour into the dissolved soda. When settled, pour clear liquid into a bottle and keep in dark place. The sediment is a good disinfectant for sinks and flush closets.

Light Corn Bread

Looking through the Cultivator I find several recipes of all kinds, but I have never seen any for light corn bread. I would like very much to have a recipe for it, if you could get it for me.—Subscriber, Johnstonville.

If our inquirer means corn bread made with baking powder, here is the most delicious, fluffy quick bread we know of:

One cup (scant) yellow corn meal (finely ground), 1 cup milk, 1 egg, 1 tablespoon sugar, 1 teaspoon (heaping) baking powder, 1 tablespoon shortening, pinch of salt. (If drippings are used, omit salt.) Put lard in pan in which bread is to be baked and slip in oven to melt. Put all other ingredients into mixing bowl; beat up quickly with split spoon; pour in melted shortening, folding in quickly; pour out batter in the hot pan; bake in quick oven. If oven is a little slow the egg will settle to bottom of pan, leaving delicious layer of egg, with lighter bread above. I often cook it this way (by mistake—on purpose). This bread is very light and tender, and, of course, crumbly, because of having no flour in it and small amount of corn meal in proportion to liquid.

If yeast bread is what is wanted, here is recipe sent out during war conservation times:

Eight cups white flour, 1½ cups corn meal, 5 teaspoons salt, 2 tablespoons corn syrup, 1 or 2 cakes compressed yeast, 5 cups water. Make same as other yeast bread, but because of less amount of gluten it must be molded and handled with care.

PRESSURE COOKER — FIRELESS COOKER

In the Cultivator of April 1 a subscriber asks as to value and use of pressure cookers and fireless cookers. We are glad to be able to present this week letters from housekeepers who make daily use of them. One point brought out in the following letter from Chatsworth we wish to emphasize, and that is that the steam pressure cooker may be used on coal oil, gasoline or wood stove; it is not necessary to have gas or electricity as many housekeepers have thought. The pressure cooker is valuable in the gas or electrically equipped kitchen; it is invaluable where slower fuel is used.

Invaluable for Canning

I have a pressure cooker and use it for practically all my cooking and canning. We are four at the table and I put cooker on at 11:15 and serve dinner at 12 o'clock. Have meat in bottom on trivet, potatoes in wire basket, vegetables in pan next and pudding in pan on top—all cooked on one burner of Perfection oil stove. The actual cooking takes about 20 minutes and 20 minutes to register 20 pounds pressure, counting cooking time from the time pressure is 20 pounds, or desired pressure according to what is being cooked, a little longer time at lower pressure, etc.

We settled last summer on a small ranch and our garden at times gives more than we can use fresh, so I can up the string beans, tomatoes, peas, etc., for days when there is a shortage of green things for the table. Pack the jars (after blanching) with vegetables or fruit and set in pressure cooker on trivet and put on lid and fasten, then run pressure to desired number of pounds and cook. Time tables for cooking come with the cooker. I have the Sechrist cooker, bought at \$28.75. Fruit canned by steam tastes more natural, retains color and shape.

One need not worry as to overcooking a meat if family does not arrive on time, just turn off the fire and cooker will stay hot for two or three hours with pet cock closed. One can wrap a blanket around the pressure

cooker and take out on trips Sundays. The hot dinner will be acceptable to all.

Strong odors of onions or cabbage do not taint the other food in cooker. We had a goat a couple of weeks ago and could not use all the fresh meat, so I cold-packed and put in the cooker—now have meat canned for emergency.

In these ways I consider the cooker very economical and a saver of work. I hope this information will be helpful to others.—Reader, Chatsworth.

Pressure Cooker Saves Time

The pressure cooker is especially good for cooking foods which take a long time to cook in the ordinary way, such as beef roasts or any other kinds of meats, beans, prunes, vegetables, etc. I take a roast of beef, brown a little in the frying pan, season to taste, put in cooker, screw lid down tight (which is easy to do), run up to 20 degrees and hold there by turning down gas or coal oil very low, and cook about 25 minutes (of course, it would depend upon size of roast and kind), then let steam out, put in my potatoes, run up to 20 again and cook five minutes, when the potatoes will be done. If you have some kind of vegetables to put in put pan on top of roast and cook at same time. Most vegetables take about five minutes. When the roast comes out it is nice and juicy and the same size you put in, which does not always happen in cooking in oven. Another thing, cheaper cuts of meat can be cooked and made to taste delicious. There is nothing dangerous about the cooker and it is very easy to learn, but it cannot be left alone as it might run over 20 degrees and do damage to cooker. But it is needless to leave it as one can be preparing the rest of the meal and setting the table.

In the selection of a pressure cooker there are a number of kinds. Be sure to buy one that screws the lid down tight, for if it leaks it will take much longer to cook and be unsatisfactory in more than one way. Mine has about five places to screw down; there are some that only have two or three, and they leak.

The pressure cooker, like a new stove, is learned by experience. It is certainly worth the money. Mine is a Sechrist cooker and very good. Pressure cookers are certainly fine things to have.

Yes, a Pressure Cooker

We have had a pressure cooker nearly a year, and use it constantly. I find it saves time, fuel and food. The only trouble I ever had with it was when I did not follow the directions that came with the cooker. I was canning string beans in a six pound Crisco can and being in a hurry I opened the cooker before the pressure was quite down—result, string beans all over the kitchen and a can only half full. The next time I wasn't in a hurry, and when I opened the can this winter all said, "the best ever." Another time I was cooking a very old hen and I thought I had better give it a little more time than called for—result, the meat was all off the bones. Since then I have followed directions. I have canned fruit and vegetables in glass and tin with good results. It is remarkable how sweet and tender old beets are when cooked in the pressure cooker.

We had sickness this winter and I made the best soup by cooking a shank bone and rice about 40 minutes. The bones were as white as though they had been boiled three days, and the rice never stuck or burned. The toughest meat is tender and never stringy. Steel cut oats can be cooked for breakfast in a short time.

I do not bother with it for potatoes and food that cooks quickly, as it takes time to get up to pressure and to cool off before opening. I never tried bread but once and that was like a stone. The pressure keeps it from rising and it will get up to pressure before you know it—it takes so little fire.

Baked beans—well, I am from Boston and I knew beans must be baked all day to be fit to eat. At last the good man persuaded me to try the cooker—result, we have not baked beans since. My husband has promised to make a fireless box to put the cooker in so we can take our dinner out on picnics this summer, then I

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shall have both; but that is another story.

My advice is get a pressure cooker, use it according to directions and you will be satisfied that it is a wise investment.—Mrs. Ruth Watson, Sunnyvale.

Need Both

In the Cultivator for April 1, I notice you would like to hear from some who have had experience in using fireless or pressure cookers. As I have had both, I thought I might be able to give a little information.

We had a three compartment Rapid Fireless Cooker and found it very satisfactory. I would fix my mush at night and put it in the cooker, and in the morning it would take but a few minutes to get it reheated for breakfast. Then I have put beets and soup in it in the morning, have gone away from home for hours. On returning I could have my meal ready in a few minutes.

For almost two years we have been using a Denver Pressure Cooker and we find it very satisfactory. We would not want to be without it. With it, food can be cooked thoroughly in a short time, and the flavor is delicious. We find it unnecessary to use any seasoning but salt in beans (dried or green), cabbage, cauliflower and turnips. This is quite a saving. Mush cooked in pressure cooker has much better flavor than when cooked otherwise, and can be cooked in a short time.

One advantage the fireless has over the pressure is that you can bake in it; another is that you may go away and leave your food cooking in the fireless. I never feel like leaving my pressure cooker for long, but food can be cooked in such a short time in it that it is not necessary to do so.

Personally I would like a one compartment fireless cooker of good make and a good pressure cooker in large size. If I could have but one would take the pressure cooker.

While the first cost seems high we find that these cookers will pay for themselves by the saving in time, fuel, and the seasoning. Then the food is much more palatable.

Couldn't Keep House Without Fireless

I could not or would not like to keep house without my Domestic Science Fireless Cooker. First, it saves fuel, which is very important in California, and prevents heat in the kitchen. Second, it saves labor. I can put my dinner in fireless cooker, go away from home if I so desire and return at meal time with dinner perfectly cooked ready to serve.

It excels in preserve making, as it cooks your fruit whole, never burning or scorching food, and you never have the odor of food cooking in house.

When we go on picnics I put my dinner in fireless cooker, put cooker in car and when we reach our destination we have our hot dinner ready to serve.—Mrs. Franklin Bell, Redlands.

Better Methods in Home Making

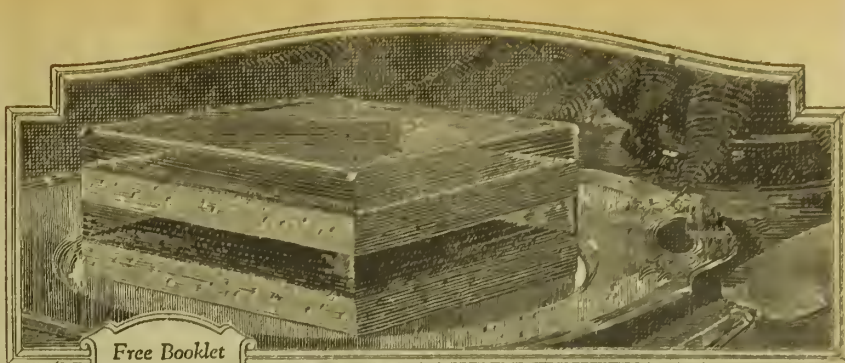
I have used a fireless cooker for one and a half years and would not be without it. Meat or beans are by far best cooked in a fireless. Pie or cake baked in one is excellent. I have canned fruit and vegetables by using the fireless and found it highly satisfactory. Last Sunday I put my dinner in the fireless and went to Sunday school and church and found on my return a most excellent dinner ready to be served hot when taken from the fireless cooker. I am not familiar with the pressure cooker. Yours for better methods in home making.—Mrs. L. Bostwick, Paso Robles.

HINTS FROM HOUSEKEEPERS

Freshening Pickled Pork

In reply to "Subscriber, Sonoma County," you recommend parboiling to reduce the saltiness of pickled pork. I find it is much nicer with salt soaked out. For boiling, soak the piece over night in plenty of water, and in the morning put to boil in cold water.

For frying, slice and soak over night or for several hours. If part sweet skimmilk is used it makes it very much nicer, as it browns nicely. When ready to cook, drain and wipe the pieces with a soft cloth and fry over a hot fire, with a spoonful or two of fat in the pan.—Mrs. W. H. Currell, King City.



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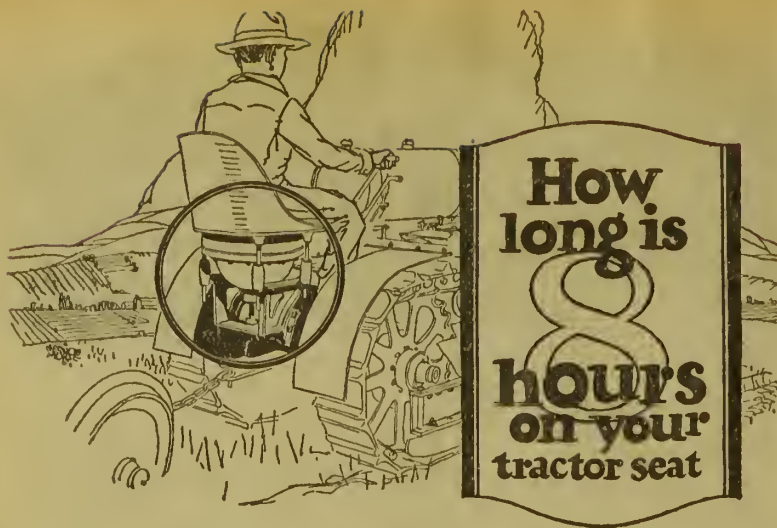
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In order to devote his time to his many other interests, Mr. F. H. Harvey has decided to make a complete dispersal of his big herd of registered Holsteins. The herd represents many of the highest producing blood lines of the breed and is of high average type.

A LARGE NUMBER OF THE FEMALES HAVE OFFICIAL RECORDS UP TO OVER 26 LBS. BUTTER IN 7 DAYS. MOST OF RECORDS MADE AS 2, 3 AND 4 YEAR OLDS.

The herd contains a considerable group of the daughters of the 32 lb. bull SUPREME GLISTA PIETJE, whose daughters have consistently shown a high percentage of butter fat.

Many of the females sell bred to KING PONTIAC SEGIS INKA, a splendidly bred son of King of the Pontiacs, and the bull himself will sell.

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Viewing Holstein Farms by Automobile

By Jack Klein



THE two days following the guaranty sale were spent by the Southern California Holstein-Friesian Association in entertaining the breeders from a distance with automobile trips, which included visits to the most prominent Holstein breeding farms in and about Los Angeles.

The first day a crowd of 50 started on the trip, and their number was augmented at each stop, until at the

pounds of butter in a year. It was the consensus of opinion that very few herds of pure bred are headed by such bulls. The Pellissiers have been purchasing a few pure bred females lately and have been making some fine records.

The last stop of the day was at the Baldwin ranch, where the famous bull King Korndyke Pontiac Acme, and his calves were the principal objects of interest.

HARTSOOK COW BREAKS SECOND WORLD'S RECORD

Miss Aaggie Ormsby Segis, who recently dropped a fine helper calf and thus assured the acceptance of her world's record for ten months at 2½ years of age, has just finished a seven day record of 40.954 pounds of butter from 644.9 pounds of milk at 3½ years of age. Earl Sturgis has managed the test on a lot of cows, but this is his first 40 pounder. You can imagine how happy he is!

end nearly 100 people were in attendance.

The first stop was at the Burr Farm, where a wonderful herd of producing females with high yearly records has been assembled. The principal feature of the Burr Farm, however, is the great herd bull, King Korndyke Pontiac 20th, and his progeny on the farm. This bull has been in service here for nearly two years, and his daughters on the farm are still young but they are beauties. It is no question that they will be high producers, as paternal half sisters in other herds are constantly making high records. From Burr Farm a quick trip took the crowd to Earl Graham's, near Compton, where Earl proudly exhibited Princess Malda Veeman, his world's record three year old, who made 1154.7 pounds of butter in a year and whose combined two and three year old records total 49,905.3 pounds of milk and 1915.2 pounds of butter.

Everyone was in a hurry to get to the Los Angeles County Farm and an excellent lunch provided by the Southern Association. During lunch the visitors were given a chance to see the methods of keeping the herd records and other data connected with the business. Everyone was amazed at the thoroughness with which Superintendent W. R. Harriman has arranged the dairy department of the farm. Starting with a small herd of grade Holsteins and a couple of good registered bulls, the herd has grown under Mr. Harriman's supervision to the world's highest producing herd of over 100 cows. It now includes a number of very choice pure breeds and the best bulls obtainable. The visitors were as delighted with the extremely sanitary conditions of the barns and corrals as with the animals.

The next stop was at Agee Brothers' farm at Rivera. Agee Brothers for a number of years maintained a very good herd of milking cows. These were of varying types, as a herd purchased here and there is bound to be. At the head of this herd was placed the young bull, Toyon Fayne Valdessa, a grandson of the first 40 pound cow, Valdessa Scott II. The remarkable thing is that practically every one of the 40 daughters of this bull out of these various type cows has a perfectly straight top line and the most perfect udder imaginable. This is an asset to Agee Brothers that cannot be counted, and in another year or so they are bound to be famous on account of this bull.

The next call was on the Pellissiers, where hundreds of excellent Holstein grades are milked. Mr. Pellissier has always used the best herd bulls he could get and he has a wonderful herd of producers. In the bull corrals the crowd was amazed to see a son of King Segis Alcartra Prilly, the great Bridgford bull, out of a cow that made 950 pounds of butter as a four year old from three quarters. In the next pen is a son of King Mead of Riverside, out of a 900 pound four year old, and next to him is Prince Walker Cornucopia, the former herd header at the Santa Anita Ranch. He is a son of Prince Gelsche Walker and out of a 36 pound dam who made 866 pounds of butter in 342 days. The other bull is Sir Acme De Kol Acme 7th, whose three nearest dams average 1115

The second day began at the Anderson Ranch at Burbank, where the great son of Pontiac Korndyke now resides. Mr. Anderson is an old established breeder and is generally conceded to be one of the best judges of dairy cattle in the state. His herds bears out this contention.

The second stop was at the Hartsook ranch. Fred Hartsook has provided Earl Sturgis with so many great cows that it is impossible for one to



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I am offering some fine bulls all out of A. R. O. dams, backed by high production records. If you want something choice, write me. Prices reasonable.

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Covina, Cal

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The power of the tractor is used to dump, load and set the scraper. One finger will operate the loading rope or dumping lever. Can be attached to any standard Fresno Scraper in thirty minutes. All the tools required are wrenches to tighten six bolts. Sold everywhere by dealers. Licensed Manufacturers

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HALF A CAN SAVED HIS COW

Trouble After Calving Quickly Cleared Up

So many cow ailments have their origin at the calving period simply because cows are left to shift for themselves during this critical time, when the simplest kind of medicinal care would insure health and safety. E. A. Hale of Chatham, Mass., writes us:

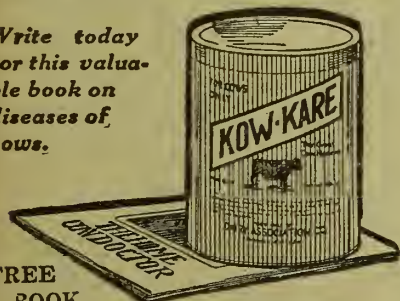
"Please send me a copy of 'The Home Cow Doctor.' I had one cow this spring that did not do well after calving. I tried everything and she grew worse all the time. Her milk about stopped. A friend of mine gave me about half of a small can of Kow-Kare. I gave her that and she began to pick up and eat before that half box was gone, and gave ten quarts a day. I got more Kow-Kare and now she is giving fifteen quarts a day, and is hungry as a wolf."

Kow-Kare has carried thousands of valuable cows safely through calving. The best plan is to use it for two weeks before and after. Barrenness, Abortion, Retained Afterbirth, Scouring, Bunches, Milk Fever, Loss of Appetite and all similar disorders that arise from weakened digestive or genital organs are quickly cleared up by Kow-Kare, because it is these organs that are toned up and strengthened by this great cow medicine.

General stores, feed dealers and druggists sell Kow-Kare at the new reduced prices, 65¢ and \$1.25

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E. R. STALDER NUEVO, CALIF.

Will Disperse His Entire Herd of 50 Registered Holsteins

At HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Thursday, May 11
at 10 A.M.

MANY A. R. O. COWS with official
records up to over 32 lbs. butter in
7 days.

MANY COWS AND HEIFERS bred to
King Pontiac Netherland Segis
3d. This will be the very last op-
portunity to buy females bred to
this great proven sire, now dead.

DAUGHTERS AND GRAND-
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COWS AND HEIFERS bred to
King Segis Pontiac Aero, the
youngest son of King Segis Pontiac.
Such noted producers as Locust
Terrace Gold Drop, Stanislaus Prin-
cess Cleopatra and others will ap-
pear in this sale. The calves they
carry will be worth what the dams
will probably bring.

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AND PEDIGREE CO.

C. L. Hughes, Sales Manager.
Sacramento, Calif.

grasp the true greatness of the herd in a short visit. There are nearly 20 cows in the herd who have made over 1000 pounds of butter in a year and innumerable ones with 30 pound records. At the head of the herd stands Sir Aaggie De Kol Mead, five of whose seven nearest dams average 1130.68 pounds of butter in a year. This is one of the most richly bred bulls of the breed and he is getting some excellent calves for Mr. Hartsook.

Across the road a stop was made at Carl Ray's ranch, where he is assembling a herd of very good animals. Mr. Ray has been a prominent figure in Holstein sales for the past couple of years and the soundness of his judgment is to be seen in the herd he has gotten together.

From here the crowd whirled to the Maxwell Farm, "the fountainhead of the Ormsbys," where they were shown a number of daughters of Sir Ormsby Skylark, the sire of Duchess Skylark Ormsby, whose record of 1506 pounds of butter in a year was the world's record for so long a time. The daughters of Sir Ormsby Skylark have made and are making some exceptionally fine records for the Maxwell Farms. Considerable interest was taken in the famous Silky, who has never been defeated in the show ring, either in the East or West. This heifer is just fresh and made a wonderful picture, as she thoroughly enjoys visitors and is always on her best behavior while they are there.

The next point of interest was the new plant of the Los Angeles Creamery near Van Nuys, where it is expected shortly to be milking 1200 cows. This is going to be a great plant, and it is the hope of the Holstein fraternity that eventually these cows will be pure bred Holsteins.

The last stop was the Sunshine Ranch, San Fernando, where a small herd, principally of pure bred, is being assembled, very largely to provide fertilizer for the 1000 acres of oranges now growing there.

The value of two days spent in a trip like this cannot be estimated. It is only in this way that any great number of farms can be visited and the herds looked over. Many of the Southern California men who went along have never visited all of these places and very few get around often. The northern men were delighted with their entertainment and went home strong for Southern California and its Holstein breeders.

The total number of milk cows in the United States on January 1, 1922, was estimated to be 24,028,000 as compared with 23,594,000 on January 1, 1921 and 23,722,000 on January 1, 1920. The average value per head in 1920 was \$85.86; in 1921, \$64.22, and in 1922, \$50.97. The percentage of decrease when compared with the preceding year was 25.3 per cent in 1921 and 21.7 per cent in 1922. The total number of all other cattle in the United States on January 1, 1922, was estimated to be 41,324,000 as compared with 41,993,000 on January 1, 1921, and 43,398,000 on January 1, 1920. The average value per head in 1920 was \$43.21; in 1921, \$31.36, and in 1922, \$23.78. The percentage of decrease when compared with the preceding year was 27.5 per cent in 1921 and 24.2 per cent in 1922.

The Yolo, Colusa, Solano Woolgrowers Association was organized April 1 at Woodland, when about 40 sheepmen met for that purpose. F. N. Bullard, of the firm of Bullard Brothers, prominent Rambouillet breeders of Yolo County, was elected president. An executive committee was elected, consisting of Elwood Peters, Dr. E. E. Brownell and H. G. Brown from Solano County, W. F. Stephens, J. B. Merritt and G. M. Chapman from Yolo County, and S. A. Mendosa, Edgar Mitchell and G. W. Hougland from Colusa County. Fred A. Ellenwood, president, and W. P. Wing, secretary of the California Woolgrowers Association, were present and addressed the meeting.

The Western Berkshire Congress is awarding a silver trophy and a silver and bronze watch fob, all suitably engraved, as first, second and third prizes in the students' fitting contest to be held in connection with the students' annual picnic at University farm, Davis, on April 29.

50 REGISTERED HEREFORDS 50

Public Auction, Stockton, Calif.

(Sale at Fair Grounds)

Thursday, April 20, 1922

40---Serviceable Bulls---40

The
Rangeman's
Opportunity

The
Better
the Bull—
the Better
the Steers.

Herefords
are:
Thick-fleshed,
Hardy,
Rustlers,
Early Maturing,
Profitable.

This offering of bulls should prove a real opportunity for the range man. They are the right kind—short legs, blocky, mountain raised and range fed. The kind that produces real steers and makes money for the buyer. This sale will be the last opportunity for California cattlemen to buy Hereford bulls at auction this spring.

10—Cows and Bred Heifers—10

The females have been selected with care and are just the sort for the beginner or the man wanting to establish a herd for the production of registered cattle. They are a splendid lot.

I have recently located in Stockton and this will be my first annual sale in the San Joaquin Valley. Come and get acquainted with my cattle.

H. M. BARNGROVER

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Jno. A. Marconi, Auctioneer

ANNOUNCING FIRST PUBLIC SALE Innisfail Milking Shorthorns Friday, May 5, Davis, Calif.

Why Milking Shorthorns?

Milking Shorthorns are the most practical cattle for the farmer.
Milking Shorthorns will produce profitably at the pail (many cows average 8,000 to 12,000 pounds of milk a year).
Milking Shorthorns are hardy, adapted to dairying in the foothill and mountain sections.
Milking Shorthorns will produce profitable beef steers (the best Shorthorn carcass at the 1920 International was from a steer whose dam was record of merit cow).

There is a wide and active demand in California for cattle of this breed.

Why INNISFAIL Milking Shorthorns?

Innisfail herd was founded in 1914 with purchases from the best American herds.
Innisfail Milking Shorthorns are milked and this herd probably has more record of merit records than any Western herd.
Innisfail Milking Shorthorns have a showing record second to none.
Innisfail Milking Shorthorns are healthy.
Innisfail Milking Shorthorns are backed by sincere purpose, honest effort and a reliable guarantee.

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REGISTERED PERCHERON AND ARABIAN STALLIONS
MAMMOTH JACKS AND JENNETS
HOLSTEIN-FRIESIAN CATTLE
BIG TYPE POLAND-CHINA SWINE

The registered Percheron Stallions offered are an exceptionally fine lot of high-class young horses, of great size, style and quality, from two to five years old. The Jacks are the big-boned, rangy kind so much desired and sought after by the discriminating breeder who likes to breed and raise a big work mule. The Jennets are young and mostly all in foal to King Bersheba. The registered Holstein-Friesian Bulls are twelve to eighteen months old, sired by Prince Walker Cornucopia and out of high yearly record dams.

All Breeding Stock Guaranteed.

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CORRESPONDENCE SOLICITED.



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Anita M. Baldwin, Owner SANTA ANITA, CALIF.



MR. FARMER:—

You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now? Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs of butter in 7 days included in this offer. Call or write at once

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State Champion Butter Producer

Why Great Dairymen use Empire Milkers

AT Maaikenshof, Bedford Hills, New York, the Empire Milker is used on pure bred Holsteins, making test records. Supt. R. E. Buell reports that although these cows are milked four times a day, teats have never been injured in any way.

Collins Farm Company, Sabetha, Kansas, milk their prize cows including a State Champion with Empire Milkers to save money and to increase production. The Cotati Company, Cotati, California, reports that the Empire saves \$3600 per year.

Thus from coast to coast, the great dairymen have approved the Empire as most efficient method of milk production. And the same results are obtained from a grade herd of six or more cows.

The Empire reduces labor costs, makes cleaner milk, increases production and benefits cows.



The Empire
Double Unit Milker

Write today for further information.
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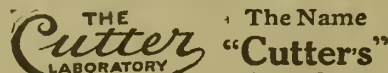


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We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.



"Kant-Suk" Weaner—Safe, humane; allows animal to graze and drink but effectually prevents sucking. At dealers, or sent postpaid, calf size 45c, cow size 60c.
WAGNER SPECIALTY CO.
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The Name "Cutter's"
"on Serums, Vaccines and Aggressins signifies. Made by The Laboratory that Knows How." Twenty-five years of conscientious endeavor in one line count for something.
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The 1922 Guaranty Sale

By Jack Klein



THE fifth annual guaranty sale of the California Holstein-Friesian Association was held at Hynes near Los Angeles last Wednesday, April 5. This was the first guaranty sale that has been held outside of Sacramento. Tulare has been a candidate for the sale for the past two years but the hotel accommodations are not yet adequate in that city for crowds the size of the ones that attend these sales. Los Angeles is in a way the logical place to hold a sale of the caliber of a guaranty sale as for the past two years at least more than two-thirds of the offering has come south of the Tehachepi.

Breeders of Holstein cattle throughout the state have come to watch the guaranty sale each spring as a means of determining the standard by which to set the values on their own animals. They know that these animals are the best obtainable and the prices they bring are a good barometer of the conditions. All of the breeders who are used to following the above methods of inventorying their herds will have to do some cutting if they use this year's sale as a basis of value, because the prices were nowhere near the ones heretofore obtained. This is no sign though that the price of good Holsteins is weakening very much. The average animal in this sale was considerable below the average of the previous sales. You cannot blame the breeders in a way as the conditions are very unsettled and cattle are down along with everything else. Most of the animals on the farms today were bought in a period of good times and cost the man more than he can hope to get at present. Most of them were bought as a foundation for a future herd and there is no reason for one to sacrifice such animals just in order to help out a sale. However the guaranty sale is a point of honor with most of the breeders and they consigned animals that could not have been bought off their ranches for many times what they hoped to get. Some of the men failed to consign animals that brought tears to their eyes when they were sold and so the average was not so good as in former years. Another thing the sale emphasized is the value the breeders place on the 305 or 365 day test. Many of the animals had made splendid seven and 30 day tests but they were not nearly so eagerly sought as the ones with only moderate long time records.

A total of 64 head was cataloged but for one reason and another some were dropped out and 58 went through the ring. These brought a total of \$26,555 or an average of a few cents over \$457 each. The top animal of the sale was the outstanding cow Norma Korndyke Cornucopia who has a seven day record of 38.42 pounds butter and is the highest record cow ever offered at auction in the state. This cow also has a 30 day record of 155.75 pounds butter which won first place in the entire United States in 1920-21, giving her first place in both the seven and 30 day divisions. A number of the big breeders have been watching this cow and at the Crawford-Spires sale last summer she brought \$2300. She was purchased by Mrs. Annie Donders and J. M. Blenkiron and J. F. Phillips of Fresno. At that time the cow was open and the owners of good bulls were keen for her. She sold in the guaranty sale bred to Sir Aaggie Mead who formerly headed the Toyon Farm herd and is now owned by W. J. Higdon and F. S. Borror and Son. There was considerable competition for the cow and she could have brought \$1000 more than she did and still been well within her value. She is a wonderful individual and is bred to a bull that stands in the first rank in this state, but the money market has been tight and after considerable time Col. Rhoades was forced to sell her to Fred Hartsook for \$1700. When the gavel dropped Hartsook mentally credited his bank account with about \$1500 because he has previously stated that he would give \$3000 for the cow. She is a great cow and is in the hands of one of the few men in the state who can give her a real opportunity to prove her further worth.

Heading the heifers was a youngster

that some people thought might out-sell the 38 pound cow, but she did not make the grade. This was Fay Tritomia Hengerveld 2d who was consigned by W. J. Higdon. She was the sweetest thing in the sale and was purchased by Burr Farm for \$975. Sired by King Korndyke Pontiac 20th and out of Fay Tritomia Hengerveld, this heifer had one of the richest pedigrees in the sale and she is backed up everywhere by high records. Another thing in her favor is that practically every dam in her pedigree has one or more high record daughters. She was a find at the price she brought.

Mr. Higdon also had the honor of topping the males in the sale with a son of King Korndyke Pontiac 20th. This bull is out of the famous 30 pound cow, Mona Fobes who has been a consistent winner in the show ring. He is a great individual and his pedigree is a real one. He was a bargain to Frampton Brothers at \$1300.

One of the sensations of the sale was a little heifer consigned by the McCloud River Lumber Company. She was a thing of beauty and had a junior two year old record of 21.38 in seven days. This was a pretty good record but the thing that the breeders liked was that she had made 620 pounds of butter in 305 days. She brought \$660 while 30 pound cows were bringing under \$600.

Consigned by Mrs. Donders, Messrs. Blenkiron and Phillips
Norma Korndyke Cornucopia, 38.42 lbs. 7 days, Fred Hartsook, Lankershim, \$1,700.

Consigned by Mrs Donders
Victoria Brunaro Johanna, 31.36 lbs. 7 days, Carl Ray, Lankershim, \$525.
Dora Walker, 24.14 lbs. 7 days, Sunshine Ranch, San Fernando, \$580.
Andon Champion (male), H. L. Gordon, Artesia, \$155.

Consigned by J. L. Sebastian, Wasco
Duchess Elizabeth Victoria, 26 lbs. 7 days, Price Ranch, Los Alamos, \$510.

Consigned by H. G. Ball, Tulare
Belle Pontiac Maid, 31.24 lbs. 7 days, Berylwood Stock Farm, Hueneme, \$525.
Jenny Wren Edith Pride, 25.47 lbs. 7 days, F. F. Pellissier, Whittier, \$485.

Consigned by Fred Hartsook, Lankershim
Dora Netherland Segis, 28.71 lbs. 7 days, Carl Ray, \$350.
Rosamaines Dora Jeek, 23.11 lbs. 7 days, F. F. Pellissier, Whittier, \$415.
Rosamaines Jeek Ormsby, Sargent Bros., Tulare, \$410.
Rosamaines Maggie Artis, Price Ranch, Los Alamos, \$375.

Consigned by Harry L. Redd, Corcoran
June Ellen Pontiac, Sargent Bros., Tulare, \$505.

Consigned by Carl Ray, Lankershim
Jolie Muriel Johanna, Burr Farm, Los Angeles, \$150.
Fenton Koroba Beauty, Burr Farm, Los Angeles, \$195.
Anoakia Pontiac, 19.15 lbs. 7 days, J. B. McGee, \$260.
Jolie Moneta Korndyke, 22.23 lbs. 7 days, Chas. Anderson, Burbank, \$335.
Sir Ormsby Segis Skylark (male), L. A. Beck, Pomona, \$200.

Consigned by Burr Farm, Los Angeles
Jane Garden Virginia Korndyke, 18.9 lbs. 7 days, H. L. Gordon, \$400.
It Ruth Ormsby Walker, Green Bros., Hemet, \$245.

Von Heim Canary Posch, 23.16 lbs. 7 days, Santa Anita Rancho, Santa Anita, \$370.
Clothilde Beauty Pontiac Veeman, 26.7 lbs. 7 days, Price Ranch, \$425.
Carnation Segis Mechthilde, 23.22 lbs. 7 days, Santa Anita Rancho, \$385.

Consigned by E. D. Barry, Jr., Covina
Tosantos Walker Mead (male), F. F. Pellissier, Whittier, \$350.
Lady Pontiac Holingen Jewel, 28.26 lbs. 7 days, Sunshine Ranch, \$565.

Consigned by Chas. W. Anderson, Burbank
Lady Posch Pearl, Price Ranch, \$410.
Toyon Colanthe Fayne Valdesa II, Price Ranch, \$325.
K. S. V. Melba of Sunnyside, M. P. Christianson, Norwalk, \$375.
K. S. P. Queen Pearl, Carl Ray, \$300.
K. S. P. Inka Plush, 25.49 lbs. 7 days, Hartsook, \$500.

Consigned by Frank Helm, Fresno
Jessie Segis II, 32.49 lbs. 7 days, Sunshine Ranch, \$835.
Victory Jessie Segis, J. M. Crawford, Fresno, \$370.

Leila Korndyke Hengerveld, 29.53 lbs. 7 days, Carl Ray, \$345.
Victory Lorna Korndyke, 19.58 lbs. 7 days, D. L. Wright, Pasadena, \$355.
Helm Bessie Walker, 27.41 lbs. 7 days, Hartsook, \$335.
Rouble De Kol Juliana, 25.53 lbs. 7 days, J. Heldorn, Downey, \$300.

Consigned by Agee Bros., Rivera
Paragon Riverside Payne, 16.91 lbs. 7 days, Santa Anita Rancho, \$510.
Paragon Aaggie Colantha, T. B. Mings, El Monte, \$420.

Consigned by Toyon Farms Assn., Los Altos
Stanislaus Gerben Abbekerk Ononis,



SEMI - DISPERSAL SALE 50 REGISTERED JERSEYS HYNES, CALIF.

at Rhoades & Rhoades Sale Pavilion
Tuesday, May 9, at 10 a.m.

Here is the opportunity registered Jersey buyers have been hoping for for months past—to find available for purchase a high class lot of Jersey females.

This sale includes every cow and bred heifer in the well known herd of GEO. W. THOMAS & SONS, Arlington, Calif., also the two herd sires. Mr. Thomas and his sons are retaining only their unbred heifers and heifer calves as foundation for their future herd.

THIS IS A HERD OF SPLENDID INDIVIDUALS, IN EXCELLENT PHYSICAL CONDITION, THE ENTIRE HERD IN MILK AVERAGING 38 LBS. BUTTER FAT PER MONTH AT THE PRESENT TIME.

The entire herd was recently tested by a Deputy State Veterinarian, and not a single animal responded to the test. Every animal guaranteed to be a breeder and sold subject to tuberculin test by the buyer.

TERMS OF SALE: Responsible parties may arrange for credit on basis of one-third cash, balance in three, six and nine months before sale with California Breeders Sales and Pedigree Company.

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AND PEDIGREE CO.
C. L. Hughes, Sales Manager
Sacramento

Cal.

Maxwell Farms, Hollywood, \$650.
Stanislaus Belle Faskie Jewel, Santa Anita Rancho, \$460.

Consigned by McCloud River Lumber Co., McCloud

McCloud De Kol Parthena, 29.94 lbs., Sunshine Ranch, \$550.
McCloud Pietertje Floa Princess, 20.86 lbs., Hartsook, \$525.
McCloud Pietertje Hengerveld, Lewis Co., San Jose, \$325.
McCloud Quidee Pietertje De Kol, 14.8 lbs., Santa Anita Rancho, \$425.
McCloud Ormsby Canary II, Price Ranch, \$325.
McCloud De Kol Ormsby Bess, Santa Anita Rancho, \$410.
McCloud Bess Bonheur, 21.33 lbs., D. L. Wright, \$660.
McCloud Ormsby Imogen (male), Hartsook, \$325.

Consigned by A. W. Morris & Sons Corp., Woodland

Aaggie Contenta Mead, Fred Hartsook, \$375.
Miss Beryl Abbekerk, Berlywood Stock Farm, \$375.

Consigned by Bridgford Holstein Co., Patterson

Piebe Laura Ormsby Prilly, M. P. Christianson, \$800.
Countess Mahomet De Kol, H. L. Gordon, \$375.

Consigned by Dean Beeman, Woodland

Bylaria II, 26.39 lbs., Berlywood Stock Farm, \$290.
Daisy Na Dean De Kol, 22.39 lbs., Jas. D. Hoffman, Pasadena, \$560.
Betty Na Dean De Kol, 16.73 lbs., Santa Anita Rancho, \$410.

Consigned by Manuel Azavedo, Patterson

Clothilde Korndyke Hengerveld, 24.87 lbs., Sargent Bros., \$460.
Irene Beauty II, Santa Anita, \$385.

Consigned by W. J. Higdon, Tulare

Fay Tritomla Hengerveld II, Burr Farm, \$975.
King Korndyke Pontiac Fobes Mona (male), Frampton Bros., Artesia, \$1,300.

SWINE FUTURITIES AT SOUTHERN CALIFORNIA FAIR

Much interest is being taken in the swine futurities for the next Southern California fair. Secretary W. W. Van Pelt has arranged with each of the national associations of the four leading breeds and has announced very attractive classifications.

The National Duroc-Jersey Association offers a classification for both junior and senior litters. The senior show is for pigs farrowed after September 1 and before March 1. The junior show provides for pigs farrowed after March 1. It is hoped that both the senior and junior shows will fill this year. Last year only the junior filled.

The National Poland China Promotion Show will be the center of much interest this year to Poland China breeders. The secretary has notified these breeders of the character and rules of the 1922 show, and already several herds have been nominated. While there are few large breeders of Poland Chinas in Southern California, there are a large number of small ones who are showing a live interest in the promotion of the breed. There are quite a number of these in Riverside County and they have formed a Poland China Breeders Association.

The national associations of the Berkshires or Hampshires do not provide for futurity shows, but the Southern California fair has been able to make special arrangement with each of these associations for special futurities. Secretary Van Pelt has sent notices to all Hampshire and Berkshire breeders, and already responses are coming in which indicate that both will fill.

The swine show this fall at Riverside will only be limited by the space available. There is a notable increase in the number of swine breeders in the south, and Riverside is looking for the biggest show in the history of the fair.

HOG AUCTION DATES

Farm bureau hog auction sales will be held at Bakersfield, April 15; Merced, 18; Turlock, 19; Madera, 20; Fresno, 21; Tulare, 25; Visalia, 26; Hanford, 27; McFarland, 28.

Following a directors' meeting at the home of the president, Francis T. Underhill, Santa Barbara, on April 3, the California Hampshire Swine Association held an enthusiastic meeting at Ojai on the 4th. After spending the morning at Cheery Acres looking over the herd of the secretary-treasurer, Carl G. Meiners, the members enjoyed an excellent luncheon at the El Roblar Hotel, at which one of Mr. Meiners' small pigs, roasted, was the star attraction. Matters of importance were discussed at a live business meeting following the meal.

Any one of these Reasons puts the De Laval in a class by itself—



1. Over 2,500,000 De Laval Separators in use—about as many as all the rest combined.

2. Won 1,091 grand and first prizes at all important expositions and fairs in the world during the past 40 years.

3. De Laval butter has won first prize at every meeting of the National Buttermakers Association, with but one exception.

4. 62% of the separators in Minnesota, the largest butter state, are De Laval. (Based on investigation by prominent farm paper.)

5. Practically all creameries use De Laval Power Separators.

6. Endorsed, recommended and used by Government experiment stations, colleges, dairy authorities and leading dairymen everywhere.

7. Thousands in use from 15 to 20 years, and still doing good work.

8. De Laval Separators have led in every important separator improvement since Dr. De Laval invented the Separator over forty years ago.

9. Made in the world's largest and best-equipped separator factory.

10. Backed by the most thorough system of service—over 50,000 agents the world over.



Go over a De Laval point by point. Compare it with any other separator made, and you too will decide that it is the best in every way, and in the end the least expensive.

De Laval Pacific Company
61 Beale Street San Francisco

There is a De Laval Agent near you. See him about getting a De Laval

Sooner or later you will use a

De Laval

Cream Separator and Milker

Sold on such easy terms that you can use it while it pays for itself

DISPERSAL SALE

Ormondale Shorthorns

60 REGISTERED COWS 60
HEIFERS and BULLS

Ormondale Ranch, Redwood City, Calif.
Thursday, May 4, at 12 o'clock Noon

The dispersal of this splendid collection of Shorthorns under the auctioneer's hammer will provide one of the most attractive opportunities for purchase yet afforded by the breed in the West.

The female offering will include both Scotch and Scotch topped sorts, ranging from great matrons with calves at foot, to open heifers. Many of the heifers are sired by Imp. Boquhan Guinea Stamp, and the bred females are in calf, either to THE CALEDONIAN, an outstanding prize winning son of Imp. Caledonia, or to COUNT KINGWOOD, a splendid son of Imp. Kingwood.

A female group that attracts particular attention is that of the great producing cow SWEETHEART and her three daughters. She is the dam of the International Grand Champion LITTLE SWEETHEART, and two of her heifers in this sale are full sisters to Little Sweetheart, sired by Golden Goods, Jr., while the third is by Ormondale Radium.

THE CALEDONIAN and COUNT KINGWOOD both sell, and from every standpoint they command the attention of the buyer who requires a high class herd header. There is also a choice group of younger bulls.

GUARANTEED BREEDERS—TUBERCULIN TESTED

TERMS OF SALE: Responsible parties may arrange for credit before sale with the sale managers on the basis of one-half cash, balance in six months.

ORMONDALE RANCH is about 9 miles southwest of Redwood City; about 36 miles south of San Francisco. Morning trains will be met at Redwood City morning of sale.

Write for Catalog Now

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

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POULTRY

A POULTRY RANCH OR COUNTRY HOME

If you have a few hundred dollars, pep, perseverance, integrity and good character; if you are not afraid of work, are willing to work a few hours a day developing your own property, after or before earning a day's wages;

If you want a small poultry ranch, fruit ranch, a vineyard, a vegetable and produce, alfalfa or grain ranch, or a home in the country that you can develop and pay for on exceptionally easy terms—

THIS IS YOUR OPPORTUNITY.

Only those who want to develop a home wanted.

Exceptional opportunity for work and a market for poultry, vegetables or other produce right at your door.

Land with water, on boulevard, railroad and bus line, seven miles from one of the finest cities in California, in lots of from two to forty acres at from \$200 to \$350 per acre; or grain or grape land without water stock at from \$75 per acre up—one-fifth cash, balance in monthly or eight semi-annual payments; or, if you will place on the property improvements equal to the value of the land, we will take a mortgage, due in five years, for the entire purchase price.

We will furnish you baby chicks, ducks, turkeys, hens, chickens, guineas, or fruit trees, at wholesale cost price to help you get started.

We will give you the benefit of our experience on one of the largest and best equipped poultry plants in the South and cooperate with you in every way.

Exceptionally favorable opportunity at the present time for a—

NURSERYMAN VEGETABLE RAISER GRAIN FARMER BROILER RAISER SQUAB RAISER POTATO RAISER TURKEY RAISER ALFALFA RAISER or a gasoline station, with a poultry, egg and vegetable stand in connection.

If you have a family, so much the better. Plenty of opportunity for the boys and girls to make some money raising poultry of all kinds, squabs, pigs, rabbits, vegetables, etc.

No market problems. Your produce taken right at your door every day.

SMALL CAPITAL REQUIRED

You must have a few hundred dollars, all of which can be put into improvements on the property, if you desire; or be in position to make monthly payments at the rate of at least Five Dollars per acre per month on land with water and at the rate of \$1.50 per acre per month on land without water.

We expect to develop here the largest, best equipped and most attractive poultry, fruit and produce community in the South.

For further particulars address
EDGEMONT RANCH COMPANY,
Postoffice Box 66,
Pasadena, California.

Profitable Poultry News—Capacity, 200,000 Chicks, hence prices surprisingly low for quality. Customers say: "March 22, 1922. Your last year (200 Ancona) chicks remained in depot over night, yet I raised every one. They have laid 83%. Have never had sick bird. Want 200 more; 3000 White Leghorns are keeping up standard in production, are beautiful birds. One County Agent has already bought this spring 12,450 chicks. For years his people have tested them. These strains are 180-290-egg Leghorns—Reds, Rocks, Anconas, Minorcas, Wyandottes, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys (21 varieties, each under specialist)—lead many egg-laying contests; build foundation flocks, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter laying, profit, guarantee; booking for immediate, future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery **ORANGE COUNTY HATCHERY**, Santa Ana, California.

Have you
had satisfaction
with your

BABY CHICKS?

If not, give us a trial.
Our chicks give satisfaction.

DAY OLD DUCKS
on orders.

STEELE'S EGG RANCH.
Phone Gardena Exchange 692.
Moneta, California.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Partridge Wyandottes, prize winners; eggs \$3, fifteen. Mrs. J. L. Dunn, Valley Home, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred Mrs. Flora Cox, Anaheim, California. R. 2.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

Sly's Old Mission Strain Rhode Island Reds: Winners San Fernando first cock, first cockerel, second hen, third pen. **VENTURA:** First and second cock, first hen, first and third cockerel, first and second pullet, first and second pens. Two silver cups best male and best female in entire show. Hatching eggs from grand matings. Descriptive booklet free. Albert Sly, 1642 C. Middleton Place, Los Angeles.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Barred Plymouth Rocks, "Wonderful Layers, champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grismes Ave., RR 2, Box 130, Burbank, Calif.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville Sonoma County California

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Eggs for Setting: Big Black Minorca eggs, \$1.50 per 15, \$3 per 100. 3015 E. 3rd St., Los Angeles. Phone Boyle 3932.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

POULTRY

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly Hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Walter Hogan Stock White Leghorn baby chicks. All our eggs come from one flock of over 5,000 mature hens that are now laying their best and will produce fine, strong chicks. We are now selling at \$12.50 per 100, \$125.00 per 1,000, F. O. B. Gardena. \$2.00 deposit on each 100 with the order, balance C. O. D. Chicks shipped by parcel post, guaranteed to arrive safe. Don't buy chicks that come from many different flocks, some of them might not be very good. Lyon Hatchery, Gardena, California.

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

Baby Chicks from Petaluma Electric Incubator have "Pep" that surprises customers. Electricity is life. Modern poultrymen are rapidly adopting our system with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself or get chicks from hatcheries using Petaluma Incubators. Write for our free catalog. Petaluma Electric Incubator Co., Petaluma, California.

White Wyandottes, Extra fine pen \$5.00, others \$3.00 setting. **BLUE ANDALUSIANS** high class stock \$3.50 setting. **GOLDEN CAMPINES** and **LAKENVELDERS** from best yards in America. Mature early, heavy layers of white eggs, \$6.00 setting. Anconas—\$2.50 setting. Postpaid. J. B. Crawford, Route 2, Compton, California.

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best): 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box C, Compton, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 351a, Lodi, California.

White Leghorns—Eggs for hatching our specialty; produced right, selected right, shipped right; 100% fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, Calif.

Baby Chix: White Leghorns (Tancreds), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. Enoch Crews, Seabright, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Parks' P. R. Pedigreed Cockerels and Eggs for hatching (230-egg strain); breeding pen direct from Parks, Altoona, Pennsylvania. Cockerels, \$5.00. Eggs, \$5.00 for 15. E. B. Williams, R. D. No. 2, Fillmore, California.

White Leghorn Chicks from Hoganized vigorous two and three-year-old hens on free range. 287-egg strain. Prices reduced. Hatch each week. Safe delivery guaranteed. Mrs. Robert Goddard, Los Gatos, California, R. A. Box 122.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Black Minorca Baby Chicks hatched every Wednesday from our own Hoganized stock. L. S. Rogers, Cupertino, California.

We Are Now Booking Orders for White Leghorn pullets for 1922; two or three months old, any amount. Forster Bros., Box 198A, Sunnyvale, California.

Hoganized Rhode Island Red Eggs for hatching, \$2.00 for 15, \$5.00 for 50. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Peafowl For Sale—Old and young. Stamp. Hiram Yoder, Tuleta, Texas.

Light Brahma Eggs for Hatching, \$2.50 per 15, large stock. J. M. Sigler, Puente.

SEEDS AND PLANTS

SUDAN GRASS SEED
(The Great New Hay Crop)
First introduced in the United States 1909 from Sudan, Africa.
Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, it grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings.
Pasturage. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.
Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$5; 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.
BOWMAN'S HDWE & IMP. CO.
721 J St. Sacramento, Calif.

FOR SALE: GENUINE CERTIFIED HAIRY PERUVIAN ALFALFA SEED. DULY CERTIFIED AS COMING FROM INSPECTED FIELDS. EACH LOT NUMBERED AND IDENTIFIED WITH FIELD ON WHICH GROWN. IF YOUR DEALER DOES NOT HANDLE MY SEED, WRITE OR WIRE TO ME FOR PRICES, SAMPLES AND STATISTICS.
E. F. SANGUINETTI
ESTABLISHED 38 YEARS
YUMA, ARIZONA

30,000 Brandywine crossed with wild; 20,000 Arizona Everbearing Strawberry plants, \$1.00 per 100; \$8.00 per 1000. Arizona Improved Perpetual Bearers, \$2.00 per 100. Grown 3000 ft. elevation. 1 pay parcel post. B. E. Wilhite, Aguanga, California.

Strawberries, 21,600 boxes per acre, July to November, 1921, from Hewitt's Improved Mountain Grown Progressive Everbearers. Yields enormous crop first year. 100 plants \$2.50, 1,000 \$20 prepaid. Carl Hewitt, Summit, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

For Sale—Millions of Stone tomato plants. Write for price list and particulars. Reference: Chamber of Commerce, any bank or business man in Pomona or Gardena. L. C. Johnson, Pomona or Gardena, California.

Cory Thornless Blackberry—Extra large plants, from experienced grower and shipper. 12—\$2.25, postpaid. Satisfaction guaranteed. Illustrated folder. Write Chas. E. Mortenson, Lodi, California.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred, \$3.00; 2 year old, per dozen, \$1.00; 2 year old, per hundred, \$7.00. Currier Bulb Co., Santa Cruz, California.

Red Malaga Cuttings, 10,000, and Thompson, Malagas. Rootings Thompson, Malaga, Emperor, Sultana, Muscats, \$18 a 1,000. Seeds and plants. Write for circulars. Box 501, Fowler, California.

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000, F. O. B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

Cory's Thornless Blackberries: 12 extra large plants, \$1.90, post paid from pioneer grower and shipper. Illustrated folder. Wm. Mortenson, Lodi, California.

Alfalfa Seed—Certified Hairy Peruvian. Smooth Peruvian, Common. Write for samples and prices. Delta Seed & Feed Co., Yuma, Arizona.

Plant Our Six Weeks' Potatoes—Earliest biggest producer known. J. L. Lawson, San Jose, California.

Sour Orange Seed, fresh from Florida. Immediate delivery. Milo Hunt, Whittier, California. Phone 250.

WANTED

Wanted: Used Grain Binder. Must be in good running order and not too far from Orange County. Quote price. H. B., c/o California Cultivator, Los Angeles.

Wanted: \$2,500 three to five years, on my 5 acre home ranch; trees, berries and improvements; No. 1 soil. Box 57, Route 3, Chino.

Wanted: To learn of farm for sale. Owner only. Enclose stamp. Percy Mugliston, Swift Current, Sask., Canada.

I Want Farms for cash buyers. Will deal with owners only. R. A. McNown, 370 Wilkinson Bldg., Omaha, Nebr

TURKEYS

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 88A, Merced, California.

Thoroughbred White Holland Turkeys, eggs 60c; setting of 10, \$5.00. Chinese Ringneck pheasants, pen of 3, \$12.50; eggs \$5.00 setting. 2 year female Silver, \$7.00. Pause Pheasantry, Fair Oaks, California.

Blackman's Gold Nugget Strain Mammoth Bronze Turkey Eggs. Guaranteed fertility. Andrews & Andrews, Hemet, California.

Eggs from Purebred Mammoth Bronze Turkeys—\$10.00 for 13. Mrs. M. L. Trehwitt, R. F. D. B, Box 47, Hanford, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star Ranch, Lankershim, California.

TREES

FOR SALE
NAVEL AND VALENCIA
NURSERY STOCK,
NOT FROSTED.

W. B. Ames, 9th Floor, Merritt Bldg., 8th and Broadway. Phone 1156. Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Garter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

White Winter Pearmain, Yellow Newtown Pippin apple trees, Royal apricot on apricot root, red nectarines, Phillip and Tuscan cling peach, Placencia-Perfection walnut trees, berries and grape vines. Stock first class, true to name. Los Nietos Valley Nursery, Phone 692, Downey, California.

Ciro Barbaccia—New Nursery, 557 W. William Street. Prices f. o. b. San Jose. Walnuts—Franquettes and Mayettes, 6 to 8 ft., \$1.25; 4 to 6 ft., \$1.00; 3 to 4 ft., 75c; 2 to 3 ft., 50c. No. 1 French Prunes, Tuscan Cling Peaches and other nursery stock. Call and see them.

For Sale—4000 Calimyrna and 1000 Capri Figs, \$150.00 per 1000. Black Walnuts, 2000,—\$10.00 per 100; 500 Mammoth Blackberries, Himalayas, \$30.00 per 1000 in ground. Roses and ornamentals. South Street Olive Yard, Corning, California.

Valencia Navel and Lemon Association Buds, first class pedigreed buds, about 6,000 trees left. I am going out of business; make a good price for the whole lot. Oscar Lehner, 3120 Colton Avenue, San Diego, California.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Seedlings—Apple, pear, plum, peach. 100 lots 10c each, thousand lots 5c each. Walnut and persimmon \$15 per hundred, 100 lots only. Cash with order. Cash Nursery, Sebastopol.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. Phone 75-W-1.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 585, Phone Colorado 6044.

For Sale: Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 63110. Los Angeles.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Atheel or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

For Sale—Sacks and burlap for baling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

CATTLE

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One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drew Carriage Co., Ontario, Cal.

For Sale: One combined well drill and boring outfit, almost new; only drilled one well for my own use. W. Collings, Route 4, Box 148, Petaluma, California.

For Sale: White Log Saw, practically new. H. B. Iliff, Whittier, California, R. R. No. 2.

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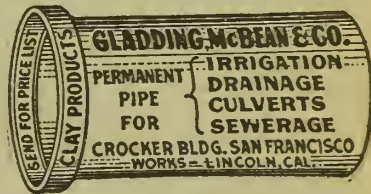
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Farm No. 4, State of California Extension Poultry Experiment Farms, was first for 1921 with a record of 192.4 eggs per hen with our Richardson chicks. Can you beat it!

Why be satisfied with anything less than the Best.

Order quick as our May dates are filling fast.

Agent for "Pride of Petaluma" Brooder Stores. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circular.

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All popular breeds Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc., and our famous Oregon-Corvallis White Leghorns. We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner ducklings, Mammoth Bronze baby turkeys. We can supply pullets of all kinds at all times, also incubators and brooders. No order too large or too small to receive our careful attention. Send for prices.

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Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

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Feeding With Gumption

By Jean A. Koethen

WE have been told that the five essentials in poultry feeding are grit, grain, greens, grubs and gumption, and that the one which matters most is gumption. You may feed more grain or less, little meat or none at all, sour milk or sweet, but if your hens have greens and are fed with plenty of gumption they will be healthy and productive. On my recent trip to Escondido I visited a poultryman whose feeding, though extremely simple, is so systematic that it answers the above description admirably. This is H. C. High, whose 2,000 White Leghorns are as thrifty looking as any I have seen.

Mr. High feeds his hens a grain mixture consisting of equal parts by weight of wheat and barley. Milo is sometimes added. Twelve pounds or six quarts to 100 hens is the rule, but the amount is regulated by the apparent hunger of the birds. If they have eaten heartily of mash during the afternoon they will eat less grain at supper time. If the mash hopper has been neglected they will eat more grain. A buttermilk mash is kept be-

have one in the flock now," said Mr. High, "that I know is six years old, but she doesn't look over two, and is still producing."

Escondido poultry farmers, like many others, find themselves working against heavy odds this year, but they are determined to stick even if they lose money. Mr. High made \$3,000 from 900 hens in 1918, and he doesn't hesitate to say that this is the poorest year for chickens in ten years. Like other farmers all over the country he is pocketing his losses bravely. He has ten acres in fruit in addition to his chickens, consoling himself with the reflection that the farmer is never paid for his time, anyway. If he gets a living, that is about all he can expect.

Poultry Queries

Conducted by Jean A. Koethen

Roup

My hens' eyes swell, the birds go blind and ultimately die. Is this



Long House on High Ranch

This is one of the best equipped poultry ranches in the Escondido district.

fore them, and they are given green feed twice a day, cut alfalfa in the morning and alfalfa and kale in the evening. A half acre of alfalfa keeps the 2,000 hens and the cow.

Feeding the Chicks

The baby chicks are started on commercial chick feed. After a few days mash is added to their ration, not one of the fancy chick mashes, but the egg mash that the layers receive, mixed with an equal amount of bran. The chick feed is continued for about six weeks and then the chicks are gradually worked onto wheat, which Mr. High considers the best of all grains for chicks, and which they eat more readily than any other grain.

The amount of bran in the mash is gradually diminished after the first six weeks until by the end of the fourth month the pullets are eating egg mash alone. By this time some of them are beginning to lay.

Mr. High has been raising chicks for ten years, and he does not believe in either conditioning the pullets or in holding them back from early laying. "Keep them growing," he says, "and let them lay when they want to."

Perhaps one reason why Mr. High's pullets do so well is that he hatches in winter. This spring he hatched 500 April pullets, but his rule is to be all through hatching by the middle of March. The pullets molt in the fall, to be sure, but they pay for their feed first. April pullets, he has found, do not lay as well as the earlier hatched birds. "I had one exception to this rule, a bunch hatched the 13th of April that laid as well in the fall as any I ever had, but as a rule April pullets are not reliable fall layers."

Culling

On this ranch the hens are culled in July. Every hen is handled and tested by the Hogan system as well as by color of shanks, beak and ear lobes. All hens that molt before the first of July are eliminated.

Age is no criterion of usefulness. Sometimes an old hen is kept because she has proved her value. "I

little larger. They seem to have diarrhoea before dying. Last year I found the same thing and was told it came from feeding too soon, but do

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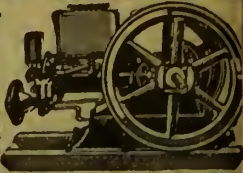
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will lay next winter's high priced eggs. Get yours now, but get GUARANTEED chicks. To anyone within 72 hours of Los Angeles, we will ship any quantity of any kind, full count live chicks guaranteed. In business 16 years, we are better fitted than ever to supply good, strong, profitable chicks.

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Send for Price List.

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Kills lice, mites, bed bugs, etc., affecting poultry. Spray or paint on roosts, etc. Gets body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or handling. Saves lot of unpleasant work. At most towns, at store handling Lee Poultry Supplies. Write for information and FREE book. GEO. H. LEE CO., Dept. F-30. OMAHA, NEBR.



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not think that can be the cause this year. We got them on Friday when they were said to be 36 hours old and they were given nothing but water and grit till Sunday. They have had plenty of sour milk. Mortality is less than at first, but I would like to know what causes those lumps and how we can save our chicks next time. Some people suggest a fault in incubation.—Subscriber, Porterville.

Certainly you did not feed too soon this time. Ninety hours is a long time to keep little chicks without food, even if the doctors do say it is all right. Sixty to 72 hours seems to me the very limit. However, I don't believe it was keeping the chicks hungry too long that killed them. My explanation is that they were chilled somewhere,—whether before they reached the brooder house or afterward I cannot say. Chilling a baby chick checks digestion and causes diarrhoea, and that lump like the yolk of an egg was probably the undigested yolk which was taken into the intestines the last day of incubation. I have heard it said that the chicks are not as vigorous as usual this year because of the long cold season and lack of greens in the ration of the parent stock but do not know how general the complaint is. I believe if you will make sure that your next lot of chicks is kept perfectly warm and comfortable from the time it leaves the incubator till it has been four days in the brooder house you will find your losses greatly lessened.

Depluming Mites

Will you please tell me how to destroy depluming mites? Nearly half of my 40 hens have bare spots on the head just back of the comb, and the trouble seems to be increasing.—Subscriber, Chino.

Those bare spots on the head, if they are the only bare spots on the hens' bodies, may be due to too much attention on the part of the rooster. Depluming mites more frequently begin their work at the tail and work toward the head. You can tell whether this bareness is due to mites by running your finger over the spots. If you feel the sharp ends of eaten-off feathers you may be sure mites have been at work. If the feathers are merely missing watch and see if they have not been destroyed by the rooster's beak. To rid the hens of this troublesome mite rub the affected places with one of the following: Oil of caraway mixed into an ointment with white vaseline, 1 part caraway to 5 of vaseline; or Balsam of Peru, full strength; or an ointment made of 1 dram sulphur, 20 grains carbonate of potash and ½ ounce lard or vaseline.

Mites and Other Things

Some of my hens are troubled with depluming mites which work first on the tail feathers, then on the wings. Two others suddenly went blind. Those I killed had rather soft livers.—Subscriber, Santa Cruz.

For remedy for depluming mites note reply to Chino subscriber. Your hens have evidently a real case of these mites, and you may have to use the ointment daily for a week or so to get rid of them. Either one of the remedies suggested is good for the purpose.

The hens that went blind may have had roup and they may have gotten something into their eyes which caused inflammation. Whenever you see any soreness in the eyes, wash them twice a day with boric acid solution, made by dissolving half a teaspoon of boric acid in a cup of warm water. You can drop the solution in their eyes with a bit of absorbent cotton or a very clean piece of old muslin, or use an eye dropper. When you have washed the eyes well, rub a little white vaseline on them. I hardly think the soft livers had anything to do with the blindness. Maybe the hens were overfat.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, March 28, 1922. Report for the twenty-first week ending March 27. The hens in the contest have laid a grand total of more than 50,000 eggs. The interesting part of this announcement is that this score has been reached eight days earlier than was expected. The Plymouth Rocks are still going strong and would have made a

clean sweep for two consecutive weeks except for a pen of Leghorns from Hollywood, Washington. This pen made two perfect individual scores and three perfect daily scores of 10 each and succeeded in tying a pen of Barred Rocks for third place. With this single exception the Plymouth Rocks are ahead of all outstanding Wyandottes, Reds and the rest of the Leghorns.

The four leading pens in each of the principal breeds are:

Plymouth Rocks

Seven Hills Farm (Barred), 757; S. Bradford Allyn (White), 743; Harry G. Culver (Barred), 636; H. E. Dennison (Barred), 677.

White Wyandottes

Frank P. Matteson, 875; Woodbridge Orchards, 872; Walter Bradbury, 788; Clemens J. Diemand, 785.

Rhode Island Reds

The Orchards, 770; Applecrest Farm, 759; F. S. Chapin, 731; F. H. Sampson, 719.

White Leghorns

Goshen Poultry Club, 754; J. Frank

Dubois, 691; Hollywood Farm, 686; Small's Poultry Farm, 668.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

Report for the eleven days ending the month of March:

Twenty-one entries laid 70 per cent and better, three pens tying for first place with a production of a fraction under 80 per cent.

High pens for the eleven days: Hanson's Poultry Farm, 87 eggs; Boehm & Noel, 87; Alex Stewart, 87; L. A. Thornehill, 86; Boling's Poultry Farm, 84; R. H. Young, 83; D. C. Berry, 82; E. D. Crewdson, 81; W. A. Ford, 81; Geo. Gray, 81; C. E. Hyde, 80; D. B. Walls, 80; Sea Breeze Poultry Farm, 80; Thos. Stewart, 79; J. J. Shore, 79; C. P. Brooks, 78; Geo. Wood, 77; Hollywood Farm, 77; Sunrise Poultry Farm, 77; U. Komatsu, 77; Aromas Hatchery, 77.

Following Colusa County's road bond vote on March 28 the supervisors are making preparations to rush construction work with all speed possible.

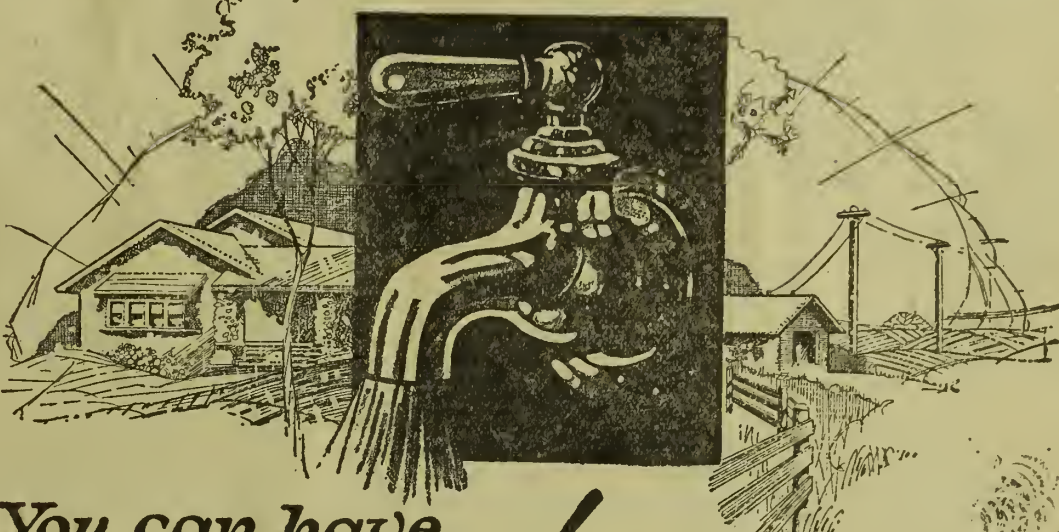
The Appian Way, extending 350 miles from Rome to Drumsium, was begun in the year 312 B. C. by Caesar Appius Claudius. It has carried traffic for over 2000 years and is still a good road. They say it was built without a bond issue.

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ANY FARMER within serving distance of power lines operated by the Pacific Gas and Electric Company can have running water in his house and corral without using a storage tank.

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Running water is really essential in every modern home, and it is a great convenience around any corral. During the hot summer months, you will appreciate an automatic pump that raises water at frequent intervals from the cool depths of your well.

Before you start your spring improvements and repairs, *investigate automatically-controlled, electrically-driven pumping outfits.* If your hardware dealer is not familiar with them, ask the local P G and E man.

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P-05:3-1 Farm

Los Angeles Markets

Los Angeles, April 12, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 35 cents.

CHEESE

Brokers' prices: California flats, 21@28.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 28; case count, 26; pullets, 24.

POULTRY

Price to producers: Hens, 25; colored, 31; broilers, 22@32; roasters, 38; old roasters, 14; fryers, 40; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40, dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, April 10.—Welghed and delivered on cars without food or water: Hogs (main grain fed), 125 to 146 lbs., 10.50; 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 7.50; 150 to 225 lbs., 10.00.

Sheep: Ewes, 5.00@7.00; lambs, 11.50@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 11, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 50@90. Stocktons: Burbanks, per cwt., best mostly 2.00@2.25; poorer, 1.75@1.85; ungraded, 1.40@1.50 per sack. Idahos: Russets, best, 2.25. New stock: Carlsbad, 10@12 per lb., according to quality.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 75@80. Arkansas: Nancy Halls, 4½@6 per lb.; per bu., mostly 1.85@2.00.

Onions. Demand light, market firm. Stocktons: Per cwt., White Globes, best, mostly 12.00; browns, best, mostly 10.00 @10.50. Australians: Browns, mostly 10.50; small lots, lugs, 11 per lb. New stock: Imperial Valley, White Bermudas, 12@14 per lb.; crates, 5.00.

Garlic: 7@8 per lb.; fancy, 15.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, April 11, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Artichokes: Northern, large, fancy, 1.25@1.50; medium, 75@1.00; small, 60@75. @90.

Asparagus: Local, 20@25 per lb. Northern, best 17@20; few best, 25; Imperial Valley, 16@18.

Beans: Imperial Valley string, lb. 40.

Brussels Sprouts: 15@20 per lb.

Bunched Vegetables: Per doz. bunches: Turnips, 30@35; carrots, 75@85; beets, 60 @65; radishes and parsley, 20; spinach, 20@25.

Cabbage: Market steady. Per field cr., mostly 1.50; poorer, low as 1.00@1.25.

Cauliflower: Quality fair. Per field cr., best, mostly 2.50@3.00; poorer, low as 1.75.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.00 @6.00, according to quality. San Diego, cold storage, 7.50@8.00; poorer low as 3.00.

Eggplant: Mex. and Florida, 20@25 lb. Lettuce: Demand good, market dull.

Locals: Quality ordinary, best mostly 1.00@1.25; poorer, 75@1.00 per field crate, according to quality.

Parsnips: 1.25@1.35.

Peas: San Pedro, best, mostly 14@16; poorer, 10@12; Imperials, few sales, best, 10; poorer low as 6.

Peppers: Demand moderate, market steady. Mexicans, Chilis, 10@12 per lb.; Bells, fancy, mostly 35@40; small, 20@25.

Rhubarb: Local best packed, bx. 1.50; other, 1.00@1.25; No. Strawberry, 3.00@3.75.

Tomatoes: Market firm. Mexicans, per repacked lug, 2.75@3.00; original lugs, best, 2.50@2.75; loose, per lb., best, 10@12; poorer and overripe, low as 4 lb.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Loquats: Best, 15@22 lb.; No. 2, 10 @12.

Strawberries: 10.00@11.00 per crate.

CITRUS FRUITS

Grapefruit: Market firm. Californias: Northern, packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.25@2.50; poorer, 1.50@2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 6.75@7.25; market pack, 4.50@5.50; culls, 50@1.00 per field box; few best, 1.50@1.75; Valencia, special brands, 7.00.

Tangerines: Market firm, 8@10 lb.

HONEY

Continued heavy rains have practically assured a heavy crop of honey, although there is some uncertainty as to how large the orange blossom yield will be. Sage outlook is especially promising. Both Northern and Southern California report colonies in normal condition. Supplies of best white honey reported as very limited, but supplies of lower grades said to be still fairly abundant. Movement very light during recent weeks. Demand limited and market largely nominal. Few sales in carload lots reported at 11 cents for white sage and white orange and 8½ cents for light amber, f. o. b. California points.

GRAIN

Prices on L. A. Grain Exchange.

Barley: 100 ton lots, May delivery, 1.27½.

San Francisco Markets

San Francisco, April 11, 1922.

BUTTER

Firsts 34
Prime Firsts 33

CHEESE

Dairy Exchange quotations:
California Young America, fancy 22¼
California Flats, fancy 23¼
California Flats, firsts 22¼
Oregon Trips 26
Oregon Young America 26

EGGS

Dairy Exchange Quotations:
Extra Firsts 25
Extra Pullets 23¼
Undersized 20

POULTRY

Prices furnished by state department of agriculture division of markets:
Broilers: 1 to 1½ lbs., 34@36; 1½ to 1¾ lbs., 40@43; 1¾ to 2 lbs., 43@46.

Colored Fryers: 2½ to 3 lbs., 42@46.

Colored Young Roosters: 3½ to 4 lbs., 40@42 per lb.; over 4 lbs., 35@38 per lb.; staggy showing spurs, 25@30 per lb.

Colored Old Roosters: Slow, 18@29 per lb.

Leghorn Old Roosters: Slow, 15@18 per lb.

Leghorn Hens: Weak, movement slow, supplies increasing. 2½ to 3 lbs., 21@23 per lb.; 3 lbs. and over, 24@26 per lb.

Large Colored Hens: 32@35 per lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 28@30 per lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb., off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@40 lb.

Squabs: Live, fancy, 65@68 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7¼@8¼; second quality, 6¼@6¾; cows and heifers, No. 1, 5½@6½; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 8@9 per lb.; ewes, 6@7.

Lambs: 12@13.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½ per lb.; do., 200 to 250 lbs., 10½ per lb.; do., 250 to 300 lbs., 9½ per lb.; light sows, 9½ per lb.; heavy, 8½ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Modesto, April 5

107 167 11.00

3 100 11.00

21 180 10.05

46 230 9.05

11 393 7.05

188 hogs

2 cars, 36 consignors, \$3,637.58

Chowchilla, April 6

87 174 10.30

97 153 10.25

76 179 10.25

45 117 10.00

3 257 9.30

5 148 9.25

2 365 6.90

1 460 4.00

316 hogs

3 cars, 24 consignors, \$5,205.52.

Fresno, April 7

67 181 10.60

36 feeders 88 10.10

6 246 9.60

3 287 7.60

1 boar 330 3.00

113 hogs

1 car, 10 consignors, \$1,819.74

Totals for the week: 617 hogs, 6 cars, 70 consignors, \$10,662.84.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 15.00@16.00 crate; poorer, 13.00@14.00 crate.

Asparagus: 8@15 lb.; graded, 17½.

Beans: 25@35 per lb.

Bunched Vegetables: Carrots, 50@60 per doz.; turnips, 45@55 per doz.; beets, 50@60 per doz.; parsley, 15@20; radishes, 36 per doz. bunches.

Cabbage: 2.00@2.55 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 sack.

Cauliflower: 1.25@1.50 doz.

Celery: Crate, 3.00@4.50.

Chicory: 2.25@2.50 crate.

Cucumbers: Hothouse, fancy, 2.00@3.00 per doz.; small, 3.50 per crate; English, 2.50@2.75.

Eggplant: 8@20 lb.

Endive: 25@30 lb.

Garlic: 4@6 per lb. for medium grades, poorer quality, less.

Lettuce: Imperial Valley, iced, 2.75@3.50 per crate; Los Angeles, 2.50@3.00.

Mushrooms: Ordinary, 10@30 per lb.

Olives: 5@7 per lb.

Onions: Australian cold storage browns, 8.50@9.00; White Globes, nominal; green onions, 1.75@2.00 per box.

Parsnips: 1.75 per sack.

Peas: So., 10@13 per lb.

Potatoes: Rivers, fancy, 1.40@2.20; Oregon Burbanks, 2.00@2.15; Idaho Nette Gens, 1.85@2.25; off grades lower; Bellingham, 2.25@2.75 per cwt.
Peppers: Florida and New Mexico, Bella 20@25; Chilis, 5@10.
Pumpkins: 70@1.00 per 90 lb sack.
Rhubarb: 3@5 lb.
Squash: Hubbard and Banana, 6@8 lb.
Spinach: 2@3 lb.

Book Your Orders Now

BABY TURKS

Ready for Delivery April 23, and each week thereafter

\$75 per Hundred



Earl E. Sanders

Breeder of

Mammoth Bronze Turkey

And

S. C. White Minorcas

Route D, Box 1880, Modesto, Cal.

Phone 69F14

Agent for Pioneer Incubators and Brooders

If Really Pleased Would You Buy

If you could find 3 to 15 acre small farms of fine red sandy soil, with full water rights, good for peaches, walnuts, pears, figs, grapes, poultry and general farming, at \$225 per acre up on very easy terms, WOULD YOU BUY?

If it were within or near the city limits of Corona, with city school, churches, banks, libraries, in a beautiful scenic location, with a first healthful climate, WOULD YOU BUY?

If you drove among peach, apple and pear orchards, now in full bloom, and bearing; if you found 250 people now living on the tract; if you found flourishing, successful poultry yards, apiaries, vineyards, deciduous orchards, orange groves there, WOULD YOU BUY?

If the contract allowed you for years to pay, and agreed to extend a payments one full year more, provided you made the first year certain easy permanent improvements, WOULD YOU BUY?

If you thought 10 acres put into walnuts, grapes, peaches or apricots, 5 acres devoted to poultry would give you not only a home, but a permanent income, WOULD YOU BUY?

If you are in the market for an irrigated farm of from 3 to 20 acres and would buy if thoroughly pleased, the call on, telephone or write me. The lowest-priced, best all-around soil of the easiest and fairest terms, especially adapted for small farm home, and for permanent incomes from poultry, vineyards or orchards.

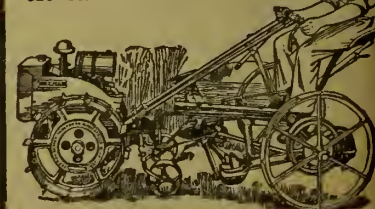
IF YOU MEAN BUSINESS LET DWIGGINS SHOW YOU. Call, telephone or write to 111 Hibernian Bldg., Los Angeles. Tel. Pico 638

New Low Price

on Beeman Tractor

\$297.50

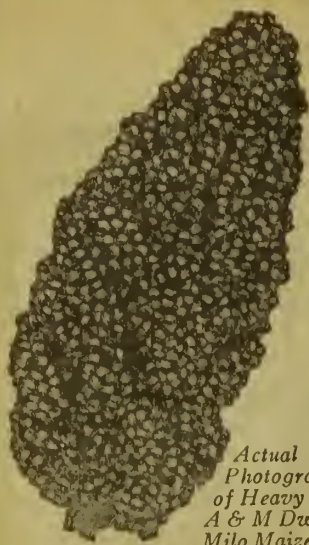
At San Francisco



H. V. Carter Motor Co.

52 Beale St., San Francisco.

(Distributors Allis-Chalmers Tractors, McKay Disc Plows and Warner Drag Saw.)



Actual Photograph of Heavy A & M Dwarf Milo Maize

The Best Milo Maize

for our climate and soils—proved through years of test and experiment is

A & M Selected Dwarf Milo Maize

It gives the heaviest yield in stools and each stool carries three to seven heads of grain. It is hardy and will thrive in most any California soil.

Your neighbors who have raised it are its best boosters. A & M Selected Dwarf Milo Maize this year is the same as in past seasons—the very best.

Order from your dealer—he can supply you.

Aggeler & Musser Seed Co.

622 So. Spring Street
Los Angeles Calif.

Dusting of Trees, Vines, Etc. Bleaching, Etc.



ANCHOR BRAND SUBLIMED VELVET FLOWERS OF SULPHUR, also EAGLE BRAND and FLEUR DE SOUFRE, packed in double sacks, are the FLUFFIEST and PUREST sulphurs that money can buy.

The fine light SNOW-FLAKE-LIKE particles float to every surface and crevice of the plant.

Do not adulterate these sulphurs with any inert material such as lime or kaolin, etc. Coating the sulphur particles with an inert material PREVENTS the FUMING ACTION caused by the sun's rays. Send for Circulars 6, 8 and 10 about our "Toro" Brand Agricultural Compound and booklet, "The Truth About Sublimed Sulphur," also price list.

San Francisco Sulphur Co.

624 California St. San Francisco, Cal.

Important Information

We will answer any question you can ask about any subject, if it is possible to answer it. If we don't answer it, we return your money. Service fee One Dollar. Replies confidential. Enclose question with one dollar and address it to

THE NATIONAL INFORMATION BUREAU
500 Fifth Avenue, New York City

Sprouts: 14@15 lb.
Sweet Potatoes: 3.50@3.90 per cwt.;
Arkansas and New Mex. yams, 1.75@2.00
per 50 lb. crate.
Tomatoes: Mexican, repacked, 2.00@2.25
per Los Angeles lug; off grades, 1.50@
2.00.
Turnips: 1.25@1.50 per sack.

FRESH FRUIT
Bananas: Best Eastern and Hawaiian,
6 1/2 @ 8 lb.
Loquats: 20@25 lb.
Pears: Choice, 4.50@5.50.
Strawberries: Imperial, 3.75@4.75.

CITRUS FRUITS
Grapefruit: Cal. fancy, special pack,
1.50@4.00; Arizona, 4.25@4.50 box.
Lemons: Special pack, 5.00@5.75 box;
Choice, 4.00@4.50 box; Lemonettes, 2.00@
2.25.
Oranges: Special pack, 100-150s, fancy,
5.00@6.50; 176-216s, 6.50@7.00; choice, 5.25
@6.25; culls, 1.75@3.50.
Tangerines: 2.50@3.50 per half orange
box.

RICE
Rice Association prices:
No. 1 Paddy, 2.65.

BEANS

Large Whites	7.00
Small Whites	7.00
Pinks	6.75
Mexican Reds	6.00
Red Kidney	9.00
Cranberries	8.50
Bayos	7.00
Blackeyes	7.00
Limas	10.00
Garbanzos	9.50

HAY AND FEEDSTUFF
We quote today wholesale prices in car-
load lots as appear from dealers' trans-
fers upon the market in San Francisco
(for prices to consumers, charges of
switching, cartage, commission and
handling expenses must be added accord-
ing to conditions).

Ton

Wheat Hay, No. 1	17.00@19.00
Wheat Hay, fair grade	14.00@17.00
Tame Oat Hay	15.00@19.00
Wild Oat Hay	11.00@13.00
Alfalfa Hay	15.00@18.00
Stock Hay	9.00@11.00
Straw	Nominal
Barley, ground	32.00@34.00
Barley, rolled	30.00@31.00
Oats, rolled feed	37.00@39.00
Bran, \$32@34; Millrun	32.00@34.00
Middlings	46.00@48.00
Linseed Meal	55.00@60.00
Coconut Meal	25.00@28.00
Alfalfa Meal	22.00@23.00
Cottonseed Meal	52.00@58.00
Sugar Beet Pulp	29.00@31.00
Molasses, tanks, 17.00; bbls.	25.00
Milo Maize	40.00@42.00
Corn Meal and Cr. Corn	35.00@39.00
Scratch Feed	43.00@45.00

GRAIN
Barley: Feed, 1.35@1.42 1/2; shipping,
35@1.45.
Wheat: Mill, 2.15@2.25.
Red Feed Oats: 1.78@1.80.
Corn: California yellow, 2.10@2.20;
eastern yellow, No. 2, 1.45@1.50; No. 3,
1.25@1.27; kafir, in bulk, 1.80@1.85; east-
ern, 1.65@1.67 1/2; do, No. 2, in bulk, 1.70
@1.73; white Egyptian, 2.00@2.10; Cali-
fornia red milo, 1.77 1/2@1.82 1/2; do, bulk,
1.75@1.80; eastern red, 1.72 1/2@1.75.

Citrus Markets
Los Angeles, April 12, 1922.
Heavy shipments of strawberries from
the Gulf states are reaching big Eastern
markets and meeting instant favor. An
unusually large crop is in sight. Early
loss of Florida citrus shipments, short
California crop and poor reception of Cal-
ifornia Valencias makes slow citrus
market.
Heavy arrivals of foreign lemons affect
market for California fruit, but foreigners
are showing decay, which will probably
react in California's favor.

Shipments
Shipment of citrus fruits to date since
November 1, 1921. Southern California:
Oranges, 11,694 cars; lemons, 3,298; total,
4,992. To same date last season: Or-
anges, 15,944; lemons, 3,250; total, 19,194.
From Central California to date this sea-
son: Oranges, 4,447; lemons, 103; total,
4,550. To same date last season: Or-
anges, 4,448; lemons, 127; total, 5,575.
From Northern California to date this
season: Oranges, 372; lemons, 8; total,
380. To same date last season: Oranges,
95; lemons, 5; total, 310.

AT THE AUCTIONS
April 11
New York: 22 or., 2 mix, 4 lem. Nav.
45@7.20, Val. 4.75, St. Mike 3.95@5.05,
feed 4.15@4.70.
Boston: 9 or., 2 lem. Nav. 5.35@7.80,
affa 5.70@6.30, St. Mike 6.10@6.55, Blood
3.35, Med. Sweet 6.50@6.60, Ruby Blood
1.10@7.15, Tang. halves 2.20, lem. 3.30@
4.40.
Philadelphia: 4 or., 2 lem. Nav. 5.00@
6.00, Val. 4.90@5.40, Blood 2.55, grapefruit
60@3.10, lem. 3.50@4.35.
Pittsburg: Nav. 5.50@5.85.

MOST IMPORTANT OF WEALTH PRODUCERS
Agricultural payroll figures are be-
ing gathered by the Porterville cham-
ber of commerce as evidence of their
belief that this item to most Califor-
nia cities is more important than the
factory payroll about which so many
commercial organizations agitate. Fig-
ures are being compiled from the rec-
ords of carlot shipments of agricul-
tural products last year and so far as
completed show 1406 carloads of or-
anges worth \$1,687,200; lemons, 81
cars, worth \$105,300; 73 cars of grape-
fruit worth \$80,300, while the livestock

so far tabulated shows 164 carloads of
cattle valued at \$218,880 and 31 cars
of hogs valued at \$47,030.

COAST EGGS TO BE POOLED IN THE EAST

Surplus eggs from the Pacific Coast
will be marketed in the East by a
single agency instead of the five asso-
ciations at present acting independ-
ently. This was announced by J. B.
Barber, general manager for the Poul-
try Producers of Central California,
Inc., in his weekly letter to members
of the association.

A new association, the Pacific Egg
Producers, has been organized, but not
yet incorporated, he said, following an
agreement between the Washington
Cooperative Egg and Poultry Associa-
tion of Seattle, Pacific Cooperative
Poultry Producers of Portland, Poul-
try Producers of Central California,
Inc., Poultry Producers of Southern
California, Inc., and the Poultry Pro-
ducers of San Diego, Inc. It will act
as a general selling agency for the
above named associations.

The business of the association will
be conducted by a board of represen-
tatives composed of one representa-
tive from each district. The repre-
sentatives will have equal voting
power. J. H. Guffey of Washington
is chairman; U. L. Upson of Oregon,
secretary; H. W. Stanley, Los Ange-
les; G. C. Keeney of San Diego, vice
chairman, and J. H. Barber of San
Francisco, general manager.

Manager Barber says: "In the last
two years there has been a large in-
crease in the production of eggs on
the Pacific Coast, and therefore a con-
stantly increasing surplus which has
had to be shipped out to Eastern mar-
kets, because it could not be consumed
here at any price that would enable
the producer to stay in the business.
This increase is still going on and it
means that there will be a larger and
larger surplus to be marketed in the
East.

"At the present time the greater
portion of this surplus is being mar-
keted through the five big producers'
egg marketing associations of the
Pacific Coast. Each of these associa-
tions has been marketing its own sur-
plus separately and through separate
channels in the Eastern markets.

"This general selling agency is to
handle the carlot export business of
the several associations composing it;
that is, the eggs which are shipped
by each association outside of the dis-
trict occupied by its own members.
Sales by each association in its home
market will be handled by the respec-
tive associations individually, and not
by the general agency. The purpose,
as stated above, is to secure a better
distribution of the surplus product
marketed by these associations for
their members, thus rendering a bet-
ter service to both the producer and
the consumer; also to effect certain
economies in the marketing opera-
tions by handling this export business
by joint action through one agency
rather than through five, as at pres-
ent."

THE MODERN GAS TRACTOR

"The Modern Gas Tractor, Its Con-
struction, Operation, Application and
Repair," a practical treatise by Victor
W. Page, published by Norman W.
Henley Publishing Company, 2 W.
45th Street, New York, at \$3.

This is the fourth edition issued
since the Cultivator gave it notice
some three or four years ago. It is a
600 page book and contains a large
chart, showing important parts of trac-
tor, with uses fully explained, and
many other drawings, charts and half-
tones, some of which appear a bit
technical and yet at closer inspection
give an excellent idea to the layman
as well as the machinist of tractor
repair and handling. There are 13
chapters touching upon the scope,
advantages and applications of power
traction, review of tractor designing,
design and construction of gas tractor
power plants, gas tractor power plant
components, making and exploding
the gas, cooling and lubricating, func-
tions and construction of clutch, gear-
set and differential, frame, wheels and
axles, driving and housing, troubles
and their elimination, late tractor de-
signs, operation and miscellaneous
rules and formulae. All types and
phases of gasoline, kerosene and oil
tractors are described and every
phase of traction engineering practice

fully covered. Even the '22 types of
tractors are fully described. It is a
book which should be in the reference
library of every power farmer.

Misfortunes are big or little, accord-
ing to how soon you forget them.

Beware of taking on more dignity
than you know what to do with.

WEATHER REPORT					
San Francisco, April 8, 1922.					
Rainfall—		Temp.—			
Stations—	Week	Sea.	Norm.	Max.	Min.
Eureka	.36	21.64	39.85	52	40
Red Bluff	.00	15.97	21.90	80	42
Sacramento	.00	13.22	17.55	72	44
San Francisco	tr.	18.63	20.08	70	46
San Jose	.04	13.98	15.08	74	40
Fresno	.00	10.12	8.41	76	42
San Luis Obispo	.14	22.44	18.23	72	38
Los Angeles	.03	18.99	14.31	76	44
San Diego	.10	18.22	9.02	64	46



Quantity Plus Quality

"Do you see those, Dave? That is *real*
fruit and the trees are heavy with 'em.

"Hercules Farm Dynamite did that. Of
course, planting them with dynamite helped
but I blasted between the rows as well.
Look at that box of fruit and you can see
whether it was worth it or not."

HERCULES FARM DYNAMITE

The Hercules Powder Co. has published
a 75-page book about dynamite on the
farm called "Land Development". It
will be sent you upon request if you are
interested in tree-planting, blasting be-
tween the rows, ditching, or stumping.

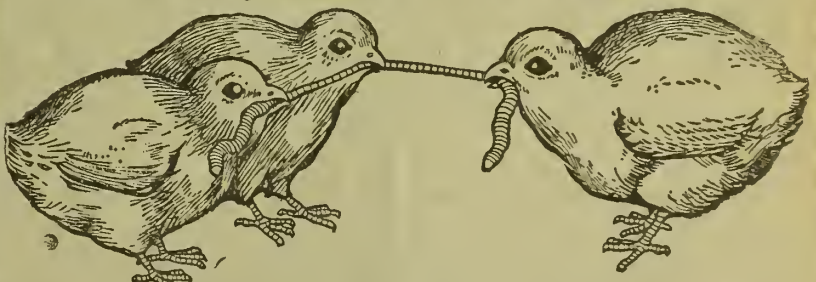
HERCULES POWDER CO.

1001 Chronicle Bldg., San Francisco, Cal.
1127 Merchants National Bank Bldg., Los Angeles, Cal.



Send for
this book—
It is free.

Poultrymen Attention!



The largest Hatchery in the WORLD offers special low prices on S. C.
White Leghorn Baby Chicks, from heavy egg laying strain, during the
months of May and June, 1922. We pay all express charges on shipments
for these months.

THE BIHN HATCHERY

PETALUMA, CALIF.



KILL SQUIRRELS and OTHER RODENTS

Use Carbon Bisulphide

The vapor is over 2 1/2 times as heavy as air and penetrates to
the lowest recesses of the burrows.

WHEELER, REYNOLDS & STAUFFER
624 California Street San Francisco

PAYNE'S

1922

Garden Guide

Write Today for Your Copy
Of This FREE Book
Telling How and When to Plant
— SEEDS — PLANTS — TREES — SHRUBS —
CALIFORNIA WILD FLOWERS
Eighteenth Annual Catalog, illustrated
Theodore Payne 345 So. Main Street
Los Angeles



Speed and Dependability in the Hay Harvest

McCormick - Deering - International

HAY machines that bear the above names may always be relied on to put your hay where you want it, the way you want it, in the quickest, most economical manner. McCormick and Deering mowers can be depended on to cut hay every minute. International tedders hasten, and insure, better curing. McCormick and Deering self-dump rakes are known the whole world over for their quick, clean work and light draft. The International combined side-delivery rake and tedder is also a popular time and labor saver.

Look at the farmer in this picture, pulling two wagons and two International loaders with the Titan tractor. He is sure to get his hay out of the way for grain harvest.

International sweep rakes and stackers provide a quick method of getting your hay to the stack.

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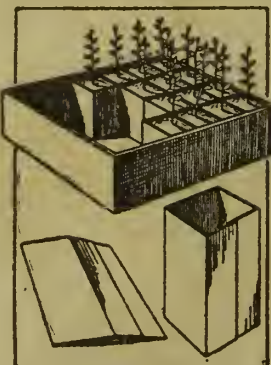
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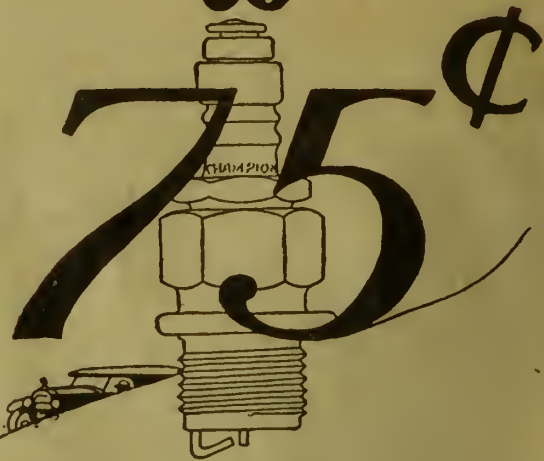
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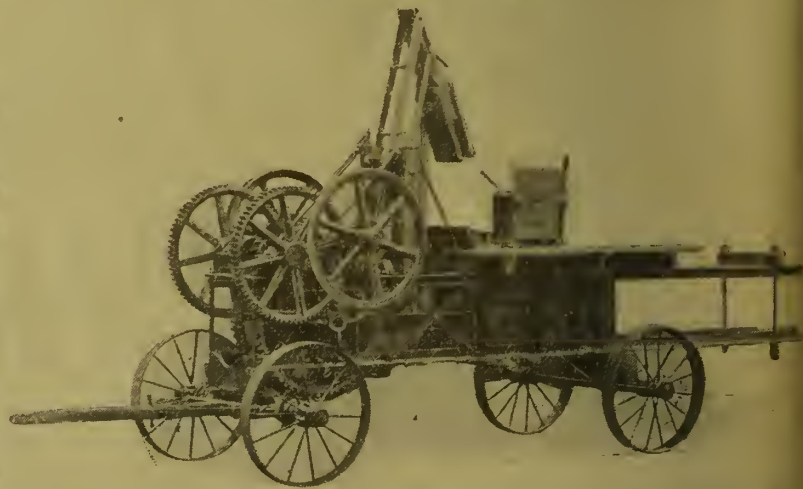
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Los Angeles

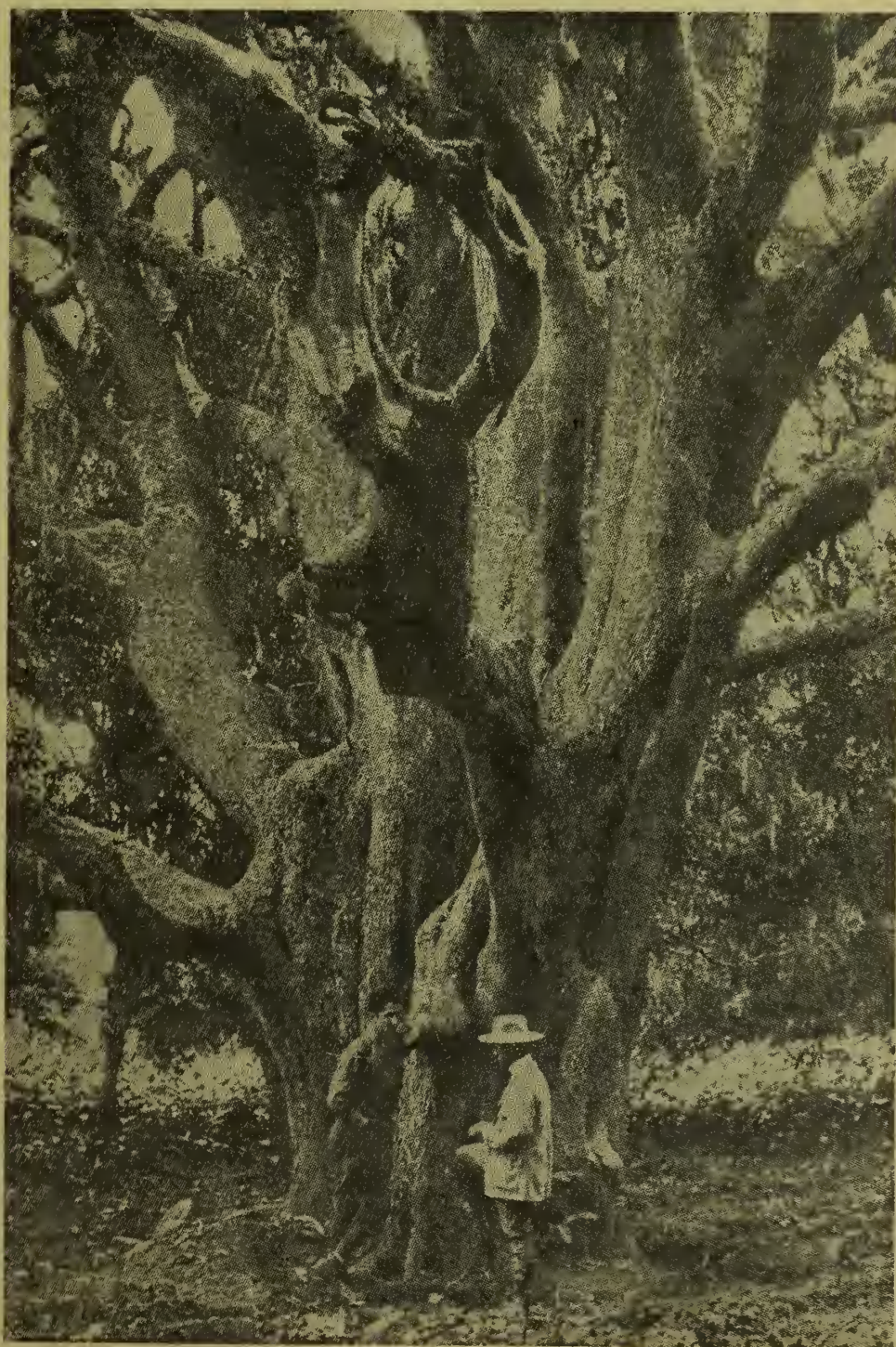
An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

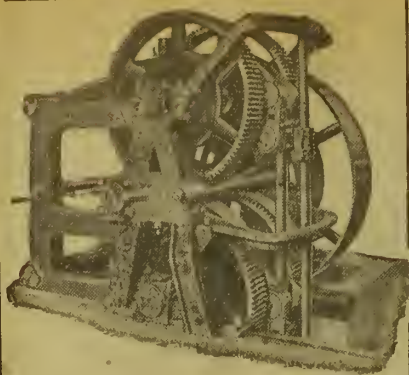
April 22, 1922

No. 16



A Patriarch of the Avocado Family

This avocado tree, now dying (probably of old age), stands in a small orchard in the Patate Valley of Ecuador. It is believed to have been planted by the Jesuit missionaries more than 150 years ago. The seed may have come from Mexico, since the tree belongs to the well known Mexican race of avocados. (Photographed near Ambato, Ecuador, by Wilson Popenoe of the U. S. D. A.)

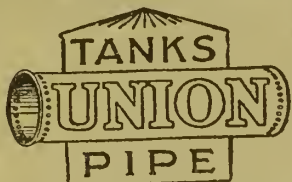


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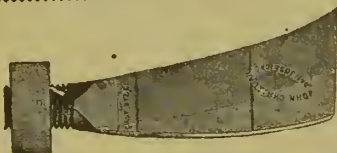
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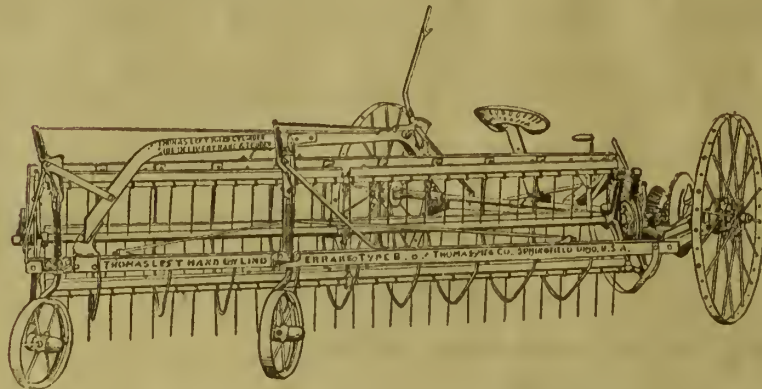
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What Will the 1922 Harvest Be?

SCARCELY an apricot growing section of the state reports 100 per cent apricot crop. Nippy frosts visiting the state between April 8 and April 15 have caused many a report to come in: "75 per cent of a crop" to as low as "25 per cent of a crop." However, growers in sections where the frost was light sometimes express themselves as hopeful that the frost injury will simply result in a thinning of the overload until the tonnage will be nearly normal and probably command a higher price and greater profit than a full crop.

The response has been so liberal to our request for information that only a portion of the reports received during the last week can be used in this issue. The remainder will be given next week.

R. R. Gorton, Horticultural Commissioner, San Diego County

We estimate the almond crop to be about 90 per cent of a normal crop with a production of approximately 95 tons. Apples, about 40 per cent of a normal crop and a production of 76,675 boxes. Apricots, 50 per cent and a production of 11,098 tons, fresh weight. Cherry crop practically a failure. Peach crop about 75 per cent of normal, production 56,025 tons, fresh weight. Pears show 25 per cent of normal, production 895 tons. Prunes, 60 per cent crop, 606 dry tons production. Grapes, all varieties, about 5 per cent of normal, 13,088 tons, fresh weight.

H. H. Call, Horticultural Commissioner, Ventura County

Apricots, very good crop judging by recent indications, some brown rot showing in some sections.

W. M. Moulton, Horticultural Commissioner, San Francisco County

No fruit grown in our county.

M. M. Gould, Horticultural Commissioner, Yolo County

Almonds, 150 per cent. Apples, too early to make estimate. Apricots, 100 per cent. Pears 90 per cent, some thrips injury; crop may go lighter than 90 per cent here. Prunes, 100 per cent. Grapes, too early to tell.

Mr. Gould's estimate last year was: Almonds, 50 per cent. Apples, 75 per cent. Apricots, 40 per cent. Cherries, 10 per cent. Peaches, 75 per cent. Pears, 80 per cent. Grapes, 70 per cent.

H. H. Flournoy, Horticultural Commissioner, Tehama County

Almonds, good. Apples, good. Apricots, good. Cherries, good. Peaches, good. Pears, good. Prunes, good. Grapes, good.

John A. Winkelman, Horticultural Commissioner, El Dorado County

Everything is looking good, but it is a bit too early to give a correct estimate.

J. Sharpe, Vacaville, Solano County

Almonds, 100 per cent. Apples, 100 per cent. Apricots, 100 per cent. Cherries, 120 per cent. Peaches, 100 per cent. Pears, 90 per cent, some thrips injury; crop may go lighter than 90 per cent here. Prunes, 100 per cent. Grapes, too early to tell.

Mr. Sharpe's last year's estimate was: Almonds, 60 per cent. Apples, 100 per cent. Apricots, 35 per cent. Cherries, 100 per cent. Peaches, 75 per cent. Pears, dropping badly; cannot estimate yet. Prunes, 100 per cent. Plums, 100 per cent. Grapes, 100 per cent.

California Fruit Distributors, Wilmer Sieg, Secretary-Manager, Sacramento

Owing to the peculiar weather conditions it is impossible to give definite estimates as to crop conditions; however, I never saw a better condition exist at the present time on our main

crops, subject, of course, to any weather conditions that might arise, but we feel that the very late maturities this year have put our fruit in good condition to withstand any minor changes of temperature. We hear of occasional light frosts, but can locate no damage of any character.

We suggest that it will probably be better to wait until about April 20 for definite information.

J. O. McKinney, Horticultural Commissioner, San Benito County

As near as I can estimate the crops they are as follows: Almonds, 75 per cent crop; some frost injury, more may follow. Apples, normal to date. Apricots, about 30 per cent crop; 25 per cent brown rot, rest rain and frost. Cherries, may have been injured by frost; not apparent yet. Peaches, look like normal crop; frost injury slight, if any. Pears, some thrips injury, some frost; about 90 per cent crop. Prunes, normal to date. Grapes, too early to state. These figures will naturally change somewhat, but are as close as can be figured at present.

George P. Weldon, Ontario, San Bernardino County

The deciduous fruits grown commercially in this county are: Apples, apricots, peaches, pears, plums, grapes and walnuts. At the present time the condition is normal with all. Of course, it is too early to make any predictions that mean very much in the case of walnuts or grapes. We have a heavy bloom on the peaches, apricots and plums, and if the fruit sets as it should there will undoubtedly be a bumper crop. For several nights past the weather has been rather cool, with white frost, but so far no reports have come in of damage and everyone is optimistic.

Yucaipa News, San Bernardino County

Almonds, only few acres in valley; slight frost injury indicated. Apples, no bloom yet, with over 30 inches of rainfall for season indications are for another bumper crop; buds very plentiful and strong. Apricots, no cot injury, heavy bloom, few grown. Cherries, buds turning white and will be out in few days; heavy bloom. Peaches just dropping petals of an exceptionally heavy bloom in all varieties; no indication frost injury. Pears same as apples. All bloom several weeks late. Trees made good growth past year and fruit buds are generally strong and vigorous and indicate a very heavy bloom.

L. O. Haupt, Horticultural Commissioner, Kings County

Almonds, not grown commercially. Apples, not grown commercially. Apricots, 100 per cent of normal. Cherries, not grown commercially. Peaches, 100 per cent of normal. Pears, not grown commercially. Prunes, 85 per cent of normal. Grapes, 100 per cent of normal.

Arthur E. Beers, Horticultural Commissioner, Merced County

Almonds, very spotted, slight bloom and frost injury 50 per cent. Apples, no commercial. Apricots, very poor set; considerable frost injury, 50 per cent. Cherries, no commercial. Peaches, very heavy bloom, 100 per cent. Pears, no commercial. Prunes, not large acreage, but promise of a good crop. Grapes, promise heavy crop.

J. P. Dargitz, Soulsbyville, Tuolumne County

Almonds, not grown here. Apples, should be full crop; season late, no bloom yet. Apricots, only few grown, good condition, blooming. Cherries, only few grown, good condition, no bloom yet. Peaches, bloom just opening, promise good. Pears, bloom just opening, promise good. Prunes not grown here. Grapes have not started yet. Our season is very late, which

means we should escape losses by late frosts, and it looks like a bumper crop year.

Earle Mills, Horticultural Commissioner, Butte County

The fruit trees here are nearly four weeks behind their normal blossoming time, so of most of them it is quite impossible to say what the crop will be. The almonds are the only ones that have gone out of blossom; indications for these are a full crop but, of course, one night of frost may completely change this condition. Prunes are just beginning to blossom, as are cherries, so I will not venture to guess at this time their crop conditions.

A. A. Brock, Horticultural Commissioner, Orange County

We have only a small acreage of apples, apricots and peaches. I believe it is too early to estimate these crops. Thus far the apricot crop outlook is good for 100 per cent.

W. D. Butler, Horticultural Commissioner, Napa County

Apples, cherries, peaches, pears, prunes and grapes are all 100 per cent as they stand today. Apricots are going bad again with brown rot and to date there is only one-half a crop. If the rot continues as last year there will be practically nothing. Everything is 15 days late this year. There is plenty of moisture in the soil and prospects were never better as a whole.

E. T. Reynolds & Son., Chico, Butte County

Almonds, present prospect, April 10, 100 per cent crop. Apples not yet in blossom. Apricots, very few grown here. Cherries, present prospect 100 per cent. Peaches, present prospect is for 100 per cent. Pears, prospect is for 100 per cent. Prunes, present prospect is for 100 per cent.

John F. Benton, Horticultural Commissioner, Humboldt County

Almonds not grown commercially. Apple trees in good condition, season backward, considerable cold weather, rain and snow; no damage thus far from frosts; indications good but too early to give definite information. Apricots not grown commercially. Cherries, trees just coming into bud, indications good, season late. Peaches, prospects good, just budding, season late, no damage by frost. Pears, indications good, no damage from frost, cold weather holding back bloom. Prunes not grown commercially. Grapes not grown commercially.

H. J. Baade, Farm Adviser, Napa County

Almonds not grown commercially. Apples, 100 per cent. Apricots, 40 per cent, brown rot has destroyed over half of our possible crop. Cherries, 100 per cent. Peaches, 100 per cent. Pears, 100 per cent. Prunes, 100 per cent. Grapes, 100 per cent.

Frank W. Curtis, Farm Adviser, Tehama County

Almonds, indications for good crop though not as heavy as 1921; heavy crop of 1921 kept trees from setting heavy crop of buds. Apples not grown commercially except in hill sections and to date have not blossomed. Apricots, same as for almonds. Cherries, very few commercial orchards, blossoming good, too early to make crop prediction. Peaches, prospects good, heavy set of blossoms, too early to predict set of fruit. Pears, blossoming late, too early to predict crop. Prunes, red spider did considerable damage in 1921 and in many orchards the French prunes are not blossoming; Robes and Imperials blossoming heavily; too early to predict crop; generally prunes are blossoming heavily where there was no spider damage in 1921. Grapes, many new vineyards being planted but bearing vineyards few, no frost damage noted. The season has been abnormally cold and the

blossoming of fruit trees has been held back from six weeks to two months. This has been a good thing in that the danger of loss from frost has been lessened.

Harry P. Stabler, Horticultural Commissioner, Sutter County

Almonds, apples, apricots, cherries, peaches, pears, prunes, grapes, full crop promised at this time.

L. M. Harrison, Agricultural Statistician, Arizona Cooperative Crop Reporting Service

The cantaloupe acreage in Arizona is estimated at 4,500 as against 3,800 acres in 1921. The watermelon acreage is placed at 700 acres, compared with 1,000 acres last year.

The alfalfa crop is late, but harvesting of the first crop will soon begin in the southern valleys. With an increased acreage, the total production will probably exceed that of last season.

Fruit conditions in the state on April 1 were satisfactory, but it is feared that the recent frosts may have caused some injury in the higher altitudes.

Thos. P. Redmayne, Horticultural Commissioner, Marin County

Almonds, selling of fruit average. Apples, only partly in bloom. Apricots, indications are for very light crop, probably not over 10 per cent. Cherries, in full bloom and looking well. Peaches, indications not very good; light crop indicated.

Pears, thrips made early invasion in some localities and killed buds before clusters separated; other localities look very favorable. Prunes, bloomed well; too early to determine setting. Grapes, backward, fruiting shoots not yet in evidence; cold weather has held back all fruit crops.

California Peach & Fig Growers, by I. J. Condit, Department of Horticulture

Reports from our field men from the San Joaquin Valley show that the peach trees are mostly in excellent condition and setting normal crop. Muir peaches in scattered sections have dropped their blossoms and the trees are practically bare of fruit. Young fig trees in practically all parts of the valley have suffered severely from cold weather, starting with the heavy frost of November 19 and continuing until the extremely low temperatures of the middle of January. In a few localities the spring crop of Capri figs as well as the terminal buds of other varieties have been killed by the frost of April 9. While the winter crop of Capri figs suffered severely in some sections, the crop is unusually good in most sections and a plentiful supply seems to be assured. Bearing fig trees are in good condition and a normal crop is expected, providing weather conditions are suitable for good caprification of the Calimyrnas.

Donald D. Penny, Horticultural Commissioner, Santa Cruz County

Apples, bloom very even and abundant. There is apparently a great reduction in the normal amount of insect pests and diseases which generally make their appearance at this time. General crop conditions are quite favorable. Apricots, brown rot very severe except in some of the young orchards. Pears, bloom excellent, with very little scab showing. Grapes, normal.

Sydney J. Stokes, Horticultural Commissioner, Lake County

As to report of the fruit conditions I am holding off for a few days as we are at present having some very unsatisfactory weather. You will hear again from me shortly. Up to the present time the fruit crops look very encouraging, the frosts of the last few days not having done any serious damage excepting to a few peaches and apricots.

(Continued on Page 438.)

Agricultural News Notes of the Pacific Coast

Northern California

Brown rot is severe in many apricot orchards.

Colusa County has voted a \$795,000 road bond issue.

The Eden Township Farm Products Show will be held again this year.

Butte County's annual farm bureau picnic will be held May 20 at Paradise.

Hand shearers are being paid eight cents in the Livermore Valley this spring.

Colusa County Fair Association has been organized with J. J. O'Rourke as president.

Plans are going forward for the new plant of the Sun Maid Growers at Yuba City.

Tractor short course in Butte County, week beginning May 22, probably at Richvale.

Livermore Valley reports Eastern buyers active. Lambs are selling at \$8; wool at 33 cents.

In preparation for the Easter sun-rise services a large cross has been erected in Sutter buttes.

Apple growers of Sebastopol are planning to hold "Gravenstein Apple Day" some time in August.

The state welfare commission announces reduction of minimum wage for women from \$16 to \$15.

The Thermalito, Butte County, farm center reports favorable progress in formation of irrigation district.

Berry growers of Sisson, Siskiyou County, are talking of forming a co-operative marketing association.

The Durham Almond Growers Association has endorsed the new five year contract of the state association.

The Marin County Federation of Women's Clubs will plant along state highways 170 tanbark oak trees.

The state highway between Redding and Anderson has been completed and will soon be open to traffic.

Hundreds of thousands of strawberry vines are being shipped from the vicinity of Antler, Shasta County.

The California Cherry Growers Association has established offices in San Francisco. F. W. Maddox is president and manager of the association.

The Northern California Counties Association has started campaign for location of a state land settlement in each of the five northern counties.

Many apricot growers of the Santa Clara Valley lit smudge pots last week in effort to counteract low temperatures. Some loss of fruit is reported.

Committee from Sacramento Federated Trades Council will attempt to place on the ballot next November an initiative measure modifying minimum wage law and abolishing industrial welfare commission.

The Shasta County Producers Association has been incorporated to succeed the Happy Valley Berry and Fruit Association. Directors are C. E. Kooser, G. F. Fowler, Philip Martin, H. E. McCrea and J. B. Woods.

Secretary Barnes of the Utah-Nevada-California Highway Association and President O'Brien of the Tahoe-Ukiah Highway Association were the speakers at a chamber of commerce luncheon at Colusa recently. The route of the Victory highway through Nevada and Northern California was the topic of discussion.

Central California

The Hume cannery at Turlock has opened on spinach.

The Riverdale section has signed up 1,500 cows for testing.

Exeter last year shipped 543 carloads of citrus fruits, 610 of grapes.

The campaign to eradicate squirrels in Tulare County has already started.

Tulare County alfalfa growers are cutting their first crop. It is unusually heavy.

Mariposa reports that warm rains of the past month have assured a good hay crop.

The Langdonville district of Madera County has organized a unit of the farm bureau.

The Hughson farm center wants a farmers' telephone line and a second rural mail route.

A weed eradication campaign is being waged by farm bureau centers of Stanislaus County.

The Turlock Melon Growers Association now has well over a majority of the growers signed up.

The California Automobile Association offers \$50 reward for conviction of each destroyer of a road sign.

The Shafter Potato Growers' Association is making plans for handling this year's crop, purchasing supplies, etc.

Frosts of last week did some damage in Kern County to cantaloupe and potato plantings and young vine rootings.

The Stanislaus County farm bureau is planning a celebration for the Fourth of July that will include everybody in the county.

Horticultural Commissioner McKinney of San Benito County reports over 12,000 acres set to fruit trees this season. Prunes lead, apricots second.

The Sun-Maid Growers will ship 12 cars of raisins to Bristol and Liverpool this month on cable order from Sales Manager Brady, who is now in England.

Stockton city council will call for bond issue of \$1,200,000 to build dam on the Calaveras to protect city from floods and to impound water for municipal use.

Revival of the "Apple Annual" held every fall several years ago in Watsonville, the center of the Pajaro Valley apple country, is being discussed by local merchants and club people.

Organizers of the state olive growers' association report great success in the campaign in the valley. Acting Chairman McKelvy says he hopes to mail contracts to growers within 30 days.

It is planned to have President Giffen of the Sun-Maid Growers send address by radio to the meeting of the California Manufacturing and Marketing Association at San Francisco on Raisin Day, April 27.

The Milk Producers' Association of Central California at its annual meeting held in Modesto April 7 elected J. E. Thorp of Lockeford as president, C. P. Hageman vice president and W. H. Fowle secretary and treasurer.

Sunland, Strathmore, Grand View, Terra Bella, Plano and Porterville packing houses are operating on Valencias. Porterville chamber of commerce employment bureau reports calls for pickers and packers exceed applications.

Southern California

Cutting of barley hay has started at West Riverside.

Thirty-one packing houses in Los Angeles County are now handling Navels.

Ninety-three carloads of lettuce were shipped from Imperial Valley on April 7.

The first carload of cabbage from Ventura was shipped last week to Sacramento.

The first shipment of onions from Thermal sold at 17 cents wholesale in Los Angeles.

Contract has been let for building of Banning-Whitewater stretch of the state highway.

Partition of Santa Cruz Island off the Ventura coast has been ordered by court decision.

Grapes and grapefruit are favorites in the planting about Westmoreland, Imperial County.

New onions from Imperial Valley are retailing in coast markets at 12 and 13 cents a pound.

Ventura County will hold its fall fair October 4 to 8. Adolfo Camarillo has been elected president of the association.

The state highway commission authorizes statement that the Rincon causeway will not be closed for repair this season.

Horticultural Commissioner Waite of Imperial estimates cantaloupe planting in the valley at close to 28,000 acres.

The California Bean Growers' Association has opened a Los Angeles office at 418 Central Building, in charge of R. C. Jensen.

California cauliflower shipments for week ending April 7 reported at 287 cars as compared with 12 cars for corresponding week last season.

Pasadena has voted by a large majority to continue activated sludge treatment of its sewage. Large extensions to the existing plant are authorized.

In the study of citrus red spider the agricultural extension service in Los Angeles County is now cooperating in field plot work with Prof. H. J. Quayle of the citrus experiment station.

Bruce Drummond, for years in charge of the government date gardens at Indio, has asked for investigation of his work because of continued friction with some of the date growers.

Grain growers of Orange, Riverside, San Diego and Los Angeles Counties met at San Juan Capistrano on April 14 to discuss bulk handling of grain with Grant W. Kenney of the California Farm Bureau Elevator Corporation.

Farm centers of Orange County, meeting recently at Santa Ana, it was declared the sense of the meeting that any adequate water conservation project should include the entire county. The supervisors will be asked to appropriate \$25,000 to conduct thorough investigation.

The loose pack of strawberries has stood shipping so well that southern berry growers this season are unanimous in endorsing. Three grades are used: No. 1 mature well colored, uniform size, fine quality, free from defects, about one inch in diameter. No. 2 about same quality, except about one-half to three-quarters the diameter. No. 3 smaller berries of fair quality.

The Coast and General

Bellingham, Washington, holds its Tulip Festival May 4-6.

Oregon agricultural college has the largest enrollment in its history, 3,818 students.

Oregon celebrates 60th anniversary of the discovery of gold at Canyon City June 8-10.

An increased acreage will be planted to hops in the Moxee district of Washington.

Cotton acreage in Arizona will be about 105,000, 85,000 of Pima. Practically the entire acreage of Pima is in the Salt River Valley.

Secretary of the Interior Fall is on an extended trip through Western states to investigate reclamation projects, Indian reservations, etc.

Poisoned oats for squirrels is being distributed in Pend Oreille County Washington. A half mill levy was made by commissioners last fall for its purchase.

Columbia River salmon packers are offering 10 cents a pound flat for Chinook salmon. The season opens May 1. Fishermen pay state poundage tax of \$5 per ton.

An active war on Canadian thistle in Linn County, Oregon, is planned by the farm bureau. An anti-thistle campaign is organized in all communities of the county.

Washoe, Ormsby, Storey, Lyon and Douglas Counties, Nevada, are under temporary embargo as to cattle shipments into California pending investigation of cattle scab situation.

Farmers meeting at Colfax, Washington, set wage scale at \$1.50 a day and board for common labor, \$25 month and board for cooks, \$65 month and board for man and wife.

In the Yuma Valley of Arizona the acreage of short staple is estimated at 17,000 compared with 14,000 last year. Planting is well under way but the weather has been too cool for satisfactory growth.

Dispatch from Salem, Oregon, reports world's championship record for mature Jerseys now held by Lady Iota owned by S. J. McKee of Independence, Oregon, for year's production of 1,047.94 pounds butter fat.

A meeting of the Colorado River Commission is announced for some date in July or August, possibly Santa Fe, New Mexico, where Secretary of Commerce Hoover will present a states' pact for development of the Colorado.

Four carloads of dried prunes from one orchard, valued at \$32,000, have just been shipped out of Eugene to the Oregon Growers Cooperative Association. The shipment is billed to New York and will cross the water to Europe.

The Pacific Coast Wool Growers Association, with headquarters at Portland, is making plans to extend the organization. There are now 190 members in Washington, Oregon and Idaho. Recently this association distributed \$175,000 in return from last year's wool clip.

The United States has 64 per cent of the telephones of the world, with 16 per cent of the population. In 189 there were 500,000 telephones in the country. Now there are 1,000,000. This statement is made by P. S. van, vice president of the New York Telephone Company.

Treatment of Young Frosted Citrus Trees

By Vincent F. Blanchard, Agricultural Extension Service,
Los Angeles County

MANY thousands of acres of young citrus trees were severely injured by the heavy freeze recently experienced.

The owners of those groves are and have been endeavoring to acquire the best information possible for methods of procedure to save the trees. Advice given for their treatment has been varied to a great degree, and many growers are in a quandary to know just what way is best.

After the 1913 freeze the citrus experiment station at Riverside made a survey of the best practices, and this was published in the form of a bulletin. That information, combined with practical field observation, was given to the growers just as quickly as possible by the agricultural extension service, but there are still many questions that must be answered.

Large acreages of young trees were so severely injured that the tops are killed back entirely, leaving only the stock and bud union alive, and in some instances are dead to the stock. Still other trees have the bark on the trunks split open, leaving great wounds. The questions which have come to the minds of owners of such trees are whether it pays to care for those trees and, if so, what is the best way of handling them.

All knowledge which we have for the treatment of frost injured citrus trees must have been acquired from the past freezes. It is unfortunate that there were not many growers who kept accurate records of the various treatments and followed up for results. It is probable that there are more who did so than one would realize. Surely it would be well for the citrus industry if a detailed study could be made of such trees. There were, however, some growers who did keep accurate records and made observations over a period of years as to results. The work reported on by Mr. Culbertson, assistant manager of the Limoneira Company at Santa Paula, has been of great value.

From the year 1911 to August of 1919 the writer was employed on the Rancho Sespe, a large citrus property in Ventura County, owned by Keith Spaulding and managed by the late W. H. Fleet, and now managed by Howard F. Pressey, former assistant manager. When the devastating freeze of 1913 came the Rancho Sespe was just coming into bearing with about one-half its planting in five year old trees and the other half in three year old trees. Like many other groves of that time the ranch was inadequately protected with heaters, with the result that about 150 acres

of trees were frozen down. That ranch was in the same predicament that many others are today. To save the trees or to replant was the question to be answered. It was decided to try and save the trees.

It was not a question of cost of new trees for there were 50,000 first class trees in the Rancho Sespe, but it was thought that with a root system established three years in the grove, and five in some instances, the trees would surpass newly planted trees. This is the same reasoning many growers are using today.

The greatest percentage of the 150 acres of frost injured trees was so severely injured that it was necessary to cut the tops off entirely, leaving just the trunk. All stages of severity, however, were experienced and the less the severity of injury the less cutting was necessary. It was expected to grow new heads on the trunks left for the bark was apparently healthy on the trunk when the cuts were made, but the bark and wood kept dying back until most of the trees had only a few inches of live bark above the bud union, some being killed below the bud union.

In the spring numerous shoots began to grow from above and below the bud union. One on each tree was tied to the old trunk to grow a new trunk, and the others were left to be taken off after the tree had recovered sufficiently from the effects of the freeze injury. Every effort possible was made to treat all wounds with disinfectants and to paint with wound dressing. In spite of all the pains taken 90 per cent of the entire 150 acres showed it was not satisfactory before the year was over. The ten per cent saved was the very best, and it was considered would make good trees.

As soon as the new trunks became sufficiently mature the old trunks were sawed off close up and on a level to permit healing over. The wounds were disinfected and sealed over with wax. Stakes were placed at each tree and the new trunks tied to them for safety. Much duplication of work was necessary in chiseling out the stumps where heart rot had developed, which added to the cost materially. The sour stock shoots which grew from below the bud unions were permitted to grow and form a head at a height of 32 inches and later on were top-worked to Eureka lemons. The buds

were inserted in the framework limbs.

From the standpoint of cost the trees which were saved cost far more than new trees. It was hoped, however, that the larger root systems would more than make up the difference. In the places where trees were dug up new trees were planted. This was done in 1914.

In 1916 I made an individual tree record on the Rancho Sespe for the entire acreage. This included the year planted, health and general remarks to describe past treatment. Records were made of just how each tree was treated following the 1913 freeze. Some of the records are as follows: "Cut off above the bud union after 1913 freeze"; "Cut off below bud union after 1913 freeze"; "Reheaded after 1913 freeze"; "Cut off below bud union—sour stock shoot"; "Tops cut back severely after 1913 freeze"; "Small frost cracks" and "Large frost cracks." Those abbreviations enabled the ranch to keep an accurate record of the progress of trees under various treatments.

With others on the ranch I made observations from time to time in regard to the condition of the frosted trees. It always seemed that even though many of the trees were vigorous those which were cut off above and below the bud union with a new trunk formed were usually behind the resets planted next to them. In fact, trees which had undergone such treatment were constantly being removed and replaced with resets.

When the freeze of January of this year came it occurred to me that the experiences on groves in the 1913 freeze would assist growers in properly handling their trees. After writing to Howard F. Pressey, manager of the Rancho Sespe, in regard to whether it had not been his opinion that the Rancho Sespe would have been far better off financially if every tree which was frozen so severely that the tops had to be cut off and a new tree formed, had been pulled out and replaced, a letter came from him stating that it was his opinion that such was the case, but in order not to make a snap judgment he would prefer to go over the trees again.

In March two other members of the agricultural extension service, Mr. Pressey and myself went over a considerable portion of the trees on the Rancho Sespe which were injured in

1913. The records were examined and trees were noted in regard to how they had responded. A summary of the observations made is that of the original ten per cent saved only about six per cent is alive today. Those which were cut off above or below the bud union and a new trunk formed are as a whole not any larger than those resets planted in 1914 and 1915, and in many instances are not as good. Some are beginning to show decadence. Those which were not injured so severely are poorer than those which were cut off completely. It seemed that the large frost cracks made it practically impossible to keep out heart rot fungi and they are now suffering from its attack. Apparently it would have been better to have cut them off and formed a new trunk rather than not cut so severely.

An interesting observation was made of two rows of trees planted in 1914 which were taken from one of the Rancho Sespe's nurseries. Those trees were slightly injured by the frost with small cracks on the trunks. It was thought since the cracks were so small and appeared to be healing that they might recover. However, rather than take any chances with many of these trees only the two rows were planted. Those two rows are between trees planted at the same time which were not injured by frost. We observed that the frost injured trees were much below the size of the other trees and many of them appear stunted. It was a clear cut demonstration of the effect of frost on nursery trees.

The conclusions drawn are that it is better not to try to save a frosted lemon tree when it is so severely injured that the top is entirely killed. The expense of handling is far greater than the value received.

Since growing citrus trees is a long time business and it is essential to have good trees, it is not advisable to try to save such trees for they cannot regain their original vitality and they become decadent early in life. Mr. Pressey stated that the Rancho Sespe will never bother with such trees if their trees are again injured by frost.

Of course it must be remembered that the trees injured on the Rancho Sespe were lemons. It might possibly be that orange trees are less susceptible to injury from the freeze effects when the tops are killed back entirely. Perhaps there are orange growers who have kept just as accurate records as were kept in the Rancho Sespe who can throw some light on that phase.

How to Properly Celebrate Raisin Week, April 23-29

THIS is Raisin Week, recognized the nation over and set aside by the California raisin industry as the week in which raisins shall be introduced into the homes with a view to increasing their popularity with every member of the household. And on Raisin Day, April 27, all the great valley will join in special celebration at Fresno, headquarters of the raisin association.

Within the past few years raisins have become widely known and recognized as food of real health value. It is the aim of the industry that this delicious California fruit food shall become known and used in not the majority of homes, but in every home. Raisins can be served in perhaps a greater variety of ways than any other similar food and no matter how prepared they retain their health building qualities and their wonderful flavor, another thing that many other foods do not do.

In addition raisins have a distinct health value because of their heavy content of organic iron. They aid digestion, revitalize anemic blood, and lately have become the delicious way to satisfy a between meal craving for an energizing food.

California raisins are prepared in three varieties. They are the seeded, from which the seeds are removed; seedless raisins, which are grown

without seeds, and the cluster raisins, served on the stem, just as they are dried in the vineyard. The seeded and seedless varieties are cooking raisins, although since the introduction of the now famous five cent package of seedless raisins this brand has become popular as a confection, too. Clusters are also served uncooked and when placed on the table with a bowl of nuts are invariably an attractive dish. One of the most popular dishes, which is destined to become ever more popular during this week, is stewed raisins served at breakfast. With or in place of the usual cereal, stewed raisins add to the first meal of the day a new and delicious flavor.

Serve raisins in your household this week. Note some of the following ways to prepare them; just a few suggestions to help you get better acquainted with the variety of ways to serve, and to introduce to you this delicious fruit food containing all the necessary elements for health building:

Ten Delicious Ways

Whole Wheat Buns

2 cups scalded milk, ¼ cup sugar or ½ cup molasses, 2 teaspoons salt, 1 yeast cake dissolved in ¼ cup lukewarm water, 4 ½ cups coarse whole wheat flour, 1 cup seeded Sun-Maid raisins.

Add sweetening and salt to milk;

cool, and when lukewarm add dissolved yeast cake and flour; beat well, cover, and let rise to double its bulk. Beat again, and turn into greased baking tins having pans one-half full; let rise, and bake. Whole wheat bread or buns should not quite double their bulk in the last rising.

Soft Gingerbread

½ cup butter, ½ cup sugar, 1 cup molasses, 1 cup boiling water, 2-½ cups flour, 1 teaspoon baking powder, 1 teaspoon soda, ½ teaspoon salt, 1 teaspoon ginger, ½ teaspoon cloves, 1 teaspoon cinnamon, 2 eggs, ½ cup Sun-Maid raisins.

Cream butter and add sugar slowly, creaming them together. Add molasses and water and mix thoroughly. Sift flour, baking powder, salt, soda and spices together. Add to the butter mixture slowly, stirring constantly. Beat vigorously and add well beaten eggs and plumped raisins. Mix and pour into greased shallow pan. Bake in a moderate oven 30 to 35 minutes.

Raisin Date Sandwiches

2 cups Sun-Maid raisins, 1 cup dates, lemon juice, slices of buttered bread.

Mix the finely chopped raisins and dates. Moisten with the lemon juice and spread between the slices of buttered bread.

Hungarian Salad

Mix equal parts shredded fresh pineapple, bananas cut in pieces, and sections of tangerines, and marinate with French dressing. Fill banana skins with mixture, sprinkle generously with paprika, and arrange on lettuce leaves. Garnish with one-fourth cup plumped Sun-Maid seedless raisins.

Raisin Pie

½ cup sugar, 2 cups seeded Sun-Maid raisins, 1-½ cups boiling water, ½ teaspoon salt, 1 tablespoon grated orange rind, 3 tablespoons orange juice, 2 tablespoons lemon juice, 1 tablespoon grated lemon rind, 2 tablespoons corn starch, ½ cup walnuts.

Cook raisins in boiling water for 5 minutes; pour into sugar and corn starch which have been mixed. Cook until thick, about 5 minutes. Remove from fire and add other ingredients. Bake between two crusts. Walnuts may be omitted if desired.

Baked Apples with Raisins

5 apples, 5 tablespoons brown sugar, ½ cup Sun-Maid seedless raisins, ½ teaspoon cinnamon.

Cut around the apples just through the skin half way between the blossom and stem ends. Remove the skin from the upper half and core the apples. Mix sugar, raisins, cinnamon and fill the centers. Put apples in a baking dish and pour water around

(Continued on Page 439.)

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Forty-fifth Year

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and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager
F. J. Ironmonger, Business Manager

C. B. Messenger, Editor.
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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

California has some large avocado trees; some so large that the outstretched arms of two men are barely able to circle the trunk, but we have none equal in girth to that South American tree which is shown on this week's cover. If avocados generally are to grow to such a size, 20 feet apart will scarcely suffice. However, but few of us are worrying over the size of avocado trees 150 years hence.

* * *

By the way, Mr. Popenoe who took this photograph has promised to be present at the banquet and convention of the California Avocado Association to be held in Pasadena in May.

* * *

The wisdom of President Harding in refraining from participation in the Genoa conference is shown in the action of Germany and Russia in signing a separate treaty. The United States must be big enough to shoulder her share of the burden of reconstruction but also wise enough not to enter too closely into alliances with nations which dishonor their agreements and boast of it.

EAT RAISINS

All of next week is Raisin Week. Its observance will be more or less general from the Pacific to the Atlantic. The consumption of California raisins—of all California fruit—will be increased because of this observance. Therein does California exemplify "service," for as we secure greater consumption of California fruits we secure better health, greater efficiency and longer life on the part of our patrons.

SALES TAX

The effort to push through the sales tax as a means of providing funds for the soldiers bonus will doubtless bring a roar from the rural districts which will be heard even to the banks of the Potomac. Clear thinkers seem to be settled in their conviction that the sales tax will result in putting practically the whole burden of the bonus on the farmer. The national grange asserts that the present sales tax agitation is an attempt by this same bunch of high surtax payers to fasten upon the plain people of this country a sales tax. It is an un-American plan and the American people will never submit to it.

COVINA CONVENTION

Citrus growers are asked to meet at Covina Saturday, April 29, to spend the entire day in discussion of frost fighting equipment. There will be practical demonstrations by frost fighters and much discussion as to best methods in protecting fruit from injury and preserving for the tree its vitality. Secretary Calkins of the Covina chamber of commerce writes in effect that Covina producers believe there are better methods of frost fighting than through the use of oil smudge. In any case there is a big question mark after every question at issue. It will be a meeting open to all.

APRICOT GROWERS TO MEET

The Ventura County farm bureau is planning a one day apricot institute to be held at Santa Paula April 28. The Ventura farm bureau folks are being aided by a committee from Santa Barbara and Los Angeles Counties. The convention will discuss matters of general interest to 'cot growers. Principal attention, however, will be given to pooling orders for trays, boxes, props, spray materials and matters pertaining to the practical cultural side of the production. It is also hoped that at this meeting there may be organized a series of field meetings to work out better methods of thinning, drying and cultural practices. C. C. Staunton of Ventura has the matter in charge.

IT WAS NIPPY

Beginning April 8 and extending for one week at various points in the state there were mornings when white frost appeared, and some apricots, the bloom of which was passed and the small fruits already formed, were injured. It may result in a slight reduction of tonnage. There still may be almost normal return of dollars. As to other fruits it is reported: "Prunes not damaged at all by frosts anywhere in California;" "Smudging in cherry orchards, hoping frost warded off, and full crop"; "In San Joaquin Valley some damage to raisin grapes, not over five per cent;" "No damage in Sacramento Valley but

everyone worried;" "Some truck crops suffered but damage light." Even as to apricots some sections report frost damage not equal to the brown rot injury which occurred prior to the frost.

JOHN KILLEFER

One of the earth's quiet workers has passed as quietly as he worked. For many years John Killefer has studied the needs of the soil tillers of California and has worked to produce implements which would meet those needs. The term "light draft" never appealed to him and from the beginning he insisted that the two prime factors in implements for use in California were strength and dependability. In his younger days much of his time was put in at the forge or in front of the lathe working almost alone on the job. Later he became associated with Mr. Griffith and still later with many other practical workers, and the Killefer Manufacturing Company was organized. The past few years age has prevented the intense activities of earlier life but almost to the last moment he continued in "service." California has lost a loyal worker.

VACUUM FUMIGATION

We recently touched upon vacuum fumigation and referred to the fact that "It succeeds in killing the bug in the center of a bale of cotton and destroying other insect life in the center of cured fruit," then added: "It has succeeded in making safe the planting of trees, the roots of which are infested with nematodes, etc." To this latter statement Entomologist D. B. Mackie makes correction:

"I note with interest your item on utilization of vacuum fumigation for treating nursery stock. I think you are going a little too strong in saying that it kills nematodes, as such is not the case. There are also certain lines of insects which cannot be reached by this method. We hope some day to be able to develop a method whereby we can treat nursery stock for various pests, but as yet we have discovered no panacea and, frankly speaking, do not believe we will be able to find any one method that will treat all different kinds of stock for all different kinds of pests."

ROT

The average voter of California must be of desperately low intelligence in the eyes of those who are opposing the California water and power

act. One day an appeal is made to rural sections that the supporters of the act are working to put the cities into a position to hog it all and that its passage will result in the big cities securing control of the power and making rates to their patrons so exceedingly low that the country will be unable to compete and in the end the cities will become vastly more attractive to the great detriment of the country. Now comes another piece of copy dated San Francisco, April 12, without other responsibility than the signature of Edward P. Troy. The writer starts out with "The startling news, etc." Here is one of the startling statements:

'All the manufacturing industries of California would locate in the mountains 'near the source of supply' of water and power developed by the board, and the railroads would control the freight. Hundreds of millions of dollars invested in manufacturing plants would have to be abandoned, and new plants built. Existing cities would be depopulated, and new ones established in the mountains, 'near the source of supply.'

"Should any 'remote' city, like those about the Bay region, or in the South, desire water or power, a few land speculators in the mountains need only organize an irrigation district or a town, and then the board would be compelled to deprive the coast cities of the water and power and give it to those 'near' the source of supply, because of this unauthorized language, added after the adjournment of the conference that drafted the measure. Cities, large and small, 'remote' would be in darkness, in case of another water power shortage, while factories 'near the source of supply' could use all the power they desired."

As between the two stories we will let Cultivator readers take their choice. Other favorite "charges":

"This act if adopted would create a board of five men and provide for the issuance of \$500,000,000 in bonds, backed by the full faith and credit of California. The board would be beyond control of the people, the legislature or the governor and would have unlimited powers in spending the enormous amount of money when, where and how it pleased. This tremendous bond issue would, in effect, be a mortgage on every piece and parcel of property in the state as well as upon every security."

What is California credit and faith for if not to preserve and make available for the people of the state their own resources? The immensity of the wealth at stake and the high charges which it would be necessary for corporations to make to the farmers of the state render it imperative that we preserve our wealth for ourselves and our children.

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AVOCADO GROWERS TO MEET

The seventh annual meeting, dinner and exhibit of fruit of the California Avocado Association will be held at Vista Del Arroyo Hotel, Pasadena, Friday and Saturday, May 12 and 13.

The avocado growers seem to be as virile and life-giving as is their fruit for after the unpleasantness of mid-January it takes a hardy pioneer to grow an almost tropical fruit in a semi-tropical country. During the nipping days of that cold spell many an avocado orchard was severely tested, so were the growers, but they are still standing pat, and at the gathering one of the principal discussions will have to do with the lessons of the frost. So they will gather at one of the prettiest little hotels in California to discuss their trials and their victories.

From the program we note that there will be a discussion of planting and cultural questions followed by "The Effect of the Recent Cold Weather on Varieties of Avocados in Different Localities." This is by Wm. Hertrich of the Huntington Estate and will be on Friday afternoon. On Friday evening will be the annual banquet at which Wilson Popenoe, tropical fruit investigator of the U. S. D. A., will deliver an address on the "Trails and Trials of an Agricultural Explorer," illustrated with beautifully colored lantern slides. The officers of the association are: W. L. Hardin, president; A. F. Yaggy, vice-president; J. M. Elliott, treasurer; K. M. Wagner, secretary.

The Program:

Saturday—President's address, W. L. Hardin. Avocados of the Chota Valley Ecuador, Wilson Popenoe, U. S. D. A. A Comparison of the Composition of Standard Varieties of Avocados Grown in the Same Orchard, C. G. Church, assistant chemist, Laboratory of Fruit and Vegetable Chemistry, U. S. D. A. Notes on the Enzymes of the Avocados, E. M. Chace, chemist in charge, Laboratory of Fruit and Vegetable Chemistry, U. S. D. A. The Danger of Transmitting Insects and Other Maladies on Avocado Budwood, G. F. Mozzette, entomologist, U. S. D. A., Florida. Saturday, 2 p. m.—Business meeting. Report of the committee on varieties. Election of three directors.

IRRIGATION EQUIPMENT ASSOCIATION

The Western Equipment Irrigation Association recently met in Fresno. There were delegates from many points on the Pacific Coast. D. J. Conant of San Jose presided, owing to the resignation of James A. Woods, former president. For the coming year C. A. Utley of Sacramento was elected president and P. H. Marlette of Los Angeles, secretary. This association was organized nearly a year ago in order to gather a greater fund of information regarding pumping machinery and general irrigation equipment and other data of value to the members and irrigation interests. Doubtless there was much talking shop during the convention. There were new members elected and matters of importance to irrigation people discussed. The meeting was participated in by many who are vitally interested in irrigation and the aid these equipment people could give to the irrigators. One of the principal events of the meeting was the banquet, though we are told there was no "irrigation" discussed.

The association expects to be state wide in its operation. It is divided into various district associations.

SUTTER COUNTY PEACH GROWERS' CONTEST

"According to available statistics 60 per cent of the canning peaches of the world are produced within a radius of some 25 miles of Yuba City, Sutter County," writes County Agent C. E. Sullivan. He adds: "Our work in the annual peach growers' contest, and with the peach industry of this section, has developed a number of interesting facts."

The following figures have been compiled from data gathered in this county:

Cost of producing one acre of peaches—Soil fertility, \$1; pruning, \$30; culture, \$30; water, \$50; pest control, \$10; harvesting, \$40; overhead, \$50; interest on investment,

\$72; propping and thinning, \$40; miscellaneous, \$10. Total, \$333.

Cost of production per acre, \$333; average for county per acre, eight tons at \$35, \$280; loss per acre, \$57. Ten tons to acre, at \$35 per ton, \$350; cost of production, \$333; gain per acre, \$17. If \$50 per ton be taken as average price, eight tons at \$50 per ton, \$400 per acre; gain per acre, \$63; profit on investment, 2.1 per cent. Ten tons at \$50, \$500. Gain per acre, \$163; profit on investment, 9.8 per cent. Ten tons per acre shows profit of 160 per cent greater than the acreage producing eight tons.

CITRUS FROST INJURY

Owing to absence of authentic temperature records in the orchard it is a hard matter to determine just what degree of cold citrus trees will endure without serious injury. Knowing the thoroughness with which William Hertrich, superintendent of H. E. Huntington's large San Marino ranch, does all things, the writer recently visited that ranch and thoroughly examined

an orchard in which the best self registering thermometers are kept.

The tract is an upland one, on a high bench, well away from low ground. It consists of ten acres of Valencia trees which will be five years old in July. The trees are large, in fine vigor, and extremely uniform in size, having always received the best of care—an ideal orchard. The December rains had thoroughly wet down through a fine soil in good tith. The cold weather came late in January. Mr. Hertrich said: "The lowest temperatures were on three consecutive nights and ranged 22, 24, and 26 degrees. The low point of 22 was reached on the morning of January 20, at 2:30 and thermometer remained close to this point until 7:30 a. m., or five hours."

The trees were loaded with fruit, most of which is worthless, and none will be marketed. The foliage and twigs are not badly injured and trees will not suffer thereby. About 25 per cent of the trunks were split a few inches above the soil, but none of them

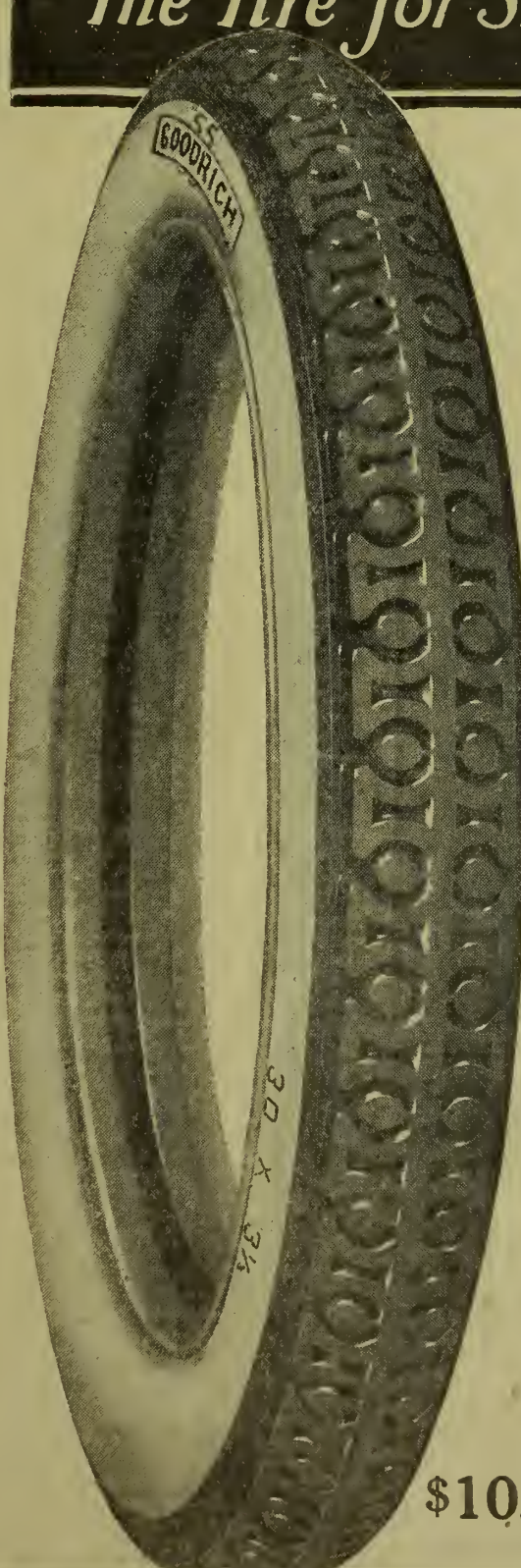
apparently beyond condition of rapid recovery. These have been tightly wound, spirally, with stout twine, and wounds and area for about three inches on all sides painted with asphalt. Mr. Hertrich ascribes the trunk injury to the fact that the trees were trimmed rather high from the ground and are therefore too much exposed to both cold and sun.

WEEDS OF CALIFORNIA

After several months of preparation the manual "Weeds of California," published as the February-March number of the Monthly Bulletin of the California Department of Agriculture has been received from the printer. This is a book of 330 pages and is a ready reference to the identification and control of noxious weeds, and of especial interest as the new weed laws enacted by the last legislature will now be enforced against weeds as against insects and rodent pests.

Goodrich "55"

The Tire for Small Cars



The Last Word in Tire Economy

If you drive a Ford, Chevrolet, Willys Overland, or any other car using 30 x 3½ or 30 x 3 clincher fabrics, *see and feel* the Goodrich "55."

New qualities of durability, of strength and of safety added to that half-century old Goodrich quality make the Goodrich "55" a most remarkable value.

Its scientifically designed tread grips like a tractor. It unerringly holds your car to the road. It checks skidding and sliding. It makes driving easier.

And further—

The sidewalls are specially fortified—extra resistant to rut wear. Tread extends around under sidewall to the bead.

The Goodrich "55" is low priced. The quality and construction is on a par with its appearance—you have Goodrich's word for it.

The Goodrich "55" is all on the side of increased tire economy—*see and feel* it at your nearest Goodrich Dealer's, and you'll quickly understand why.

THE B. F. GOODRICH RUBBER COMPANY
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— Goodrich Tires give longest service with Goodrich Tubes

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sweet Butter

In reply to the subscriber who is having trouble with her butter will try and help her out. She does not mean unsalted butter, but butter that does not get rancid. I had the same trouble until an Englishwoman told me to sterilize my cream. I let the milk set 24 hours then put it on the stove and let it begin to bubble but not break through the cream, then let it stand 24 hours longer and skim, but am careful not to put in any cream that has not been scalded, as the least bit will turn the whole lot rancid. This cream is called Devonshire or clotted cream, is very sweet and the butter will keep as long as you want it. I also cook this butter slowly and drain off the oil and keep for months for cooking when butter is high. It will keep sweet indefinitely. Hope this will help some one.—Mrs. J. W. Seawill, Healdsburg.

Concrete for Engine Base

I want to make a base for a 40-horsepower gas engine and would like to know what proportion to mix the concrete. Should I use sand and cement, or should it have some coarse gravel in it?—Subscriber, Perris.

The proportion usually recommended is cement, one sack; sharp, clean sand, two sacks; clean, coarse gravel, or better, selected broken rock, four sacks. If greater strength is desired the proportions could be on the 1:2:3 basis.

Bluestone for Root Knot

If subscriber, Clovis, will sow about one-half pound bluestone on top of the ground around his trees affected with root knot it will do wonders. I had two almond trees that had fallen down and had only one root left. I cut part of the top off and staked them up. They are the best bearing trees in orchard today; also put a weak solution on trees when dormant as a wash on the trunks and use Bordeaux any time on cuts.—L. L. Guss.

(We hope our subscriber's suggestion will prove helpful, but we would suggest care in making large applications of sulphate of copper to the soil around trees. It is of course deadly to fungous spores and at the same time not acceptable to the tiny rootlets of the tree. If applied in sufficient quantity to control root knot it appeals to us it would endanger the life of the tree. We appreciate the suggestion.—Edit.)

Grafting Plum

Will you tell me if a Wickson plum about ten years old can support a Climax graft and keep it alive and growing with the rest of the tree bearing fruit? Our Wicksons have not been bearing lately and we were advised to put in a Climax graft, and now some say that the graft cannot live with the rest of the tree growing blossoms for fruit.—Subscriber, Lodi.

We believe the more satisfactory way would be to interplant with the desirable pollenizing tree. However, the expert might get a graft to "take" and there is no reason why it should not grow if properly set at the right time. We fear it would be too late for this season.

Iron for Blight

About a year ago I wrote you asking a remedy for pear blight. A gentleman answered, advising me to bury some old iron about the roots and requesting me to report, which I now do. I did as he advised and it evidently had the desired effect as our tree had quite a crop on last fall and the limbs seemed green and healthy and it looks all right now. I surely am very grateful to him and also to you for the courteous service your paper renders its subscribers.—Subscriber, Lodi.

(This is a case for close observation. The present season is an excellent one to aid in reaching definite conclusion. It has been a year of great rainfall, which will induce lux-

uriant growth which is usually friendly to blight. In order to form definite conclusions more than one year's observations are necessary.—Edit.)

Sterilizing Milk Utensils

Will you please give me a simple formula for a solution that will be good to rinse the milking equipment and cans with?—Subscriber, Artesia.

Boiling lime water is the best of disinfectants. Slake limestone as usual and thoroughly mix with hot water, allow to settle, use the clear liquid, then if used in sufficient quantity so it will retain its heat for a moment after being poured into the utensils or forced through tubes of the milking machine its action should be perfect.

Agricultural Laws

Where can I get a copy of the laws governing the production and sale of cream? Am selling to a creamery for manufacture of butter.—Subscriber, Hanford.

Write George H. Hecke, Director State Department of Agriculture, Sacramento, and ask for "Agricultural Statutes of the State of California."

Paint on Iron

Can you or any of your readers tell me how to make paint stick to galvanized iron. Good lead and oil will not stick but peels off.—Subscriber, Thermal.

All paint houses carry paints especially prepared for metal. These are probably superior to any which can be mixed by the amateur.

Waterproofing Concrete

I wish to construct a cellar which shall be water tight. How should I mix the concrete?—Subscriber, Dinuba.

Professionals give the proper mixture for water tight concrete as what is known as the 1:2:3 mixture. This means one sack (which is about one cubic foot) of Portland cement, two of well graded sand and three cubic feet of well graded gravel or broken stone. If the mixture is thorough it is possible four cubic feet of gravel could be used. Also where watertightness is desired it is necessary to have all forms ready, use fresh cement, proceed continuously in the pouring, thus preventing any seam or construction joint. If suspension of work becomes necessary then leave surface very rough so as to secure perfect contact with next pouring. Then, if possible, both sides should be washed or brushed with pure cement and water mixture applied of consistency of thick cream. This wash of pure cement should also be used over any joints which may be necessary in the pouring. There are also proprietary waterproofing mixtures which may be had from cement dealers.

Where to Raise Hogs

Where is the best part of California to raise hogs and raise your own feed?—Subscriber, Delano.

Hogs are consistent lovers of all the hills and valleys of California. We do not think there is any one locality which stands supreme. It is a matter of securing good soil and irrigation water to cover at least part of the farm, then a good strain of pure bred hogs.

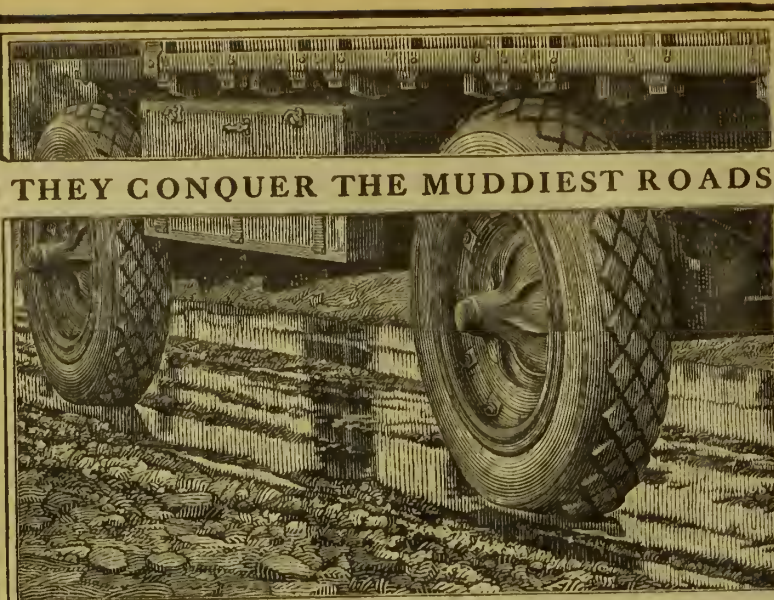
Best of Citizens

Two friends had an argument as to which was more American. A says his mother is American born, his father born in Italy, and he himself in the United States. B says his father was naturalized, his mother foreign born, and he was born in the United States. Is either more American than the other? Also B says A cannot have more privileges than B.—Subscriber, Concord.

Both boys are perfectly good Americans and on an equality as to citizenship. However, the mother who was born in this country but married a foreigner, if he has not been naturalized, lost her citizenship.

Coloring of Fur

Would be pleased to get a formula



THEY CONQUER THE MUDDIEST ROADS

Copyright 1922, by The Goodyear Tire & Rubber Co., Inc.

"The roads between Anoka and Minneapolis test the strength and construction of the strongest tires. After a heavy rain, the truck runs for miles at a stretch through heavy ruts. Our Goodyear Cords carry through on schedule, in all weather, saving time and money. Our Minneapolis Goodyear Dealer gives us good service on them."—SIMON KRUSE, Owner of Radisson Farm, Anoka, Minnesota, and President, Radisson Hotel, Minneapolis.

ON rain-soaked roads, Goodyear Cord Truck Tires find sure footing and make steady speed from farm to town. The wide, thick blocks of their All-Weather Tread take hold with a tractive grip that carries the truck forward full distance with every turn of the wheel.

Their buoyant resilience protects the truck, reducing operation and repair costs; cushions

the load against road shocks that injure the perishable cargo; saves the driver, and is easy on the surfaces of improved roads.

Goodyear Cord Truck Tires are strong and durable. They are designed to wear a long, long time. Detailed records of their performance in farm hauling on the road and in the fields are furnished on request to Goodyear, Akron, Ohio, or Los Angeles, California.

GOODYEAR

HAUSER'S ORGANIC FERTILIZERS

TRY OUR SPECIAL "BIG GUN" and Special "8--8"

Best by Test
Results Always

Ask the Growers who use it.

OUR FOUR LEADERS

BIG GUN TANKAGE: 10% Nitrogen, 4% Phosphoric.
8 AND 8 TANKAGE: 8% Nitrogen, 8% Phosphoric.
5 -- 8 -- 2: 5% Nitrogen, 8% Phosphoric, 2% Potash.
BLOOD, HIGH GRADE: 13 to 14% Nitrogen.

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WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

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Fresno, Bakersfield, Taft

When Writing Advertisers Please Mention the Cultivator.

for coloring the fur of a coyote skin, in either dark brown or black or both.—Subscriber, San Dimas.

We are unable to give any help to our inquirer so we pass the question on to our subscribers. We imagine the coloring of fur calls for the work of a specialist.

Trapping Hawks

To discourage hawks erect in the poultry yard a pole that extends above the chicken house or any nearby building or tree. Place on top a very small steel trap, set but not necessarily baited. Of course the pole must be a stout one with spikes in the sides so that the poultry man may take out the captive and reset the trap. A ladder may be substituted for spikes. This scheme has been tried and found effective.—H. H. Williams.

(But if the hawks are not too big a menace to the poultry yard, bear in mind they devour great numbers of squirrels, rabbits, mice and other pests.—Ed.).

Balanced Ration for Dairy Cow

Will you kindly tell me in what proportion to mix the following feeds for balanced ration: beet pulp, bran, ground barley, alfalfa-molasses and copra? How much should be fed for each gallon of milk produced? Cows have all the alfalfa they can eat.—Subscriber, Los Angeles County.

This is answered by Prof. F. W. Woll: "The best proportion will depend on cost. Considering intrinsic feeding values and market prices, they may be assumed to range about as follows in cheapness, fed to dairy cows supplementary to alfalfa hay: Coconut meal (cheapest), dried beet pulp, barley, bran and alfalfa-molasses. It follows, therefore, that coconut meal and beet pulp should make up a large proportion of the grain ration in order to make this most effective per dollar expended. I would suggest equal parts by weight of coconut meal, beet pulp and barley (why not rolled, which is just as good as ground barley for dairy cows, and cheaper?), or one-fourth of each of these three feeds and of wheat bran. One pound per four to five pounds milk makes a medium grain ration, or about two pounds per gallon of milk. The quality of the hay and the milk production of the cows may make it desirable to vary this ratio somewhat, but two pounds per gallon milk is, generally speaking, a fair amount of grain to feed to good cows under practical dairy conditions in this state. I would suggest that the subscriber and others interested send to Director of Experiment Station, Berkeley, California, for copies of the following publications by the writer on subjects relating to feeding dairy cows: Bulletin 323, Heavy vs. Light Grain Feeding for Dairy Cows; Bulletin 335, Coconut Meal as a Feed for Dairy Cows and Other Livestock; and Circular 215, Feeding Dairy Cows in California. These and other publications of the station are sent free of charge to those requesting them so long as the supply lasts.

"Another question raised is, as to the best ration for veal calf. This will likewise depend on available feeds and their cost. The best calf ration must include skimmilk, which may be fed in increasing amounts until 14 to 18 pounds is fed daily at three to four months old. The grain mixture fed from the time the calf is two to three weeks old may consist of grain feeds like barley, corn, oats and milo, with some coconut meal and bran or middlings, say two parts mixed grain and one part of each of the latter two feeds, gradually increasing the feed from a quarter of a pound to two to three pounds daily at three to four months old. This with skimmilk and the best quality of hay available will make an excellent calf ration. Calves fed in this manner will gain from one and one-half to three pounds per day on an average, depending on the breed, individuality and age of the calf, and will be at from five to eight months of age almost as sleek and fat as if fed on whole milk."

Lichens or Fungus

This growth is on apricot and peach trees. Please let us know what to do so it will go no farther.—Subscriber, Riverside.

This is a shelf or bracket fungus

often taken for one of the lichens which grow upon rocks, trunks of trees, fences, etc. They derive their nourishment from the air and are an indication of diseased bark or at least tree out of condition. Scraping or mechanically removing is best first treatment and spraying with Bordeaux or other fungicide may be helpful.

Weevil in Beans

Can you tell me through your paper how to keep beans free from weevils?—Subscriber, Arcadia.

Keep in insect tight room or container. If already infested fumigate in tight room or bin with carbon bisulphide, using at the rate of five to ten pounds for each 1,000 cubic feet of space in the room. Expose to the gas for 48 hours. This gas is very explosive. Use care with lights or fire.

Gypsum-Kainit

Kindly advise me as to use of gypsum or kainit in connection with a

manure pit. Which is preferable?—Subscriber, El Cajon.

Regarding gypsum Van Slyke's "Fertilizers and Crops" says: "Its chief value is not because it possesses unusual power as a mechanical absorbent of liquid or of ammonia, a common belief, but because by chemical action it changes the easily volatile ammonia into a more stable form." If gypsum is used, use liberally, say at least 100 pounds for each ton of manure. "Kainit sprinkled on manure tends to attract and hold moisture. The potassium and magnesium compounds in kainit tend, as in case of calcium in land plaster, to change ammonium carbonate into more stable compounds, such as ammonium chloride and sulphate. Kainit has the advantage of being easily soluble and is therefore more readily distributed through the manure and more completely utilized than land plaster. The application is recommended of 50 pounds of kainit for one ton of manure. One precaution should be observed in the use of kainit or any similar material;

it should be kept from direct contact with the feet of animals, since it is injurious. It is therefore best applied to fresh manure and covered with bedding or it may be applied and carefully mixed with manure daily when the stable is cleaned."

Spray Material

Is there any supervision of sale of spray materials in this state? If there has been injury to a crop because of spraying can one collect from the manufacturers of the spray material?—Subscriber.

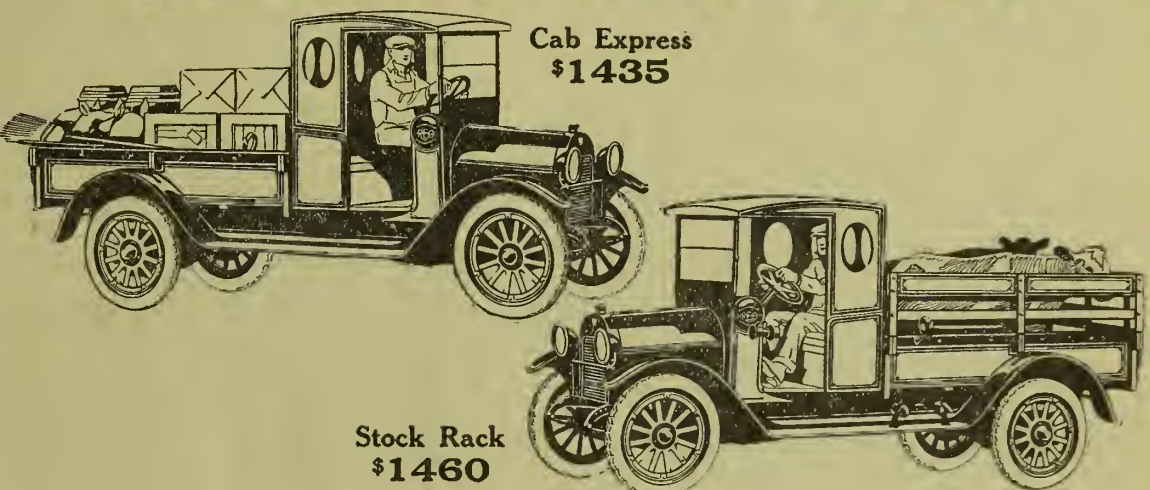
Write George P. Gray, Division of Chemistry, Department of Agriculture, Sacramento, for copy of the "California Economic Act of 1921," which controls insecticides offered for sale in this state.

Sulphate of Iron for Nematodes

At one time Dr. Snowden referred to control of nematodes by the use of sulphate of iron. An inquirer wishes to know as to quantity and method. The question was referred

REO

SPEED WAGON



Cab Express
\$1435

Stock Rack
\$1460

A Truly Marvelous Motor!

If there is any one unit that, more than any other, accounts for the stamina and the long life of the Reo Speed Wagon, it is the power plant.

Of course the other units—transmission, axles, driving shafts and gears—must be strong enough to sustain the full thrust of the motor.

But in the final analysis, it is the motor that must withstand the grief—must do the work.

That four cylinder motor was designed and built in the Reo shops for precisely this work.

Crank shaft is "50 per cent oversize," and all bearings, connecting rods, camshaft, valves and other parts, conform to the same Reo standard.

This isn't a "carriage horse," hitched to a heavy truck—this is a big, powerful

"drafter"—bred for this special work.

"Bred" is right—for this motor was the result of long years of development.

It is an evolution—not an inspiration.

We maintain that no other motor—and certainly none of lighter construction—can stand up beside this great Reo engine.

Experienced users—owners of individual trucks and of fleets—endorse our contention by standardizing on Reo Speed Wagons.

A matchless combination of brutal ruggedness in design, and of watch-work fineness in construction, this Reo motor has proven equal to the most strenuous work over a long period of years.

Until you have found an equal for this motor, it is futile to look for a truck that will stand up beside a Reo Speed Wagon.

Besides those here illustrated, there are several other standard body types for all kinds of hauling. Get particulars from your Reo dealer. Prices shown are f.o.b. factory, plus Federal Tax

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The boy who started to town with \$100.00



THE advice they gave him for getting on in the world was simple and familiar enough: "Keep what you have, and build on it. Be careful what you do and it will grow into more."

It's a safe rule—with money or health, but a good many overlook the rule with health, until they have lost what they had. Then it's hard to get a new supply.

Postum is a splendid help in saving health from the very common losses through the drug elements of tea and coffee—whose effects on the nervous system any doctor can tell you.

Thousands of people who think it wise to be as careful of their health as they are of their dollars are users of Postum. They find this famous cereal beverage a delightful drink with meals, and it is free from any disturbing element.

You can begin with Postum today, with an order to your grocer. The road to health is a good road for anybody to follow. "Save what you have, and build on it," is sound policy for anybody.

Postum comes in two forms: Instant Postum (in tins) made instantly in the cup by the addition of boiling water. Postum Cereal (in packages of larger bulk, for those who prefer to make the drink while the meal is being prepared) made by boiling for 20 minutes. Sold by all grocers.

Postum for Health

"There's a Reason"

Made by Postum Cereal Co., Inc., Battle Creek, Mich.

to Dr. Snowden, who answers: "Regarding the destruction of nematodes with ferric sulphate I would suggest 500 pounds per acre scattered broadcast and mixed with the upper four or five inches of soil. The rain will take it down. An application then of 1,000 pounds of freshly slaked lime will convert this into sulphate of lime and ferric oxide, both very beneficial to the soil. The best procedure with this object in view is to sow iron salt in the fall and the lime in the early spring. I would like to point out, too, that in soils poisoned with arsenic, the ferric sulphate and lime would prove an effective antidote. I should have said also in my original article that on soils where fruit trees are growing this ferric sulphate which has an acid reaction may have a temporary unwholesome influence on the thrift of the trees. Not over 100 pounds should be used where trees and crops are growing."

Floor Paint

Please give formula for mixing a good floor paint which is inexpensive.—Subscriber.

We fear that is a physical impossibility. With the amount of wear usually given to painted floor only a thoroughly dependable paint will hold up. These are now prepared by paint companies which manufacture a thoroughly dependable paint of any shade one may desire. As to cost this paint is as cheap as one can buy the separate materials and mix.

Wire Worms

I am writing you in regard to artichoke plants set out this spring. They didn't seem to be thriving so I dug around the roots and found them a crawling mass of small yellowish brown worms, and the ground around seems to be infested with them. I put sulphur around the roots of each of them but it had no effect. Can you tell me what kind of worms they are and what will eradicate them? The information given through the Cultivator can always be relied upon.—Subscriber, Modesto.

This is a case of serious infestation of wire worms. We fear there is no saving these plants though it is possible by taking pieces of potatoes and burying near the roots of the artichokes that the pests will leave the roots of the plant and feed upon the cut surface of the potatoes. After they have been buried near the plant over night or for a few hours carefully lift and if found to be covered with wire worms destroy them by jarring off into kerosene or boiling water. Place the potatoes immediately again near the roots and repeat day by day. Lima

bean growers of Ventura County have followed this course over large acreage and after a little practice the work has been found quickly accomplished and at a cost which is not prohibitive. If the plant is past saving remove and rid the soil of the pest by use of carbon bisulphide poured into the holes every few inches apart. The use of this gas is not economically possible on a large acreage.

THE 1922 HARVEST

(Continued from Page 431.)

Sebastopol Apple Growers' Association, Sonoma County

Apples, present indications are for a good crop of Gravensteins and a light crop of late apples. Too early to make a dependable estimate.

E. R. Beeton, Beaumont, San Bernardino County

The 1922 deciduous fruit crop to date has been handicapped by low temperature and lack of sunshine. Almonds and apricots were quite severely injured by frost, April 5 and again on the 9th. In some groves the damage to cots would amount to fully 60 per cent; in other localities considerably less. The loss to almonds may average 35 per cent. Peaches slightly damaged. The precipitation to date for the season is 31.60 inches. Fruit development is late from two to four weeks. The season is not far enough advanced to determine what the harvest may be. A later report will follow.

R. F. McKinney, San Jose

Brown rot damaged many apricot orchards; few were entirely free. Spraying just before the blossoms opened up seemed to control to a certain extent on some trees. Sunday morning, April 9, a very heavy frost occurred. In many orchards where no effort was made to smudge a 100 per cent loss was experienced. One of my neighbors who does his smudging thoroughly saved 70 per cent of his apricots. Some growers report a 100 per cent loss regardless of smudging. Many orchards regarded as out of the frost belts report 80 to 90 per cent loss. The crop in this valley appears at present to be about 20 per cent of normal. Almonds are not grown extensively here but the few trees growing appear to have a heavy crop. The sugar prune trees appear to have suffered about a 60 per cent loss from frost. French prunes, cherries, pears, peaches and apples are not far enough advanced to make any estimate. These varieties of trees are in a very vigorous condition, blooming profusely and at the present time have every indication of setting a heavy crop. The grain, except in the low lands that were flooded, is in excellent condition. Tomato plants growing slowly on account of cool weather. Large acreage to be planted. Some canners now offering \$20 per ton.

Santa Paula Chronicle, Ventura County, by Edith Bristol

The 13th of April proved itself an unlucky day for the apricot growers of the Santa Paula and Ojai district, for the thermometer dropped suddenly and sharply on the morning of that date and the result was destructive to the heavy crop of young fruit, well formed and promising well. At two o'clock on the morning of the 13th the mercury was at 26 in the western end of this valley and is reported as low as 24 degrees toward the eastern end. At the Limoneira Ranch the smudge pots were fired at that hour and continued till well after it was light. Other ranches equipped with firing apparatus lighted their pots, and this lessened the possible damage, but many ranches that grow apricots exclusively have no equipment for firing and the loss reported in these is in some places as high as 50 per cent, although many of the orchards in the western end of the valley report a much smaller loss. Some orchardists claim that because the crop was so large the damage from this frost will do hardly more than thin the fruit out to the desired amount.

The tender young growth of the walnuts was nipped in many orchards. In the upper Ojai the young fruit was badly damaged, all except late bloom fruit still in the blossom stage. The young almonds in this locality were nipped as well.

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Always Use the AMERICAN BEAUTY DUST SPRAYER and CALISPRAY "Safe and Sure" DUSTS

These are standard products
Developed, perfected, proved,
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WRITE FOR INFORMATION

The California Sprayer Company

6001-11 Pasadena Ave., Los Angeles, Calif.

Household Department

THE MAN BEHIND THE HOE

By O. S. Pinckney

I asked a wise old sage one day to give me his opinion, Who is the most important man in this world-wide dominion? Said he, "My friend, you'll surely see, if you will look around, The most important man of all's the one who tills the ground.

"He gives to us the lowly bean to satisfy our hunger And grows a thousand other things that make the old feel younger. He gathers in the golden wheat to make our daily bread, And on his geese the feathers grow to fill our feather bed.

"You'll find wherever you may go, wherever you may wander, The farmer is a busy man, he has no time to squander. He's many, many things to do, and many more to know; So don't turn up your nose at him and call him crude and slow.

"For should the farmer go on strike, we all would hungry go. Without that sturdy workingman, the man behind the hoe, We'd go without our daily bread, or butter to put on it. Is he important? 'Twan't for him we couldn't live, dog-gone it!"

HOW TO PROPERLY CELEBRATE RAISIN WEEK, APRIL 23-29

(Continued from Page 433.)

them to the depth of ¾ inch and if there is more than enough of the sugar mixture to fill the centers add it to the water. Bake in a moderate oven 35 to 40 minutes or until apples are tender. Serve hot or cold, plain or with cream.

Sun-Maid Macaroons

1 egg white, ¼ cup fine granulated sugar, ½ cup Sun-Maid seeded raisins, 1 teaspoon vanilla.

Beat white of egg until stiff; add sugar slowly, beating constantly; then add raisins and vanilla. Drop from the tip of a spoon on buttered sheet one and one-half inches apart. Garnish each with one-half raisin and bake in a slow oven from 12 to 15 minutes.

Apple Pudding with Raisin Sauce

2 cups flour, 4 teaspoons baking powder, ½ teaspoon salt, ½ cup chopped Sun-Maid raisins, 1 egg, ¾ cup milk, 3 tablespoons butter or shortening, 1 cup sliced apples, 1 tablespoon brown sugar, ¼ teaspoon cinnamon.

Sift flour, baking powder and salt together. Add raisins and mix well. Stir in beaten egg, milk and melted butter. Beat thoroughly and spread in greased shallow pan. Place sliced apples over the top and sprinkle with sugar and cinnamon. Bake in moderate oven until apples are tender. Cut in squares and serve hot with raisin sauce.

Raisin Sauce for Apple Pudding

1 cup chopped Sun-Maid raisins, ½ cups boiling water, ½ cup sugar, 1 tablespoon flour, ¼ teaspoon grated lemon rind, 1 tablespoon lemon juice.

Cook raisins and water slowly 10 minutes. Mix sugar, flour and lemon rind and add raisins, stirring constantly. Bring to boiling point, stirring, and keep hot in double boiler until ready to serve. Add lemon juice just before serving.

Prune and Raisin Conserve

1 cup prunes, 1 cup Sun-Maid raisins, 2 cups cold water, 1 cup brown sugar, ½ cup vinegar, 1 teaspoon cinnamon, ½ teaspoon cloves, ½ teaspoon allspice, ½ cup chopped blanched almonds.

Soak prunes and raisins over night in cold water. In the morning cook in same water until prunes are tender. Discard pits from prunes and put in pieces. Add sugar, vinegar and spices. Cook until thick—about 45 minutes. Add almonds and cook 5 minutes. Pour into sterilized glasses and seal with paraffin. This makes about six glasses.

The golden poppy is God's gold, the gold that lifts nor weighs us down—the gold that knows no miser's hold, the gold that banks not in the town, but singing, laughing, freely spills its hoard far up the happy hills. Far up, far down, at every turn, what beggar has not gold to burn? —Joaquin Miller.

HOUSEHOLD QUERIES

Kumquat Marmalade

How do you make kumquat marmalade?—Subscriber, Pasadena.

Here is recipe combining kumquats with lemon: One quart kumquats, two lemons, sugar, water. Quarter kumquats and remove seeds. Slice lemons, rejecting seeds. Combine the fruits and let stand for 24 hours in twice their quantity of water. Place over a low heat in the same water and boil gently for one hour. Cool, add two cups of sugar to each pint of fruit and juice and boil gently till clear and thick. This amount will fill nine medium sized glasses.

This one uses kumquats only and grinds them fine: Wash and remove seeds. Slice very thin or put through the food chopper. (I do the latter, as it is quicker and just as good.) Weigh and add same weight of water. Set away until next day. Then boil until tender in same water. Set away again. The following day boil 30 minutes. Weigh again and add same weight of sugar. Boil 20 minutes. Put in glass cans or jelly glasses.

Loquat Jelly

How is loquat jelly made? They will soon be ripe now.—Subscriber, Anaheim.

Gather the loquats while still firm and only partially colored as they will jelly much easier at this stage.

Wash and remove blossom ends. Cover with water and cook till soft. Strain through cloth. Boil juice down till thick and cherry colored, when add heated sugar, pint for pint, gradually. When sugar is thoroughly dissolved, boil a few minutes and test by letting small quantity cool in small dish.

Salad Vegetables

Please tell me how to cook or fix chicory, leeks and endive. I sowed some of these in the garden, as they were recommended to me.—Subscriber, Visalia.

Chicory and endive are salad greens and may be used alone or in combination as is lettuce or as garnish for meat or similar dishes. Leeks may be used raw or cooked just as onions are. They are not as strong as onions.

Ginger Snaps

Will you give me recipe for ginger snaps such as we buy at the stores?—Subscriber, Visalia.

One cup molasses, ¼ to ½ cup butter, suet or chicken fat, 2 teaspoons salt, 3 cups flour, ½ teaspoon soda, 1 tablespoon ginger. Boil shortening and molasses 2 minutes. Add remaining ingredients, mixed and sifted. Beat well; chill over night. Roll very thin. Shape with knife or cutter. Bake on buttered pan in quick oven 8 to 10 minutes.

Cobbler with Batter

Please give a recipe for a cobbler pie in which a batter is used.—Mrs. R. E. Main.

Place fruit in deep baking pan. Dot with sugar and butter according to taste. Sift 1 cup flour with 2 teaspoons baking powder and ¼ teaspoon salt. Add about ½ cup milk or enough to make stiff batter. Spread lightly over top of fruit. Put cover on baking pan and put in moderate oven 20 minutes. This is practically the same as stewed dumplings. The cover should be left on for the batter to steam until done, otherwise it will be soggy. If pan is not covered the batter, having no shortening in it, is liable to bake hard and dry.

Banana Pie

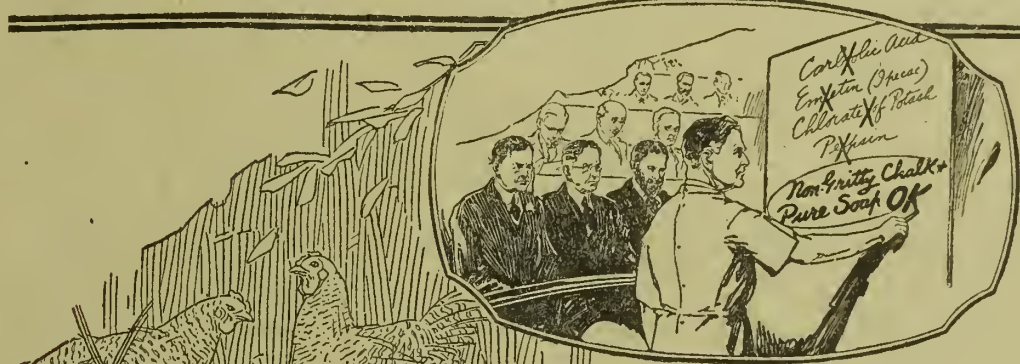
Please give recipe for banana pie.—Subscriber, Colton.

Remove strings from bananas, cut in dice or rub through sieve sufficient bananas to measure one cup. Place in mixing bowl and add ½ cup sugar, juice of one lemon, ¼ teaspoon grated rind of lemon. Stir to mix, then add slowly, beating to mix, one cup milk, yolk one egg, one whole egg, ¼ teaspoon nutmeg. Pour slowly in pie plate lined with plain pastry. Bake in slow oven 25 minutes, then cool. Meringue may be made with the leftover white.

Noodles

Please tell me how to make old fashioned noodles like my mother made. How long should they be dried?—Subscriber, Arcata.

One egg, 1 tablespoon water, ½ teaspoon salt. Beat together till well mixed, then add sufficient flour to make stiff dough. Knead till elastic, about



Culling

UNPROFITABLE hens or "boarder-cows" are now-a-days culled out. The scrub passes—the purebred remains. Likewise in selecting a dentifrice for family use you have to choose between the "culls" and the really worth while tooth cleansers.

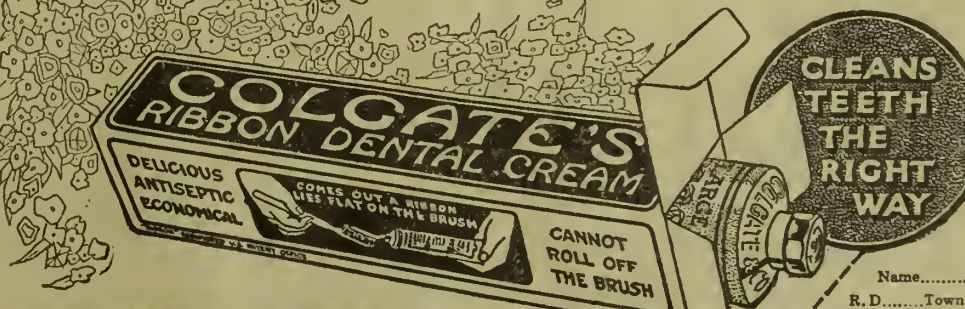
"Cull" tooth pastes may contain drugs for which impossible claims are made. Or they may contain harsh grit which scratches or scours the precious, protective enamel of the teeth.

COLGATE'S Cleans Teeth the Right Way

"Washes" and Polishes—Doesn't Scratch or Scour

Colgate's is a good, honest, common sense dentifrice without drugs or harsh grit. Colgate's Ribbon Dental Cream loosens clinging particles from the teeth and "washes" them away without scratching or scouring. No dentifrice can do more. And the flavor of Colgate's is delicious—it leaves the mouth clean, cool and refreshed.

More dentists recommend Colgate's Ribbon Dental Cream than any other dentifrice—they know it's not a passing fad—but a "true-to-type" dental cream. A LARGE tube of Colgate's costs only 25 cents—why pay more?



COLGATE & CO.
Farm Household, Dept. 102
199 Fulton Street, New York, N.Y.

Please send me samples of the following articles. I enclose amount of stamps shown for each one checked.

Face Powder	6c
Baby Talk	4c
Shaving Cream	4c
Ribbon Dental Cream	Free

Name.....
R. D.....Town.....State.....
Dealer's Name.....
Address.....

Good Teeth, - Good Health

Children

NEED A "BALANCED RATION" TOO



A "balanced ration" is more essential to children on the go and grow than it is to grown-ups. So important are prunes to the well-being of every child that a famous health writer said recently: "For your own health and the health of your children it is important to know that prunes should be eaten the year 'round and at least once every day. The American mother does not know how to take care of her children unless she teaches them to eat prunes regularly."

Good prunes—such as this State-wide, co-operative association packs and markets—are Nature's finest fruit-food. They are rich in fruit sugar. And this sugar is quickly turned into energy—for study or play. Also, they are rich in tonic iron and other mineral and "vitamine" elements. The body needs these for body "tone" and body "balance." Search where you may, you will not find a better energy-food for lively, romping folk than these sugar-laden prunes.

Many children, too, love to eat 'em raw. Good! Let them eat prunes to their fill. It is a natural sweetmeat—food and confection in one. It means unspoiled teeth and unspoiled stomachs—and better health in the bargain.

We have received so many requests for prune dishes for children that our Domestic Science Director has prepared this special recipe folder—"For a healthier today and tomorrow." The dishes are wholesome, tasteful and novel enough to appeal to children. Send for it today—it's free!



California

PRUNE & APRICOT GROWERS-INC.

PACKERS OF
**SUNSWET
& GROWERS**
Brands

64 Market Street,
San Jose, California.
An association of
11,000 growers.

two minutes, then roll out on pastry board until as thin as paper, dusting board lightly to prevent sticking. Let stand 15 minutes to dry, dust flour lightly over top, roll up like jelly roll and cut in width desired with very sharp knife. Lightly shake out strings and let dry at least over night.

Chicken Pates

Please tell me how to make chicken pates.—Subscriber, Eureka.

1 cup dried cooked chicken, 2 tablespoons butter, 2 tablespoons flour, ½ cup cream, ¼ cup chicken stock, 1 tablespoon lemon juice, few drops onion juice, 1 teaspoon Worcestershire or walnut catsup, salt and cayenne to taste. Melt butter, add flour, seasonings and stock, boil one minute, add chicken, when heated through serve in hot pate shells made on regular pate irons, or shells may be made of puff paste as follows:

Puff paste may be made in proportion of 1 pound butter, 1 pound flour. Flatten butter into round cake, chill. Sift flour several times till very light. Add cold water to form dough a little stiffer than for baking powder biscuit. Chill. Roll dough on floured molding board into rectangular shape. Place shaped and chilled butter on middle of one side of paste dough, fold over other side, press edges together. Now fold one end of this over, one under, making six layers of dough. Roll again into rectangular fold as before and so continue seven times. If butter begins to soften, roll paste dough in cheese cloth and place on ice till hard enough to roll easily. Be careful not to wet cheese cloth. Roll paste finally ½ inch thick. Cut with round cutter. Cut rings from half the rounds. Place rings on rounds, holding together with cold water. Chill until stiff before baking. Lay small rounds lightly on top. Bake in hot oven 15 minutes, then decrease heat and bake nine minutes more.

Fill chicken into shells, place small rounds on top and serve.

MORE ABOUT PRESSURE COOKERS AND FIRELESS COOKERS

Pressure Canning

Seeing your request for actual experience with a steam pressure cooker I will say I have used a National Steam Cooker, 25 quart size, for over a year and could not do without it. It does all that is claimed for it and more. I use it nearly all day, put meat, beans or vegetables in it to cook and go on about other work as it will blow off automatically when it reaches the right degree to cook as I set it for the particular cooking on hand. The toughest meat will cook in 45 minutes at 15 pounds pressure. I canned 50 cans of corn and 300 cans of meat which kept perfectly. It does not take over one-third the time that the old method did and is much safer and better for canning. In canning meat and vegetables I use a Burpee Sealer and tin cans. It is no trouble to learn to use for a child could use one easily.

The first cost of a cooker is all, as it will last permanently, being made of such heavy aluminum.—Mrs. A. A. Winters, Grizzly Bluff.

Pressure Cooker

In regard to the pressure cooker, I have used one of them for four years and would not keep house without it. I have had good success with everything I have made. I have canned corn, made apple butter, canned meat, made carrot and suet puddings and all similar dishes. Boston baked beans will cook in 25 minutes.

Full directions will be found in each kettle.—Mrs. John Koch, Covina.

Fireless Fine in Summer

I have fireless that has been in use for two years and would find it impossible to do without it, especially in the summer. I never cook meat any other way than in the cooker.

Remember when you cook meat in the cooker it goes so much farther than when it is boiled on the stove, and it retains all the fine flavor of the meat.

I can't begin to tell all the splendid things about the cooker, but if you live on an orchard ranch and have lots to do outside in summer you will find



Save
\$60
a Year
with a
Sechrist
Pressure
Cooker

A Small Deposit Delivers Your Sechrist. Balance in Easy Payments

The Sechrist Pressure Cooker saves a woman more in labor and time than can be estimated. Besides that—a Sechrist saves over SIXTY DOLLARS in fuel and food in one year's time.

Use the "cold-pack method" and your Sechrist for your canning. You will realize its great helpfulness only when you see how much time and fuel you have saved.

Fill in the Coupon below and receive full information:

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Address.....
City..... Dept. C. C.

Birch-Smith Furniture Co.

737-41 S. Hill St., Los Angeles
"The Home of
Nationally Advertised Goods"

The Stephenson Patent Cooler

No Ice Required

Absolutely
Perfect
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Awarded first prize wherever exhibited
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Write for particulars and prices

L. ANDERSON CO., Mfr
Martinez, Cal.



No. 103 BEAUTIFUL 36-Inch CENTER as illustrated, stamped on finest quality India Head, hemstitched for crocheted edge. Postpaid for \$1.00. Three-piece Buffet Set to match, hemstitched, complete for \$5.00. Dresser Scarf to match, also 18x48, edge hemstitched, complete 80c. All three postpaid for \$2.45. Your money back if not satisfied.

Harvey E. 5949 Chicago Ave., Chicago, Ill.

DAISY FLY KILLER

PLACED ANYWHERE ATTRACTS AND KILLS ALL FLIES. Clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill tip over; will not or injure anything. Guaranteed effect. Sold by dealers. 5 by EXPRESS prepaid, \$1.25.

HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N.Y.

the fireless cooker the best saver of time and fuel.

You asked the question, does it pay to buy a fireless cooker? Yes, by all means.—Mrs. J. M. White, Gilroy.

Fireless, One of the Family

Indeed a fireless cooker is worth buying. I have used one for four years, a 16 quart size, a Rapid, and it has become one of the family. We could not do without it. It bakes, boils, roasts and fries, browns food deliciously and never burns. It is very simple to use. I am always very glad to tell the value of a fireless cooker.—Mrs. H. G. Webb, Turlock.

Whole Dinner in Pressure Cooker

I have owned and used a pressure cooker for more than a year and simply would not be without one. I cook all our meats in it as they cook quickly and retain all their juices. I put my roast for Sunday's dinner on, and it will cook while I prepare salad and set table.

Chicken stuffed with dressing and cooked 50 minutes was so tender and had the most delicious flavor I have ever tasted. Vegetables which so often lose their flavor in boiling are steamed in the inner pans and taste much better than when boiled. Corned Beef cooks nicely in less than one hour and will be "done."

Cereal cooks in 20 minutes and one may always be sure it is well cooked.

I have also steamed carrots and plum puddings an hour, leaving pet-cock and safety valve open, then put on pressure for 10 minutes to ripen. These were delicious.

One point which I would call attention to is the fact that a whole dinner may be cooked in it and the flavors not mix.

One should be careful to keep the cooker always clean and open when not in use.—Mrs. B. L. Lamb, Taft.

Pressure for Canning Meats and Vegetables

I have had a pressure cooker several years and think it just great. Aside from cooking things so quickly it keeps the flavor right in the cooker instead of letting it go off in steam as in an ordinary kettle.

And it is certainly the only safe way to can vegetables and meats as you must have a very high temperature to be perfectly safe.—Mrs. Geo. H. Clark, Madera.

OUR BABY COLUMN—DIET FOR NORMAL CHILD

By Mrs. M. S. Sirdevan

AT nine months one can start to give fruit juices and beef broth. Orange juice should be given at 8 A.M. but only ½ ounce, with water (1 or 2 ounces). At the two o'clock feeding give beef juice ½ ounce or broth 1 ounce.

Feed every four hours; 6 A.M., 10 A.M., 2 P.M., 6 P.M. and 10 P.M.

Lamb or Beef broth.—½ pound of lamb or beef from neck or shoulder with bone, cut in squares, 1 tablespoon celery or peas and 1 tablespoon carrots or spinach, 16 ounces water. Boil 5 hours in double boiler or all night in fireless cooker. Boil down to 8 ounces. Strain, remove fat and add salt. Feed from a spoon.

Beef juice.—A small piece of lean round steak cut thick, slightly broiled, and the juice pressed out with potato ricer or meat press. This seasoned with salt, may be given cold or warmed by placing the cup which holds it in warm water.

At Ten Months

At ten months the following foods may be given gradually:

Cereals.—Use any of the following: Cream of wheat, farina, oat meal, barley. Prepare as follows: 2 tablespoons cereal to 1 pint water. Cook in double boiler for three hours or all night in fireless cooker. Add salt and strain through fine wire sieve. Feed from a spoon at 10 A.M. and 6 P.M. without sugar. Begin with one teaspoon, gradually working up to 1½ or 2 tablespoons.

Cottage cheese.—1 dessert spoon once or twice a week.

Eggs, coddled, twice a week, ½ of whole egg. Begin with 1 teaspoon.

Green vegetables.—Spinach, cooked lettuce, celery, peas, or carrots. Begin with 1 teaspoon and gradually in-

crease the amount to 1 tablespoon daily. Be sure and put them through a sieve.

Beef juice, one ounce with rice three or four times a week. Alternate with broth, 2 or 3 ounces three or four times a week. Bread, crisp dry toast or zwieback. Fruits, orange or prune juice with strained pulp; baked apple or apple sauce 1 or 2 teaspoons. If the child is constipated give 2 or 3 ounces of prune juice with water at 4 P.M.

Feeding Rules

In order to get a child on this diet begin cautiously with a small amount of one new food at a time and very slowly increase to amount specified. Do not begin two new foods on the same day, and place the new food at the beginning of the meal with nothing else in sight. If the new food is

refused try again the following day, with smaller quantity, until child acquires the taste. After the cereal, beef juice broth and green vegetables have been added to diet the cottage cheese and coddled egg may be added, and so on, until all the foods mentioned are given.

Do not force food.

THE EGOTIST

"There's no denying that Bill has a pretty high opinion of himself. He thinks he is one man in a thousand."

"Not if I know him, he doesn't—he thinks he's the other 999."

"What are you doin' of, James?"

"Sharpenin' a bit o' pencil."

"You'll 'ave the union after you, me lad. That's a carpenter's job."

WAS IT ADOBE?

An Irishman, when asked a number of years ago if he had ever been in California, replied:

"Oh, sure! Oi walked across the whole dom state one winter and niver left a track."

"How in heck was that?" he was asked.

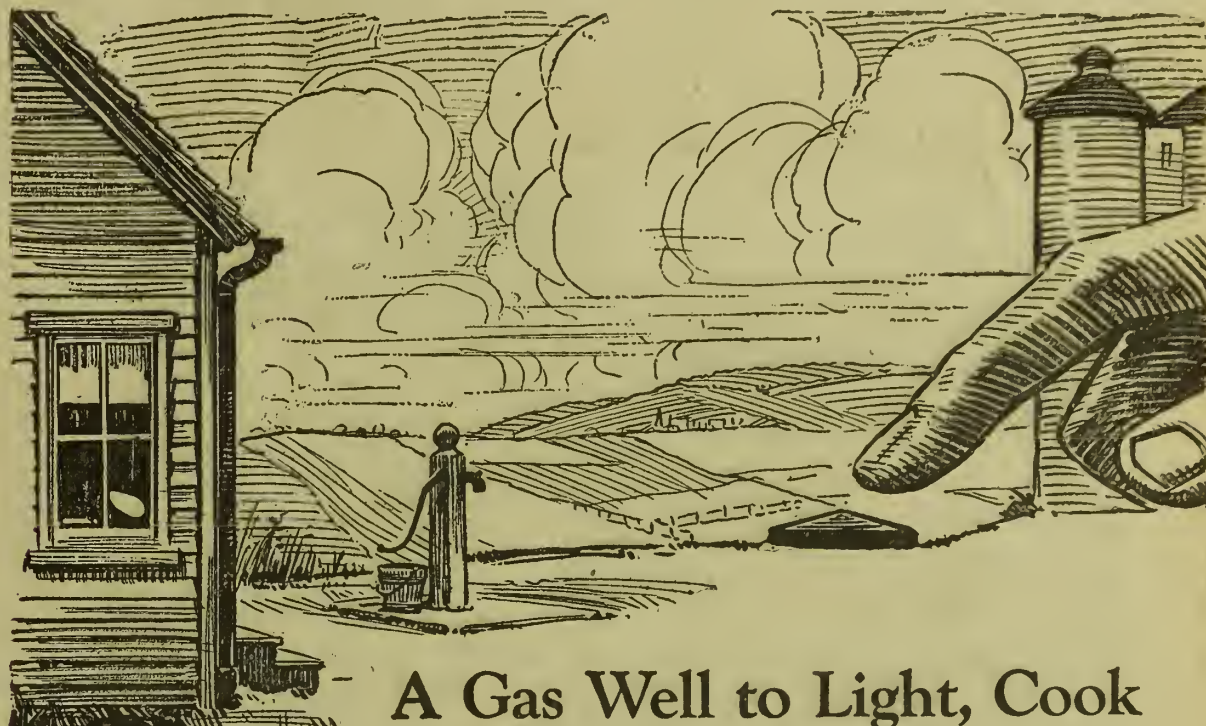
"Well, wmin Oi put me foot down in the mud, I just picked up thot mud and carried it along with me."

SLIPPERY

An officer was showing an old lady over the battleship.

"This," said he, pointing to an inscribed plate on the deck, "is where our gallant captain fell."

"No wonder," replied the old lady; "I nearly slipped on it myself."



A Gas Well to Light, Cook and Iron for You

FROM that simple out-of-the-way tank you see pictured in the backyard comes the most remarkable servant you can employ—carbide gas; the wonder gas of the age. An artificial, non-poisonous gas.

Produces wherever you want it—in your home, outbuildings and barn—a clear, flickerless light so mellow, radiant and restful as to rival sunlight. No constant replacement of chimneys or bulbs. *You don't even use matches in lighting!* With this light one user increased egg laying from 10 to 100 eggs a day. That plants grow under carbide light has been conclusively established by Cornell University.

Makes Cooking Easy—the Kitchen Cool

To the kitchen it brings you the hottest cooking flame. Clean and orderless—you can draw a white cloth across the bottom of a pan after usage and not soil it. Boils, broils or fries the meal in one-third the time. When carbide gas is used no coal, wood and ash carrying. Your wife can work in shade tree coolness on the hottest day. No fussing, priming or adjusting—fuel at the fingers' touch. Quickly heats water for dish washing, shaving and bathing. Gives you an even, sustained heat for ironing—a time saver. All these wonderful city conveniences from that simple, out-of-the-way tank—**THE COLT LIGHTING and COOKING PLANT.**

Simplest and Most Economical Automatic System

Don't put money into any system until you have thoroughly investigated the COLT. See how simple it works. Just run water into the water chambers and pour carbide (a gas-filled compound) into the hopper of the COLT. The machine does all the rest—mixes the carbide automatically with water, releasing this marvelous gas. *No expensive parts to replace in a short time—maintenance practically nothing.* Nothing to adjust. The only attention required is some carbide and water once in a while. Gas is generated when you need it, and only as you need it. No waste.

From Factory to Farm

Sold direct to you by COLT solicitors—no distributors or dealers to take a profit. This applies everywhere, from coast to coast, from Canada to the Gulf. A lighting and cooking plant tested and proven by many years of service, and sold by a responsible concern doing business with the farmer for a generation.

Send Postal Card Today for Full Story

More than 341,000 farmers own carbide gas systems—you should hear them praise it. No more wick trimming, lamp filling and cleaning; no more stuffy, stifling kitchens and burdens—*gas on tap.* Get the full COLT story—send a postal today, now.

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Oldest and largest manufacturers of Carbide Lighting and Cooking Plants in the World

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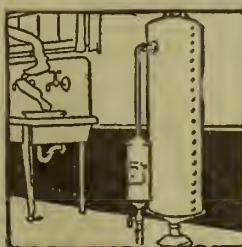
For Lighting



For Cooking



For Ironing



For Water Heating

LIVESTOCK ASSOCIATION HOLDS INITIAL SALE

The Southern California Purebred Livestock Association which was formed to promote the interests of purebred livestock throughout Southern California and bring the breeders into closer touch with one another, held a consignment sale at Imperial on April 15.

Formerly one of the principal livestock sections of California, Imperial Valley has during the past few years almost turned away from that industry. During the war high prices boomed cotton to such an extent that nearly everyone plowed up his alfalfa and sold his dairy stock. Last year the bottom dropped out of the cotton market and today there are again thousands of acres in alfalfa. A long way from the market, the Imperial Valley alfalfa cannot compete with the local product owing to the high freight rates, and dairy stock is again coming to the front. The people of the valley have very little ready money but the banks are coming to their rescue and were behind the sale

held April 15. It was largely due to the interest taken by the banks that the Purebred Association was invited to make this sale as heretofore most of the stock taken into the valley was in the hands of speculators and was of inferior quality. In this sale the animals were consigned by the biggest breeders of the southland and many of them were present to guarantee the health and breeding qualities of the animals.

Following the sale a local purebred association was formed which will be affiliated with the Southern California Breeders. One of the duties of this local will be to pass upon all stock offered for sale in the valley, and it is hoped in this way to discourage the introduction of stock by speculators. Since this local numbers among its members the bankers of the valley it should be able to accomplish its purpose easily.

The sale was attended by about 500 of the local people, and while the prices were not high they were satisfactory considering the fact that the breeders expected to realize only

about 50 per cent of the value of the animals as it was purely and simply a promotion proposition. Two of the largest auctioneering firms donated their services and the newspapers contributed a large amount of valuable space.

Fred Hartsook topped the cattle sale with a fine Holstein cow bred to his great bull, Sir Aaggie De Kol Mead, and just ready to freshen. The Italian Vineyard Company topped the males with a Guernsey bull, Reuben Langdon of Hollow Hill Farm, and also had the top Guernsey female, J. E. Wherrell of Riverside was the principal consignor of Jerseys and got the top for both sexes.

The hog sale was brisk, and the different breeds seemed to be about equally in demand. The top of the sale was a bred Berkshire gilt consigned by the Italian Vineyard Company of Guasti.

Berkshires

Bred gilt consigned by Italian Vineyard Company, \$72.50.
Bred sow, R. S. Jones, Etiwanda, \$52.50.
Bred sow, Geo. Stingle, El Monte, \$50.
Bred sow, C. T. Johns, Ontario, \$52.50.

Bred sow, Fred Hall, Perris, \$67.50.
Sow pig, Italian Vineyard Co., \$15.

Durocs

Bred sow, Diamond Bar, \$50.
Bred sow, Diamond Bar, \$50.
Open sow, George Thomas, Riverside, \$37.50.
Open gilt, Charnock Ranch, Hemet, \$30.
Open gilt, Charnock Ranch, \$37.50.
Boar pig, George Thomas, \$50.
Boar pig, George Thomas, \$35.

Hampshires

Full boar, O. U. R. Ranch, Santa Barbara, \$25.
Two open gilts, Carl Melner, Ojai, \$55.

Poind Chinas

Bred sow, W. H. Rough, Arlington, \$47.50.

Holsteins

Bred cow, Glenwood Stock Farm, Riverside, \$250.
Bull calf, Ed. Stalder, Nuevo, \$75.
Bred heifer, C. L. Bratzler, Riverside, \$260.
Bred heifer, C. L. Bratzler, Riverside, \$260.
Bred heifer, F. F. Pellissier, Whittier, \$110.
Bull calf, Fred Hartsook, Lankershim, \$500.
Bred cow, Burr Farm, \$340.
Bred heifer, Maxwell Farms, \$305.
Bull calf, Santa Monica Dairy Co., \$115.



PRINCE AAGGIE OF BERYLWOOD

We Bought This Great Young Holstein Bull Because:

He is an exceptionally fine individual.

He is the highest record bull on the Pacific Coast.

His dam made 21.62 pounds of butter in 7 days and 851.01 pounds in 365 days as a two-year-old: 32.03 pounds in 7 days and 886.16 pounds in 305 days at four years of age. During her present lactation period she has made 37.12 pounds in 7 days and gives every indication of making close to 1100 pounds for the year.

When his dam finishes her present record he will have a yearly average for his seven nearest dams considerably above that of any other bull in the world.

His seven nearest dams now average 1120 pounds for the year.

Five of his seven nearest dams have produced over 2000 pounds of butter in two consecutive years and the sixth has made 1862.88 pounds in two years.

Five of his seven nearest dams have proven their transmitting qualities by producing 1000-pound daughters, and the sixth one has a daughter who is making over 1000 pounds this year. His own dam is still young, but has three daughters who give every indication of easily being 1000-pound cows.

He is the 100% blood brother of Sir Aaggie Mead De Kol, whose seven nearest dams have a higher average for yearly production than those of any other bull in the world.

His sire is Sir Aaggie De Kol Acme, who has been at the head of two of the largest herds in California and who has over 100 daughters, nearly all in the hands of men who will give them official records. At present he has 16 A. R. O. daughters, seven of which have over 20 pounds in seven days.

He carries a double cross of King Segis, King Mead of Riverside and Aralia De Kol.

We have assembled an excellent herd of high record foundation females, and we expect wonderful results from the use of this bull.

We have on hand a number of very typey young bulls out of high record show cows. Some are ready for service. They carry the blood of many of the greatest Holsteins and are backed up by high production. They are priced from \$100 up. Every animal is tuberculin tested and guaranteed a breeder.

Visitors are always welcome.

BERYLWOOD STOCK FARM

J. W. Snodgrass
Manager

HUENEME
Ventura Co., Calif.

E. R. STALDER

NUEVO, CALIF.

Will Disperse His Entire Herd of 50 Registered Holsteins

At HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Thursday, May 11
at 10 A.M.

MANY A. R. O. COWS with official records up to over 32 lbs. butter in 7 days.

MANY COWS AND HEIFERS bred to King Pontiac Netherland Segis 3d. This will be the very last opportunity to buy females bred to this great proven sire, now dead.

DAUGHTERS' AND GRAND-DAUGHTERS of King Segis Pontiac.

COWS AND HEIFERS bred to King Segis Pontiac Aero, the youngest son of King Segis Pontiac. Such noted producers as Locust Terrace Gold Drop, Stanislaus Princess Cleopatra and others will appear in this sale. The calves they carry will be worth what the dams will probably bring.

GUARANTEED BREEDERS
NO TUBERCULIN TEST
CERTIFICATES

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AND PEDIGREE CO.

C. L. Hughes, Sales Manager,
Sacramento, Calif.

TOSANTOS Herd

Every Cow Has an A.R.O. Record
FOR SALE—A few Bull Calves from 3 to 10 months old.

E. D. Barry, Jr. Covina, Calif.
Workman and Azusa Ave.

Two Chances at Gopher

Enclosed find check for one dozen Double Catch Gopher Traps. Have used every advertised gopher trap but have thrown them all in the scrap pile; but the Double Catch, — F. B. McKay, Standish, Calif., 3-31-22.



Young Gopher

CATCHES GOPHER ANY SIZE OR AGE



Old Gopher

PRICE 50c.
Postpaid
Two Traps \$1
At Hardware and Seed Stores.
Illustrated folder free.

E. J. CHUBBUCK CO. DEPT. A
Manufacturers San Francisco, Calif.
731 Market St.

Jerseys
Bred cow, J. E. Wetherell, Riverside, \$150.
Bred cow, J. E. Wetherell, Riverside, \$165.
Bull calf, J. E. Wetherell, Riverside, \$125.
Bull calf, J. E. Wetherell, Riverside, \$125.
Bull calf, J. E. Wetherell, Riverside, \$90.
Open heifer, George Thomas, \$155.
Bred heifer, W. H. Rough, \$125.
Bred heifer, R. H. Williamson, Riverside, \$90.
Guernseys
Bull, Italian Vineyard Co., \$350.
Bred heifer, Russell Cox, San Marcos, \$130.
Bred heifer, Russell Cox, San Marcos, \$150.
Bull calf, Russell Cox, San Marcos, \$165.
Bull, W. H. Dupee, Riverside, \$185.
Open heifer, W. H. Dupee, Riverside, \$185.

RIVERSIDE'S DAIRY DAY
Dairy days and cattle judging are not at all unusual but Riverside put over the biggest one that has ever been held in the South on April 8. A whole souled interest in the affair was displayed by the dairymen of the county, the merchants, the University of California and the members of the Southern California Purebred Livestock Association which held its regular monthly meeting there that day. The merchants donated the use of their windows for all sorts of displays boosting the value of dairy products. Many of these were furnished by the university and were arranged under the direction of A. W. Folger of Davis. Others were prepared by the high schools of Riverside and by the different breed organizations. One of the interesting places was the Guernsey booth where one of W. H. Dupee's beautiful cows was on exhibition and Guernsey milk donated by the breeders of the county was served free of charge. The Jersey breeders also dispensed free milk from an exhibit in one of the big stores. A dairy parade in the morning, a milk boosting fairy play given by one of the grammar schools, judging and milking contests open to all comers and a demonstration of judging by Professor Thomson of Davis were among the interesting features which entertained and educated the big crowd which had gathered from all parts of the southland.

Another Oregon Jersey cow has broken a world record and now holds the championship for all mature animals. She is Lad's Iota, owned by S. McKee of Independence, Oregon. The cow's record for the year ending last Friday night was 1,047.94 pounds utter fat. This beats by 7.86 pounds the previous record held by Plain Mary, a Maine cow. In the Jersey list are eight classifications, beginning with cows under two years old and ending with mature cows, those above five years old. Oregon now holds the records for seven of the eight classifications.

Pending further investigation of the cattle scab situation in parts of Nevada Dr. J. P. Iverson, head of the division of animal industry of the state department of agriculture, has announced that he has served notice on the transportation companies, including the Southern Pacific and Western Pacific Railroads, not to accept for shipment into California any cattle from five counties in Nevada without first obtaining a special permit from this department. The five counties included in the temporary embargo are Washoe, Ormsby, Storey, Lyon and Douglas.

Among other features of the animal husbandry division exhibit on Picnic Day, April 29, at the university farm, will be a rice feeding demonstration of particular interest to pork producers. Rice as a hog feed is assuming an important place in California due to the large plantings in recent years in the northern part of the state. The university has been carrying on a series of experiments in feeding rice and rice by-products during the last few months and by Picnic Day will have enough data on hand to show the farmers just how much of several of these rice products is required to produce a pound of pork.

H. M. Barngrover, Stockton, reports sale of three extra good young Hereford bulls to J. W. Stanford of Warm Springs. They are sons of Beau Blanford 76th and Patrician 5th.

COMPLETE DISPERSAL

ORMONDALE SHORTHORNS

49 Females--2 Herd Bulls

Ormondale Ranch, Redwood City, Calif. Thursday, May 4, at 12 o'clock, Noon

RARE OPPORTUNITY FOR BUYERS

Not for many years, if ever, has such a herd of registered Shorthorns as this been dispersed at public sale in California. There is positively no reason to doubt that the owners who are founding new Shorthorn breeding herds today, or strengthening already established herds, are the ones who will reap the rich returns in the next high price cycle only a few short years in the future.

CORRECT FOUNDATION MATERIAL

The owners spared no expense in securing the foundation for this great herd, and in its dispersal new owners may well feel confident that they have secured breeding animals of superior merit.

49 FEMALES SELL

Forty-nine females sell as single lots in the offering, representing most approved Scotch families and some of the best American sorts, those that are bred carrying the services of The Caledonian or Count Kingwood.

15 COWS WITH CALVES AT FOOT

Fifteen of the great matrons in the sale have calves at foot, all of them sired by the \$12,000.00 imported bull, Boquhan's Guinea Stamp, and those that are rebred are in calf to one or the other of the present herd sires, The Caledonian and Count Kingwood.

9 DAUGHTERS OF IMP. BOQUHAN GUINEA STAMP

Nine of the daughters of Imp. Boquhan Guinea Stamp sell as single lots, out of richly bred dams, and a most attractive and uniform lot of heifers.

A REMARKABLE GROUP

The famous breeding cow Sweetheart and three of her daughters sell in this offering.

She is the dam of Little Sweetheart, the Chicago International Grand Champion in 1919, and two of her daughters in this sale are full sisters to Little Sweetheart, the third being sired by a son of Radium.

11 DAUGHTERS OF GOLDEN GOODS JR.

Golden Goods Jr. is the sire of the International Grand Champion Little Sweetheart, and his eleven daughters in this sale are an impressive group, including the two full sisters to Little Sweetheart noted above.

ONLY TWO BULLS IN SALE

Ormondale Ranch has sold every bull of weaning age from the herd except the two great herd sires which will go in this sale.

THE CALEDONIAN

This young sire is an outstanding son of Imp. Caledonia, and out of a royally bred Rosa Hope dam. He would be a top attraction in any sale of the breed and in every respect merits a place at the head of a top notch herd.

COUNT KINGWOOD

This splendidly bred son of Imp. Kingwood was brought into the herd to share herd heading honors with Imp. Boquhan Guinea Stamp, and while no calves have yet been dropped to his service he has every promise to justify the long price which he commanded.

This sale is an event of outstanding importance to everyone who contemplates the purchase of high class Shorthorns, and there are bound to be many splendid bargains in the sale. Every animal selling as a single lot positively guaranteed to be a breeder; every animal over six months old tuberculin tested and individual certificates furnished the buyer.

TERMS OF SALE: Responsible parties may arrange for credit, before sale, with the sale manager, on the basis of one-half cash, balance in six months with approved note bearing eight per cent interest.

ORMONDALE RANCH is nine miles southwest of Redwood City, 34 miles south of San Francisco. Trains will be met only at Palo Alto morning of sale.

Write for Catalog. Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

HOLSTEIN

Fred Hartsook

CATTLE

RANCH

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

U.S. MUNSON SHOE ONLY \$2.85

SEND NO MONEY

Genuine leather. Uppers of tough but pliable Ni-Chrome tannage. Double-thick soles of best oak leather. Leather heels. Bellows tongue keeps out dirt, water, cold. Made to sell at \$6. Sizes 5½ to 12. Pay postman.

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q q q

& WE CONDUCT SALES OF REG. DAIRY CATTLE GRADE CATTLE GEN. FARM SALES in all parts of Calif. and adjoining States. Satisfaction guaranteed. Write for dates and terms.

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MAY BE PREVENTED BY USING PARKE, DAVIS & CO.'S SCIENTIFICALLY PREPARED

Blackleg Vaccines

BLACKLEG VACCINE (BLACKLEGIDS) THE OLD RELIABLE BLACKLEG VACCINE IN PILL FORM

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Write for free instructive booklet on Blackleg Prevention.

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PERMANENT PIPE FOR IRRIGATION DRAINAGE CULVERTS SEWERAGE

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ADAMS PIPE WORKS

New and second hand pipe and casings. Riveted steel pipe, valves and fittings. Mail orders given prompt attention. Write, phone or call.

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Registered Oregon-Bred JERSEYS

To be Offered at Public Auction on the Fair Grounds at
STOCKTON, THURSDAY, MAY 4

**39 CHOICE FEMALES
1 RARE YOUNG BULL**

These cattle should appeal to the most discriminating. They are from representative herds, carefully selected by a competent, practical Jersey breeder, who had no personal interest aside from seeing that the cattle were of a character to properly represent the Oregon Jersey breeders. Every hoof comes from Clean Herds; the offering as a whole and individually is as nearly right as human skill and care can present it, as is attested by the following official letters voluntarily offered:

TO WHOM IT MAY CONCERN:

I have seen many of the cattle that Mr. C. R. Thomas has purchased for shipment to California and have inspected the pedigrees of all of them and can recommend them as entirely worthy to represent Oregon in any state to which they may go. The blood lines are among the best in the State.

(Signed) O. O. HEWITT.
President, Oregon Jersey Cattle Club.
Independence, Oregon,
April 7, 1922.

TO WHOM IT MAY CONCERN:

I have not only seen, but I personally inspected the 40 Jersey cows and heifers that Mr. C. R. Thomas has purchased for shipment to California, and take pleasure in saying that it is a splendid lot of cattle, and represents some of the very best and most popular blood in Oregon, and every animal is worthy to represent Oregon, no matter into what state it may be sent.

(Signed) W. O. MORROW.
Independence, Oregon,
April 7, 1922.

Catalogs will give details as to breeding and performance of ancestry. It will show special strength in ST. MAWES and GOLDEN GLOW blood, the two blood lines that have enabled Oregon Jerseys to annex seven out of eight possible world's championships. It is this breeding that produced VIVE LA FRANCE, rightly called the Wonder Dairy Cow; in 5 years she produced averagely more than her own weight in butter per year, and produced 5 calves before she was 7 years old. The pedigrees will be found full of persistent producers, many the get of Gold Medal bulls. Catalogs ready now. Send for one and verify to your own satisfaction statements made.

The breeding is Right; the cattle are Right individually, and the time is Right for getting them at your own price. For catalogs address

PACIFIC PUREBRED SALES CO.

C. R. THOMAS, Mgr.

807 Santa Fe Bldg.

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COL. CY N. CLARK & SONS, Auctioneers.

ANNOUNCING FIRST PUBLIC SALE Innisfail Milking Shorthorns Friday, May 5, Davis, Calif.

Why Milking Shorthorns?

Milking Shorthorns are the most practical cattle for the farmer.

Milking Shorthorns will produce profitably at the pail (many cows average 8,000 to 12,000 pounds of milk a year).

Milking Shorthorns are hardy, adapted to dairying in the foothill and mountain sections.

Milking Shorthorns will produce profitable beef steers (the best Shorthorn carcass at the 1920 International was from a steer whose dam was record of merit cow).

There is a wide and active demand in California for cattle of this breed.

Why INNISFAIL Milking Shorthorns?

Innisfail herd was founded in 1914 with purchases from the best American herds.

Innisfail Milking Shorthorns are milked and this herd probably has more record of merit records than any Western herd.

Innisfail Milking Shorthorns have a showing record second to none.

Innisfail Milking Shorthorns are healthy.

Innisfail Milking Shorthorns are backed by sincere purpose, honest effort and a reliable guarantee.

For catalog address

J. D. Rowe & Sons, Lessees, Davis, Calif.

Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

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A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

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Inspection Invited

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J. I. Thompson
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Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

GETTING MORE FOR THE WOOL CLIP

By Fred A. Ellenwood, President California Woolgrowers Association



As the quotations on wool are nearly always given on the scoured basis a little explanation of terms may be appreciated by woolgrowers. In the first place "staple" or "combing" wools are those that are long enough to comb into a top, and this top is then used in the manufacturing of worsted goods. "Clothing wools" are short wools and are not combed into a top but are used in the carded or woollen process of manufacturing and are made into woollen clothing. These are the kind of wools with which shoddy is often mixed and made into clothing, blankets, etc. Shoddy cannot well be used in worsted clothing because in that process wool must have a long staple. This kind of clothing can only be adulterated successfully by substituting cotton.

There is also another term sometimes used for fine wools that for length of staple are about half way between a real combing wool and a clothing wool which is known as a "French combing." These wools are too short to comb in the ordinary comb that has been used for many years. In late years we have a machine known as the French comb, which combs a wool shorter in length than formerly, and these wools are sometimes used and known as French combings.

At this time "fine" and "fine medium" combing wools are quoted at \$1.00 to \$1.05, scoured basis. To ascertain what that means on the grease pound in Boston it is necessary to know what the shrinkage of our wools is, and by shrinkage is meant the amount lost in the process of scouring. Manufacturers always refer to this as the yield that a wool will produce, and means the amount of wool left after scouring. If the shrinkage in scouring is 60 per cent, then the yield is 40 per cent.

Clothing wools always shrink slightly more than combing or staple wools, and as a general rule the finer the wool the heavier the shrinkage. The average shrinkage on our fine staple wools is from 60 to 64 per cent, and on clothing wool a little more. Assuming that these wools are worth \$1.00, as quoted today in Boston, if the shrinkage is 60 per cent, then the grease value of that wool in Boston is 40 per cent of the scoured price or 40 per cent of \$1.00, which is 40 cents. If the shrinkage is 62 per cent the yield would then be 38 per cent or 38 per cent of the scoured price, which is 38 cents, and if the shrinkage is 64 per cent, with a yield of 36 per cent, the grease value would be 36 per cent of \$1.00 or 36 cents per grease pound in Boston.

With scoured wool quotations at \$1.00 per pound it will be noted that 1 per cent difference in shrinkage on your wool means about 1 cent per pound difference in its grease price. For that reason it is quite important that the producer should know not only the value of his wool in Boston, but he should also know what his wool shrinks in order to determine its value. You will also notice from quotations that clothing wools or short wools are worth from 15 to 20 cents per scoured pound less than combing wools or staple wools. Take one-half-blood wools with a quotation of about 95 cents per scoured pound, if the shrinkage on these is about 58 per cent the grease price is 39.9 cents per cent and the yield is 42 per cent, then pound. If the shrinkage is 60 per cent, with a yield of 40 per cent, the grease price in Boston would be 38 cents. If three-eighths blood combing is worth 75 cents and the shrinkage is 50 per cent and the yield is also 50 per cent it makes the grease price in Boston 37½ cents per pound.

When we figure the cost of transportation, selling charges, a dealer's margin for handling and other charges, it is necessary to deduct at least 4 cents, and if one wishes to be liberal deduct 5 cents from Boston quotations, and you have the value of your wool at home. The only way that we, as sheepmen, can ever know just what grade of wool we have, and what the shrinkage is, in other words, to really know wool values, is for us to have a warehouse, where we can have our wool stored and graded and sold upon its merits.

For the Prevention of

ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.

For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS

(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum

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Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

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We will send you absolutely free valuable information on

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We will tell you how this disease can positively be prevented and overcome—why two treatments a few days apart are sufficient and how you can apply it yourself at small expense.

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YOU CAN'T CUT OUT A BOG SPAVIN OR THOROUGHPI
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ABSORBINE
TRADE-MARK REG. U.S. PAT. OFF.
and you work the horse same time Does not blister or remove the hair. \$2.50 per bottle, delivered. Will tell you more if you write Book 4 R free. ABSORBINE, JR. the antiseptic liniment for mankind reduces Varicose Veins, Rupture Muscles or Ligaments. Enlarged Glands, Wen Cysts Alays pain quickly. Price \$1.25 a bottle at druggists or delivered. Made in the U. S. A. by W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

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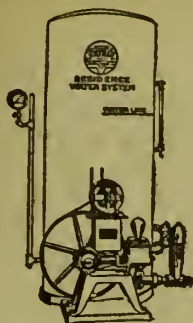
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15c a gallon; containers extra. Write for free sample and information.

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As shearing time is now at hand, I also wish to remind all woolgrowers of the importance of tying their fleeces with paper twine. This is the only kind of twine that should ever be used in tying your wool. You



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Water Systems

The all-round water system for household use. Supplies the home, grounds, stock, etc., and affords fire protection. Strong, simple, quiet-running, entirely automatic in operation. Send for catalogue and name of nearest dealer.

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To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim-Cut and enables us to sell our tires under a

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We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners.

Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

Hydro-United Tire Co.
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Blackhawk Ranch Shorthorn Cattle

One of the most select herds in America. Only Scotch females of the best families headed by COLLYNIE PRINCE LAVENDER our imported bull that was grand champion at San Francisco.

SHIRE HORSES

A number of good sound young stallions and mares, well bred and priced right. For prices and particulars address

E. LOVELL, Mgr.
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IMPORTED

Corston Masher

Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and heifers, some with calves at foot, and rebred to the above bull. Most of the heifers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

Warm Creek Land and Livestock Co.
J. Selby Badt Pres. & Mgr., Wells, Nevada

DIAMOND G HEREFORDS

13 choice yearling heifers, sired by a son of an International Champion, well grown and just the sort for starting a profitable herd. Also 10 yearling bulls. Come and see them; the price is right.

I. H. Gable Esparto, Cal.

should also brand your sheep after shearing with branding ink, and if your dealer does not carry this branding fluid write to the secretary of the California Woolgrowers Association and he will tell you how to procure it. Paint and tar brands will not wash out in the process of scouring and that makes considerable amount of the very best part of your fleeces damaged by these brands, whereas branding ink does come out in the process of scouring and no harm is done to the wool.

When you note the difference in value between staple wools and clothing wools you will readily see the importance of striving to produce all staple wools. Here, again, is an important thing at the time of shearing, either with hand shears or with machine shears. You may have a fleece of wool on the sheep's back that if properly taken off all would be graded as a staple wool, but if the shearer is careless in shearing and cuts the wool too high and then goes back and smooths it up to make it look better, he will make a lot of second cuts or "summer fallow." When this is done your staple wool has been cut in two and the fleece may be thrown into the clothing, where it is worth 15 or 20 cents per pound less than it would have been if it had been carefully sheared. It is very important for all of us to urge upon the shearers the importance of eliminating these second cuts in shearing.

It is also important to be careful to keep the wool clean and free from tags or dirt. Let us work to a clean standard and make a reputation for putting up an honest package. You can see what standardization has done for the fruit men and it will do the same thing for the woolgrowers if followed. You may, if you are so inclined, slip something over on the wool buyer once, but it will cost you money for many years afterward.

If we are to succeed in the future in the sheep business we must know more about the market value of our product when it is ready to sell. Put up an honest package and become more efficient in every way.

TRUTH-IN-FABRIC BILL

The Truth-in-Fabric bill introduced by Senator Capper, which is now resting with the senate interstate commerce committee, shows no signs of life, for the committee, it is reported, is having some tests made to ascertain whether woolen garments can be manufactured with a label attached which would show the composition of the garment so far as fabrics are concerned, and the farmers are also writing to this committee urging action. The members of the senate committee are: Albert Cummins, Iowa; Charles E. Townsend, Michigan; Robert M. La Follette, Wisconsin; Miles Poindexter, Washington; George P. McLean, Connecticut; James E. Watson, Indiana; Frank B. Kellogg, Minnesota; Bert M. Fernald, Maine; Joseph S. Frelinghuysen, New Jersey; Davis Elkins, West Virginia; Ellison D. Smith, South Carolina; Atlee Pomerene, Ohio; Henry L. Myers, Montana; Oscar W. Underwood, Alabama; Josiah O. Wolcott, Delaware; A. Owsley Stanley, Kentucky.

INCREASED CONSUMPTION OF WOOL IN 1921

Consumption of wool in the United States in 1921 was 72,000,000 pounds more than in 1920, according to a statement issued by the United States department of agriculture today. Consumption of wool in 1921 totaled 572,724,000 pounds as compared with 500,744,000 pounds in 1920. These totals are made up as follows: Grease wool 477,473,000 pounds in 1921 as compared with 410,666,000 pounds in 1920. Scoured wool 68,698,000 pounds in 1921 compared with 72,102,000 pounds in 1920. Pulled wool 26,553,000 pounds in 1921 compared with 17,976,000 pounds in 1920.

Consumption of wool in the United States in 1921 was 72,000,000 pounds more than in 1920, according to a statement issued by the United States department of agriculture. Consumption of wool in 1921 totaled 572,724,000 pounds as compared with 500,744,000 pounds in 1920.

Sir Aaggie DeKol Mead



Bred in the richest Aaggie Acme-De Kol of Valley Mead cross, he should be one of the greatest young sires of the breed.

Five of his seven nearest dams average:

Butter	2 Years.....	2,040.97 Pounds
Milk	2 Years.....	41,547.20 Pounds
Butter	1 Year.....	1,130.66 Pounds
Milk	1 Year.....	23,096.60 Pounds

His seven nearest dams average:

Butter	7 Days.....	30.47 Pounds
Milk	7 Days.....	627.60 Pounds

His calves are just what we could expect from a long succession of great sires and dams, and in their present state of development fulfill every promise in the pedigree of their great sire.

Good business judgment will eventually prompt you to place at the head of your herd a bull of Aaggie Acme-De Kol of Valley Mead breeding

Fred Hartsook
LANKERSHIM, CALIF.

OWNED JOINTLY BY

and A.W. Morris & Sons Corporation
WOODLAND, CALIF.

DISPERSAL SALE

161—Registered Holsteins—161

112 Females—49 Bulls

F. H. Harvey Herd, Galt, Calif.

Selling on the Farm—about Three Miles West of Galt

April 26-27

At 10 A.M. Each Day

In order to devote his time to his many other interests, Mr. F. H. Harvey has decided to make a complete dispersal of his big herd of registered Holsteins. The herd represents many of the highest producing blood lines of the breed and is of high average type.

A LARGE NUMBER OF THE FEMALES HAVE OFFICIAL RECORDS UP TO OVER 26 LBS. BUTTER IN 7 DAYS, MOST OF RECORDS MADE AS 2, 3 AND 4 YEAR OLDS.

The herd contains a considerable group of the daughters of the 32 lb. bull SUPREME GLISTA PIETJE, whose daughters have consistently shown a high percentage of butter fat.

Many of the females sell bred to KING PONTIAC SEGIS INKA, a splendidly bred son of King of the Pontiacs, and the bull himself will sell.

DAIRYMEN SHOULD NOT OVERLOOK THE OPPORTUNITY TO BUY A PURE BRED REGISTERED BULL IN THIS SALE. THERE ARE FORTY-NINE BULLS TO SELL, MANY OF SERVICE AGE, AND THERE ARE BOUND TO BE A GREAT LOT OF BARGAINS.

TERMS OF SALE: Responsible parties may arrange before sale, with sale managers, for credit on the basis of one-third cash, balance in three, six and nine months, with notes bearing eight per cent interest.

Guaranteed Breeders—No Tuberculin Test Certificates

Auctioneers:

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and John A. Davis, Manteca

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California Breeders Sales and Pedigree Co.
J. M. Henderson, Jr., Pres. C. L. Hughes Sales Manager
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Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4 1/2 cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office.

POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. To date one County Agent has ordered 7,400 White Leghorns, 3,000 Brown Leghorns, 1,250 Reds, 200 Rocks, 200 Minorcas, 12 Breeding Males. His orders are coming after years extensive trial throughout his county. "Your Barred Rock Chicks bought May 1919, proved great winter layers." "Your White Leghorn, Ancona pullets are great." "My Reds laid at 5 months, Leghorns at 4 1/2; cleared per pullet \$2.50 first six months." "Get more winter eggs from 60 year Leghorns than from 200 formerly." These strains 180-290 egg Leghorns, Reds, Rocks, Anconas, Minorcas, Wyandottes, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys lead many egg-laying contests; build foundation flocks, fill repeat orders for hundreds. Why? **ELECTRIC HATCHED**, vigor, growth, winter-laying, profit, guarantee; booking for immediate future delivery, below pre-war prices. Smallest, largest orders welcomed. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

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had satisfaction
with your

BABY CHICKS?

If not, give us a trial.
Our chicks give satisfaction.

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Phone Gardena Exchange 692.
Moneta, California.

Walter Hogan Stock White Leghorn baby chicks. All our eggs come from one flock of over 5,000 mature hens that are now laying their best and will produce fine, strong chicks. We are now selling at \$12.50 per 100, \$125.00 per 1,000, F. O. B. Gardena. \$2.00 deposit on each 100 with the order, balance C. O. D. Chicks shipped by parcel post, guaranteed to arrive safe. Don't buy chicks that come from many different flocks, some of them might not be very good. Lyon Hatchery, Gardena, California.

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.**

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box C, Compton, California.

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. J. P. CLOUGH, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks from Mature Heavy Laying Hens, White Leghorn from cockerels with trapnest record mothers, \$15.00 per 100. Barred Rock and Rhode Island Reds, \$20.00 per 100. One-third cash with order. Hawley's Hatchery and Poultry Farm, Route A, Box 351a, Lodi, California.

White Leghorns—Eggs for hatching our specialty; produced right, selected right, shipped right; 100% fertility guaranteed. A laying strain of proven merit. Prices very reasonable. Send for folder, "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, Calif.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Partridge Wyandottes, prize winners; eggs \$3, fifteen. Mrs. J. L. Dunn, Valley Home, California.

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Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

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W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. 1, San Diego, California.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Baby Chicks, Hatching Eggs, from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Baby Chix: White Leghorns (Tancreds), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. Enoch Crews, Seabright, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. Toberner Hatchery, Route 2, Box 306, San Jose.

Brown and White Leghorn Baby Chicks: Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Barred Plymouth Rocks, "Wonderful Layers, champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

For Sale—Anconas exclusively. Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grismes Ave., RR 2, Box 130, Burbank, Calif.

Black Minorca Baby Chicks hatched every Wednesday from our own Hoganized stock. L. S. Rogers, Cupertino, California.

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. J. R. Huddleston, 342 Edgeware Road, Los Angeles.

"Eastman's Bred-to-Lay" Hoganized and trapnested. Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

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White Leghorn Chicks from Hoganized vigorous two and three-year-old hens on free range. 287-egg strain. Prices reduced. Hatch each week. Safe delivery guaranteed. Mrs. Robert Goddard, Los Gatos, California, R. A. Box 122.

Baby Chicks "well hatched are half raised." Petaluma Incubators produce that kind. They have lots of "Pep." We supply chicks. Catalog free. Petaluma Electric Incubator Co., Petaluma, California.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

For Sale: White Wyandotte eggs \$2.50 per setting; \$3.50 per hundred. Mrs. Flora Cox, Anaheim, California. R. 2.

TREES

FOR SALE

NAVEL AND VALENCIA

NURSERY STOCK,

NOT FROSTED.

W. B. Ames, 9th Floor, Merritt Bldg., 8th and Broadway. Phone 1156. Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

Placencia Perfection Walnut Trees—6 to 8 ft. on Northern California black root. 350 at low price for quick sale. Los Nietos Valley Nursery, Downey, California. Phone 692.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. Phone 75-W-1.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 685, Phone Colorado 6044.

For Sale: Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 63110, Los Angeles.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Athel or Evergreen Tamarix cuttings. Best tree for immediate wind break and shade in hot, dry localities. Leonhardt Swingle, Indio, California.

For Sale—Sacks and burlap for balling trees. J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

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Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale: Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 120 N. Main; Yds. 316 Yale, L. A.

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For Sale—Yuba 12-20 and necessary tools for orchard or field. Good condition. Bargain or will trade for good car or horses, or what have you? O. B. Lomough, Hemet, California.

One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drew Carriage Co., Ontario, Cal.

For Sale: One combined well drill and boring outfit, almost new; only drilled one well for my own use. W. Collings, Route 4, Box 148, Petaluma, California.

For Sale: Witte Log Saw, practically new. H. B. Liff, Whittier, California, R. R. No. 2.

For Swap: \$300 ranch tools; want irrigating pipe, Ford. Demmitt, 120 N. Main, Los Angeles.

For Sale—One Hardie Sprayer never used. W. S. Coffin, Ontario, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

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SUDAN GRASS SEED

(The Great New Hay Crop)

First introduced in the United States 1909 from Sudan, Africa.

Culture. Strictly an annual, may be drill or broadcasted, 15 to 25 lbs. per acre, grows 8 to 10 ft. high, yields 3 to 10 to per acre, two to four cuttings.

Pasture. It will yield food for six times as much stock as any other forage with out irrigation. For milk cows and horses there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can will do in this climate. This seed grown on our farm and is free from Johnson Grass.

Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.

BOWMAN'S HDWE & IMP. CO.

721 J St. Sacramento, Cal.

Sudan Grass Seed. Guaranteed absolute free from Johnson grass and all noxious weed seeds. 18 cents per pound for less than 10 pounds. 14 cents per pound for 10 to 30 pounds. 11 cents per pound for 30 to 75 pounds. 9 cents per pound for 75 pounds or more. Delivered free John Silbersack, Route 2, Orland, Cal.

Cory Thornless Blackberry—Extra large plants, from experienced grower at shipper—12, \$1.75; 25, \$3.25; 50, \$6.00. Postpaid. Satisfaction guaranteed. Illustrated folder. Write Chas. E. Mortenson, Lodi, California.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yama Southern Queen (White), \$1 per 100. At 40c per 1,000 for parcel post order. Ready about March 15. B. F. Crutcher, R. F. D. 3, Box 6, Santa Ana, Cal.

For Sale—Millions of Stone tomato plant. Write for price list and particular Reference: Chamber of Commerce, or bank or business man in Pomona or Gardena. L. C. Johnson, Pomona or Gardena, California.

Golden Bantam Seed Corn; Grown from Burbank's Improved strain. One pound 50c prepaid. If express not prepaid 60c. 10 pounds \$1.25; ten pounds \$2.00; 50 pounds \$7.00; one hundred \$12.00. L. J. Wright, R. 1, Box 121, Santa Rosa, Cal.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred, \$3.00; 2 year old, per dozen, \$1.00; 2 year old, per hundred, \$7.00. Curr Bulb Co., Santa Cruz, California.

4,000 Red Malaga Cuttings. Thompson Malaga, Emperor, Sultana, rootings at Muscats \$18.00 a 1,000. Seeds and Plant. Write for circular. Box 501, Fowler, California.

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000, P. O. B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

California Wonder Corn for Seed. Great est producer. Leaflet free. 25 pounds or more 15c. James McKee, Riverside, California.

Cory's Thornless Blackberries: 12 extra large plants, \$1.90, post paid from pioneer grower and shipper. Illustrated folder. Wm. Mortenson, Lodi, California.

Sudan Grass Seed free from Johnson Grass, about five thousand pounds 5 cents FOB Hopland. H. Ward Weed ridge, Lakeport, California.

Plant Our Six Weeks' Potatoes—Earlier biggest producer known. J. L. Lawson San Jose, California.

Sour Orange Seed, fresh from Florida immediate delivery. Milo Hunt, Whittier, California. Phone 250.

CATTLE

Guernseys—Grape Wild Farms—Berth shires—Young bulls, from calf age 1 to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Innisfail Herd of Milking Shorthorns. Draft sale of 45 head, May 5th, 1922. 35 females of Register of Merit stock and ten outstanding bulls of age, type and breeding to suit you. J. D. Rowe & Sons, Lessees, Davis, California.

Ridgewood Ranch—Registered Hereford. Choicely bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. S. Howard, prop.; Otis Cordell, herdsman, Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and F. B. tested. Bulls and females for sale. F. W. Snodgrass, Hueneme, California.

For Sale: 65 Hereford Yearlings, all some pure bred Hereford bulls. Must be sold before May 1st. H. F. Bergmar Aguanga, California. Telephone Heme 991X.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitor welcome; information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 50 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodard, California.

Breeders of Registered Shorthorns—Mil strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various age for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA CALIFORNIA

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Caldwell's White Muscovy (quackless) Ducks. Eggs; Ducklings; Breeders. Free Circular. Caldwell Duck Ranch, Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$3.00 per hundred. A. Surtman, Petaluma, California.

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ORANGE COUNTY

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TEAM, POULTRY, 17 COWS AND calves, bull, hogs, implements included; a productive district near village; level land, tillage, part bottom land, 25-cow pasture, timber; 20 apple trees, good house, barn, etc. To settle affairs only \$1,500, part cash. Details page 103 or illus. Catalog 1200 Bargains. FREE. TROUT FARM AGENCY, 831 HK New York Life Bldg., Kansas City, Mo.

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Rich bottom lands, where crops are thick, make farmers wealthy. We have such lands, with an irrigation system. We will sell you a farm here in Sutter basin, on surprisingly liberal terms. A crop on the land now.

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to 40 Acre Tracts, rich irrigated land on paved highway, close to town, R. F. electric and telephone service; adapted to alfalfa, fruits, grapes, garden. Price \$100 to \$150 per acre. No cash down for 10 years. Your own terms. Dairy, fruit and stock ranches, all sizes. G. E. Oaks, 24 Yuba St., Redding, Shasta County, Cal.

For Sale: Fine 3 year old pear orchards with permanent water right in Mutual Water Co. at \$300 per acre. Excellent land for orchards and vineyards, also for raising turkeys and chickens, \$10 to \$50 per acre. Water available if desired. Can place a few more men on our development work. Send for our booklet. Adelanto Fruit Co., Adelanto, California.

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, Oscar Lehner, 3120 Colton Avenue, San Diego, California.

Imperial, San Diego County, California, where prices have not been boosted. \$500.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. M. Dyke, Real Estate.

5 Acres Citrus Land, 800 pedigreed navels being put out, plenty water, pumping plant \$7,500. Oscar Lehner, Owner—120 Colton Avenue, San Diego, California.

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For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

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Plant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Specie Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders or few more setting eggs. Address: Blackman & Mumford, 607 East Third St., Los Angeles, Cal.

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 3A, Merced, California.

White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Robinson, Hemet, California.

Eggs from Purebred Mammoth Bronze Turkeys—\$10.00 for 13. Mrs. M. L. Rewhitt, R. F. D. B, Box 47, Hanford, California.

Mammoth Bronze Eggs, \$25 per 100. Prize winning birds, 100 hens. Lone Star ranch, Lankershim, California.

MISCELLANEOUS

For Sale:—80 ten frame two story stands of bees in first class condition and location. Full extracting outfit included. G. Morley, R. 4, East Bakersfield, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Remitting and Picoting Attachment; fits all sewing machines. Price \$2.00. Hecks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Good Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

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Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint—\$2.20 a gal. Roof Paint Special—35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAINT CO. 764-766-768 So. San Pedro Street. Phone Bdway, 5401, Los Angeles, Calif.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remitt \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Goat Trouble

I have a large doe two years old, first kidding three weeks ago, two healthy kids. She had trouble passing the afterbirth and passed blood for two weeks. She has started passing blood again, and there is at times a bloody residue in the milk. Her appetite is very good, she has a large milk flow and otherwise appears healthy. The kids are allowed to run with her but she is milked twice a day. What is the cause and remedy?—Subscriber, Inglewood.

This should have been taken care of at first, but the parts are so contracted now that it would be cruel to wash out. Get a pint of raw linseed oil and add two ounces of turpentine. Shake and divide into four parts. Give one part as a drench every other day. After that if there are any signs of bleeding get one ounce tincture of iron and give 15 drops in half cup of water once a day for two weeks. Better wean the kids.

Cow Vomiting

Have owned Holstein cow two years, now nine years old. Last summer she had two spells of vomiting and lately she had another. Looks like her food ground up or partly digested and is of a yellow color. She does not seem to remain sick, but will eat heartily immediately afterwards. We feed her a gallon of ground barley, mixed with two gallons of alfalfa meal, twice a day. She is on wild pasture. Had I better dispose of her?—Subscriber, Red Bluff.

No, she will be all right when you feed her right. Her trouble is indigestion from eating too much ground feed. She must have more coarse feed that will make a cud. The yellow color of what she vomits shows that she is bilious. Get one quart of raw linseed oil and add half ounce powdered nux vomica, half ounce aloin and two ounces turpentine. Shake well and divide into four doses. Give one dose once a day as a drench. In place of the alfalfa meal give alfalfa hay; will do her much more good. The gallon of ground barley is all she can stand. Remember, a cow must have something to make a cud or she will get sick.

SWEET POTATO SHIPMENTS

California is increasing its output of sweet potatoes. However, we sometimes get a bit optimistic in reporting from various sections. From figures gathered in local papers we recently stated that Merced County had shipped 725 carloads of sweet potatoes. This, it seems, was a slight overestimate, and we are now per-

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

BLUE HOGS

Blue Hogs—Really blue in color, large, growthy and prolific. Great show hog. Mention this paper for discount. The Blue Hog Breeding Co., Wilmington, Mass.

WANTED

Wanted: Men With Spare Time to represent established California company selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

SITUATION WANTED, MARRIED RANCH MAN, WIDE EXPERIENCE FRUIT, VEGETABLES, POULTRY. H. N., CARE CULTIVATOR, 317 CENTRAL AVENUE, LOS ANGELES.

Want to Hear From Owner Having Farm For Sale; give particulars and lowest price. JOHN J. BLACK, 116th Street, Chippewa Falls, Wisconsin.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for tree book on patents.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

mitted to make correction because of statement submitted to us by Homer A. Harris, investigator of market news of the bureau of markets and crop estimates of Los Angeles. However, we may add that some sections, in making up their total of production or output of the community, include car shipments which may be all carefully secured and reported by the state and federal reporters but in addition include small express and truckload shipments and sometimes even home consumption. However, Mr. Harris reports as to figures secured from railroad agents as follows:

"According to records which we have on file in our office, information obtained from railroad agents, the following is a list of sweet potato shipments out of Merced County, listed by billing stations: Atwater, 210 cars; Livingston, 224; Merced, 28; Winton, 4; total, 466. Our records further show that the total number of cars of this commodity shipped out of the entire state was 898 carloads."

STRAWBERRIES SOLD IN PINT BASKETS

The strawberry season will soon be under way and under the terms of section 7 of the fruit and vegetable standardization act, the standard basket for strawberries shall be the dry pint. Half pint baskets cannot be used under any conditions for strawberries.

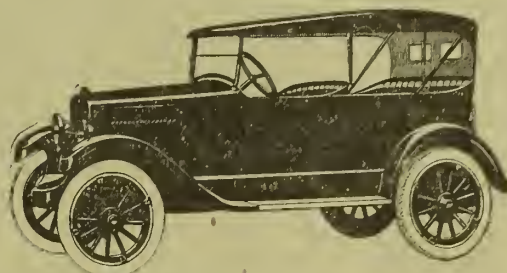
POTATO VARIETIES IMMUNE TO WART DISEASE

In a report on potato wart, Weiss and Orton list 34 immunes out of 103 varieties tested, these are all confined to already known types however. The potato alone has been found infected by the wart disease in America of many species of Solanaceae tried.

POINTS THE WAY—FOR OTHERS

We are not disparaging idealism, but an "idealist" is too frequently a man who has high notions of what the other fellow ought to do.—Boston Transcript.

Here is the Greatest Motor Car Value in America



Overland is a wonderfully dependable motor car for the American farm. All-steel construction in a chassis that represents the experience of 14 years of successful engineering assures you of a reliability of per-

formance that saves your time and saves your money.

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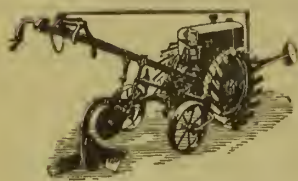


New Price

\$295

f. o. b. Factory

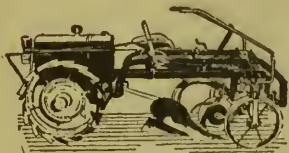
Standard Walking Type Now Sells For Less



Standard Walking Type Utilitor
with Plow



Standard Walking Type Utilitor
Equipped with 84-inch Mowers



New Riding Type, Model 501-A
\$340 f. o. b. Factory

YOU CAN now own one of these handy, money-making, time-saving machines for less money. The Utilitor has proved its ability on hundreds of farms to do better, faster and less expensive work than animal power.

On the belt it has no equal for its size. It moves from job to job under its own power.

All hitches have been simplified and perfected.

We are also offering the **NEW RIDING TYPE** Utilitor. It steers from a comfortable seat by means of a tiller control. Most of the operations are watched from the driving position.

The New Riding Type sells for \$340 f. o. b. factory. Ask for Model 501-A.

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are light, strong, durable. Easily primed. Easily moved. Shipped ready for use. No cost of installation.

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PAYNE'S 1922 Garden Guide

Write Today for Your Copy
Of This **FREE** Book
Telling How and When to Plant
— SEEDS — PLANTS — TREES — SHRUBS —
CALIFORNIA WILD FLOWERS
Eighteenth Annual Catalog, Illustrated
Theodore Payne 345 So. Main Street
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Wagner's Giant Winter Rhubarb and all varieties of Berries. Also a general line of Fruit Trees and Nursery Stock. Write for Catalog and Prices.

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(J. B. Wagner & Son)

1550 East Villa Street

PASADENA, CALIFORNIA

Poultry Queries

Conducted by Jean A. Koethen

Bag of Water?

One of my little turkeys has a bag of water hanging down under the beak. Is it a disease which spreads, and how may I cure it?—Subscriber, Los Olivos.

If this is really a bag of water it is probably a sort of blister or wind puff due to some injury and may be cured by pricking and letting out the contents and painting with tincture of iodine. The question is, are you sure your little turkey has not an enlarged or pendulous crop, due to irregular feeding? Pendulous crop is sometimes cured by a bandage, not too tight but tight enough to hold the crop in place and keep the poul from stuffing it to the limit. If this does not succeed the only cure is to cut a piece out, and I cannot advise an amateur to try this operation. Better leave it alone and eat the bird as soon as it is large enough.

Cyphers Incubator

I am writing to ask the address of some dealers who handle Cyphers incubators, either in San Francisco or Los Angeles.—Subscriber, Merced.

The former Los Angeles agents for the Cyphers incubator inform me that it is no longer manufactured. Your only chance to get that make of machine is to find a second hand one.

Dead in the Shell

A large part of the chicks in my last hatch failed to get out of the shell. I broke the unhatched eggs and found the chicks swollen and wet, which points toward excessive moisture, yet the glass of the incubator was dry while hatching was in process, which indicates lack of moisture. The basement in which the incubator is kept is rather damp. The temperature was kept steadily at 103 during incubation. Shortly before pipping time the egg tray got a severe jolt. Would this have injured the chicks?—Subscriber, Alpine.

It looks as if those chicks were drowned by too much moisture, and I am not enough of a physicist to say why the glass was dry. Perhaps the heat was a little low at hatching time and the excess of moisture so long continued that it did not show at the last. You know temperature is apt to rise while the hatch is coming off and no harm is done, if it does not go over 104. Again, that jar you gave the tray may have killed some of the chicks. It is always hard to tell in these cases just how many complications there were. I am not familiar with the incubator you used and do not know just how it supplies moisture, but the season has been unusually moist, and if your basement was also damp it is easy to see that a moisture supply which would be right under other conditions might have been excessive. I should certainly try to run my next hatch with less moisture.

White Diarrhea

When my chicks, now three weeks old, were ten days old they began to droop and gradually die. I opened the dead chicks and found in every one the unabsorbed yolk on the intestine, some as large as a sparrow's egg, some as small as a poppy seed. Is this the cause of death? I am told it comes from overfeeding.—Subscriber, Norwalk.

That unabsorbed yolk in the intestines is one of the surest symptoms of white diarrhea, which is caused, according to Dr. Morse, by improper feeding, too much or too little heat, too early feeding or the feeding of improper food. Other causes sometimes given are debilitated breeding stock, improper incubation, improper brooding, overheating, chilling, poor ventilation and overcrowding. In most cases these errors in management permit the development of the germ which is the underlying cause of the disease and encourage its spread among the flock. As I do not know how you have fed and brooded I cannot say just what mistakes you have made. Chilling and feeding too soon are the most common causes of the disease. If you fed your chicks before they were 48 hours old or let the heat in the brooder drop so low that

they huddled together for warmth either cause would suffice. Some experts do not feed till the chicks are 6 to 72 hours old.

Trapnest Bulletin

I note in Cultivator of April 1 you mention mailing an inquirer a bulletin giving plans of trapnests. Would it be possible for you to send me one? Subscriber, Sunnyvale.

I have just one copy of that bulletin which seems to be out of print, and have loaned it to one or two parties. If it is returned I shall be glad to loan it to you if you will send postage.

Cannibalism

Can you tell me how to prevent sitting hens from eating the eggs placed under them? Is it some lack in the ration?—Subscriber, Sebastopol.

Eating eggs is a vice and is usually caused not by any lack in the ration but by too small nests or lack of nesting material. The hen finds the egg cracked or broken before her, and once she has tasted it soon develops the egg eating habit. Keeping the nests dark and well provided with litter and making them so roomy that several hens may occupy one at once without breaking the eggs are the best means of prevention. Some poultry men build their nests like long boxes with room for half a dozen hens at once. I have never heard of a sitte eating the eggs she was hatching, but I should not give a confirmed egg eater the chance.

Emden Geese

I should like the address of some one who has Emden goose eggs for sale.—Subscriber, Fallon, Nevada.

Can any reader give us such an address?

White Faced Black Spanish

A subscriber sends us the name of Mr. Newbower, the Ingleside Hatchery, San Francisco, as a breeder of White Faced Black Spanish stock.

THE EGG MARKET

Regarding the eastern market the Poultry Producers of Central California writes:

"While the eastern market has continued to decline and will probably go lower yet before reaching a storage basis, it is not at all likely that another big break will come before next winter. It is the sudden, severe breaks that cause the heavy losses of shipments, the loss to the association arising simply from the fact that we have paid the members more for the eggs than they finally sell for in New York. A gradual decline in the eastern market in line with the general increase in production throughout the country is usually more or less anticipated by the markets at production points, so that any losses that may occur on some shipments are relatively small and are overbalanced by profits on other shipments. In support of this, we may say that on 1921 shipments sold and returned for up to the date of this writing we have accumulated a net gain of \$25,801.06."

KANSAS CITY CONVENTION

Of all the spring conventions which are regularly held by the egg and poultry shippers' associations in the big egg producing states of the Central West and South, the biggest is always the Missouri convention which is held alternately at St. Louis and Kansas City. At this convention the egg shippers of the West and South meet with the egg dealers of the Eastern markets to discuss production conditions, consumptive requirements and probable prices, especially with reference to the spring storing of eggs for fall use. A good deal of trading usually goes on at the conventions and this tends to establish something of a basis for storage eggs.

The Inyokern farm center, Kern County, has organized a poultry department for the purpose of promoting the poultry industry in Indian Wells Valley. The raising and marketing of turkeys will be one of the features of this department. The officers of this department are: W. C. Barber, chairman; J. D. Calloway, vice chairman; and Horace Ulery, secretary-treasurer.



Fig. 970

Make Your Poultry House Complete

Equip your poultry house with a Star Poultry House Litter Carrier and save a lot of time and work. Once you have installed it you will wonder how you ever got along without it.

The tub of this carrier is 72 inches long. It can be held at the level of the dropping board in the laying houses, and a hoe or scraper used to clean the dropping board directly into the tub. Of great assistance also in cleaning floor of poultry house, and for conveying litter or feed into the building. The tub can be unhooked from the conveyor when desired.

You need this Star Litter Carrier, and you may need other Star Barn Equipment. Our beautiful catalog will tell the story and will be an addition to your library. Write for it.

Hunt, Helm, Ferris & Co.

1811 East Seventh St., Los Angeles, Cal.
 Factory at Albany, New York.
 Harvard, San Francisco, Cal.
 Illinois. Portland, Oregon.



Holly Poultry Ranch

Hatching Capacity 200,000 Eggs
 White Leghorn Chicks Only

Holly Hatchery Chicks Win Again!

Our May hatched Richardson chicks are superior in laying ability to all others.

Farm No. 4, State of California Extension Poultry Experiment Farms, was first for 1921 with a record of 192.4 eggs per hen with our Richardson chicks. Can you beat it!

Why be satisfied with anything less than the Best.

Order quick as our May dates are filling fast.

Agent for "Pride of Petaluma" Brooder Stoves. Our special Egg Turning Trays are now available for other hatcheries in quantity. Send for circular.

B. R. HOLLOWAY
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Poultry Stock

Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

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 1st and Grand Ave. East San Gabriel, Calif.

Moe's Poultry Supplies



Use Moe's Poultry Yard Fixtures. Designed by specialists, made to last. Ask your dealer and send for our catalogue.

HOEFT & COMPANY, INC.
 220 No. Alameda St. Los Angeles, Calif.



Try the Coulson System of Feeding
 Our free book "Chickens from Shell to Market" gives full particulars.
 Coulson Co., Petaluma, Cal.

SOUTHERN CALIFORNIA EGG LAYING CONTEST

Egg production for March, nearly 65 per cent. Some of the high producing birds had to be disqualified because of laying 50 per cent or more of eggs weighing less than 22 ounces to the dozen. First ribbon for individual production goes to Mr. Heying's R. I. Red hen, which laid an egg a day for the 31 days of the month.

Highest birds: Ferd Heying (R. I. R.), 31; M. & M. Ranch (R. I. R.), 28; Ferd Heying (R. I. R.), 28; Ferd Heying (R. I. R.), 28; Geo. C. England, 28.

Highest pens: Geo. C. England, 256; M. L. Frick, 247 3-8; Ferd Heying (R. I. R.), 245 3/4; J. L. Miller, 243 3/4; H. M. Stone, 238 3/4; E. E. Rogers, 237; Chas. G. Weaver, 237; Flinian & Furstenfeld, 229 3/4; A. M. Harrison, 228 3/4; Mrs. Pearl Wilcox, 227 3/4.

Highest birds to date: B. S. Smallwood, 132; Geo. C. England, 129; E. E. Eisenberg, 127; M. A. Schofield, 127; E. E. Rogers, 125; E. E. Eisenberg, 122; M. L. Frick, 121; California Leghorn Breeders, 117; M. A. Schofield, 116; Geo. B. Wilken, 113.

CALIFORNIA EGG LAYING CONTEST

High pen production in the California Egg Laying Contest for the ten day period from March 10 to 21: R. H. Young, 81 eggs; Alex Stewart, 80; Boling's Poultry Ranch, 78; Boehm & Noel, 78; D. C. Berry, 77; W. A. Ford, 76; C. E. Hyde, 76; Hanson's Poultry Ranch, 76; E. D. Crewdson, 75; Sea Breeze Poultry Farm, 75; Aromas Hatchery, 75; Sunrise Poultry Farm, 74; Geo. B. Ferris, 73; Thos. Stewart, 73; L. A. Thornehill, 72; U. Komatsu, 72; L. A. Thornehill, 72; C. P. Brooks, 71; Geo. Ferris, 71; D. B. Walls, 71; Hollywood Poultry Farm, 71; C. H. Russel, 71; G. Wood, 70; G. Gray, 70; A. E. Siefert, 70; Kinmont Poultry Farm, 70.—Max Kortum, Manager.

PRESERVING EGGS IN WATER GLASS

Water glass is a substance used in glass making. It is made by melting together quartz, sand and soda ash, and looks like thick white syrup. It can be bought at drug stores, feed and poultry supply stores.

How to use water glass: Wooden kegs, candy pails or stone jars are usually used for holding the eggs. Prepare the vessels by cleaning thoroughly; boil 14 quarts water, and while the water is still warm add one quart water glass and mix well. Some recipes call for one part water glass to nine parts water, but the above has been found very satisfactory and much cheaper. If the vessel is about half filled with this solution the eggs may be put in from day to day as they are gathered, and this amount of solution will usually cover the eggs when the vessel is full. There should be sufficient solution to cover the eggs so that none are exposed to the air. Covering the vessel with oiled or greased paper will prevent evaporation. The eggs should be kept in the same way as are canned fruits or vegetables.

Eggs may be placed in the vessel in any position. Boiled water is quite sure to be pure. Only clean, fresh eggs should be used.

A big poultry plant at Bloomington, Riverside County, reports: "When feathery flakes of snow began falling during our recent 'unusual' weather, the ever alert White Leghorn chickens rushed out of their pens to partake of what they believed to be a feast. There was a hurrying and scurrying over the chicken yards in their attempt to grab snowflakes and the disappointment to the feathered tribe was shown when after many futile attempts to pick up the flakes, they dropped their feathers and trailed back to the pens disgusted. This was the first fall of snow these inhabitants of the Sunny South had ever experienced, and like everything else that falls to the ground it looked like food to them."

Some poultrymen use sandpaper or steel wool to remove dirt from the eggs. This is undesirable, as the appearance of eggs so treated tends to create suspicion in the minds of the buyers. The best thing to do is to send in the eggs just as they are. If you have any mud balls, we suggest that you consume them at home, as such rarely have any keeping quality.

Albers

CHICK FEEDS CHICK MASHES



STANDARDIZED QUALITY UNIFORMLY HIGH

BIG FACTS BRIEFLY TOLD

Albers Chick Mash is a balanced, soft feed made by the Pacific Coast's largest cereal Mills.

Being balanced, Albers Chick Mash needs nothing added to it. Feed it dry. Naturally you will supply hard grain in the form of chick feed, with proper succulents, grit, charcoal and clean water.

Albers Chick Mash comes in new sacks of various sizes, 100 lbs. for the big poultryman and 25 lb. sacks for the backyarder. Always see that the Premium trade mark is on each sack.

You can buy Albers Chick Mash from nearly any feed dealer. Most grocery stores will order it if they do not already carry it in stock.

For quality, established reputation.

ALBERS BROS. MILLING CO.

726 Santa Fe Ave. PACIFIC COAST MILLERS 332 Pine St.
 LOS ANGELES, CAL. SAN FRANCISCO, CAL.

Write our Los Angeles and San Francisco offices for copies of Bulletin No. 1, "Successful Methods With Poultry"; Bulletin No. 2, "Raising Baby Chicks."

Baby Chicks

APRIL AND MAY HATCH

will lay next winter's high priced eggs. Get yours now, but get GUARANTEED chicks. To anyone within 72 hours of Los Angeles, we will ship any quantity of any kind, full count live chicks guaranteed. In business 16 years, we are better fitted than ever to supply good, strong, profitable chicks.

Headquarters Pet Stock, Pullet, Feeds and Supplies: Incubators, Brooders.

Send for Price List.



PIONEER HATCHERY
 320 South Spring St.
 Los Angeles, Cal.



Baby Chicks

Place your order now for chicks. We can ship any number. All popular varieties hatching each week. Complete line of supplies. Send for price list. All breeds of puppies, kittens, birds, pullets, pigeons, rabbits and pet stock.

Fancier's Exchange

640 So. Main St., Los Angeles, Cal.

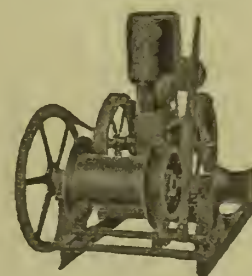
Sick Baby Chicks? GERMOZONE is a positive remedy for roup, colds, bowel trouble and such costly ailments. Preventive as well as curative. A wonder worker for poultry. On market over 20 years. Endorsed by many thousand users. Don't lose your baby chicks. Get GERMOZONE TODAY. At drug and seed stores. If no dealer, order by card. 75c and \$1.50 sizes. Postmen will collect. No extra charge.
 GEO. H. LEE CO., Dept. F-39 Omaha, Neb.

Baby Chicks

All popular breeds Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc., and our famous Oregon-Corvallis White Leghorns. We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner ducklings, Mammoth Bronze baby turkeys. We can supply pullets of all kinds at all times, also incubators and brooders. No order too large or too small to receive our careful attention. Send for prices.

REDWING HATCHERY

2030 East Florence Avenue
 Los Angeles, California



Novo Hoists

for the Ranch

In Stock

Novo "Handy" Hoist

Called "Handy" because they're the handiest thing on the place. COME AND SEE THEM or write for details.

SMITH - BOOTH - USHER CO.

Machinery, Industrial and Contractors' Equipment, Supplies
 SAN FRANCISCO LOS ANGELES

The California Cultivator is only One Dollar Per Year.

Los Angeles Markets

Los Angeles, April 19, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 36½ cents.
Prices extras past week

12	14	15	17	18	19
36	37	37	37	36½	36½

CHEESE

Brokers' prices:
California flats, 21@22.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 29; case count, 26; pullets, 25.
Prices extras past week:

12	14	15	17	18	19
28	28	28	29	29	29

POULTRY

Price to producers: Hens, 25; colored, 21; broilers, 22@30; roasters, 38; old roosters, 14; fryers, 40; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 30; geese, 30; turkeys, live, young toms, 40, dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.
Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, April 18.—Welghed and delivered off cars without food or water:
Hogs (hard grain fed), 125 to 175 lbs., 10.50; 175 to 225 lbs., 11.00.
Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 7.50; 150 to 225 lbs., 10.00.
Sheep: Ewes, 5.00@7.00; lambs, 11.50@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 18, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 80@90. Stocktons: Burbanks, per cwt., best mostly 1.85@2.00; poorer, 1.65@1.75; ungraded, 1.25@1.50 per sack. Idahos: Russets, best, 2.00@2.15. New stock: Carlsbad, 12@14 per lb., according to quality.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 75@80. Arkansas: Nancy Halls, 4½@5 per lb.; ner bul., mostly 1.85@2.00.

Onions: Demand light, market firm. Australians: Browns, mostly 9.50@10.00; small lots lugs, 11 lb. New stock: Ordinary quality. Coachella Valley: Crystal Wax, 11@12 lb.; crates, 4.50@5.00; Yellow Bermudas, 4.50.

Garlic: 7@8 ner lb.; fancy, 15.

VEGETABLES

These are the actual prices obtained

between 7 and 8 o'clock, April 18, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, fancy, mostly small to medium; Medium, 1.00@1.25; small, 60@75 doz.

Asparagus: Per lb.: Local, best, 15@20; Northern, 15@17; poorer, low as 10.

Beans: Imperial Valley string, lb. 20.

Brussels Sprouts: 18@20 per lb.

Bunched Vegetables: Per doz. bunches: Turnips, 30@35; carrots, 70; beets, 50; radishes and spinach, 20; parsley, 15.

mostly 1.50@1.75.

Cabbage: Market steady. Per field cr., mostly 1.50; poorer, low as 1.00@1.25.

Cauliflower: Quality fair. Per field cr., best, mostly 3.00@3.25.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.00@6.00, according to quality. San Diego, cold storage, 7.50@8.00; poorer low as 3.00.

Eggplant: Mex. and Florida, 15@20 lb.

Lettuce: Demand good, market dull. Locals: Quality ordinary, best mostly 1.00@1.25; poorer, 50@90 per field crate, according to quality.

Peas: San Pedro, best, mostly 13@13½; Imperials, few sales; best, 8; poorer low as 5.

Peppers: Demand moderate, market steady. Mexicans, Chilis, 10@12 per lb.; Bells, fancy, mostly 25@35.

Rhubarb: Local best packed, bx. 1.50; other, 7@1.00; No. Strawberry, 2.25 box.

Tomatoes: Market firm. Mexicans, per repacked lug, 2.50@3.00; original lugs, best, 2.00@2.50; small, 1.75; loose, per lb., best, 10@12; poorer and overripe, low as 4 lb.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Loquats: Best, 15@22 lb.; No. 2, 10@12.

Strawberries: No. 1 mostly 6.00; No. 2, 4.00.

CITRUS FRUITS

Grapefruit: Market firm. Californias: Northern, packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50; Arizona, packed box, 80's, 4.50@5.00; 48-64's, 3.50@4.00.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@3.00; poorer, 2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and larger, 6.75@7.00; market pack, 4.50@5.50; culls, 50@1.00 per field box; few best, 1.50@1.75; Valencia, special brands, 6.75.

Tangerines: Market firm, 8@10 lb.

HONEY

Continued heavy rains have practically assured a heavy crop of honey, although there is some uncertainty as to how large the orange blossom yield will be. Sage outlook is especially promising. Both Northern and Southern California report colonies in normal condition. Supplies of best white honey reported as very limited, but supplies of lower grades said to be still fairly abundant. Movement very light during recent weeks. Demand limited and market largely nominal. Few sales in carload lots reported at 11 cents for white sage and white orange and 8½ cents for light amber, f. o. b. California points.

GRAIN

Prices on L. A. Grain Exchange.

Barley: 100 ton lots, May delivery, 1.27¼.

San Francisco Markets

San Francisco, April 18, 1922.

BUTTER

Extras 36½

Prime Firsts 35½

Prices Extras last week:

April 12 13 14 15 17 18

35 36 35½ 36 36½

CHEESE

Dairy Exchange quotations:

California Young America, fancy 23

California Flats, fancy 24

California Flats, firsts 23

Oregon Trips 26

Oregon Young America 26

EGGS

Dairy Exchange Quotations:

California Extras 29

Extra Firsts 27

Extra Pullets 25

Undersized 21½

Prices Extras last week:

April 12 13 14 15 17 18

28 28 28 28½ 29 29

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1¼ lbs., 32@34 lb.; 1¼ to 1½ lbs., 40@43 lb.; 1½ to 2 lbs., 40@43 lb.

Fryers: 2½ to 3 lbs., 42@46 lb.; do., colored, 50@52 lb.

Young Roosters: 3½ to 4 lbs., 40@42 lb.; over 4 lbs., 36@44 lb.; do., colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.

Colored Old Roosters: 18@29 lb.

Leghorn Old Roosters: 15@18 lb.

Leghorn Hens: 2½ to 3 lbs., 22@23 lb.; 3 lbs. and over, 24@26 lb.

Large Colored Hens: 33@36 lb.

Ducks: Young, 26@28 per lb.; old, 22@25 per lb.

Geese: Young, 25@30 lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb., off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 20@40 lb.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, \$8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighted off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7½@8½; second quality, 6½@6¾; cows and heifers, No. 1, 5½@6¾; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 9@10 lb.; ewes, 7@8.

Lambs: 12½@13½.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½ per lb.; do., 200 to 250 lbs., 10½ per lb.; do., 250 to 300 lbs., 9½ per lb.; light sows, 9½ per lb.; heavy, 8½ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Corcoran, April 16

15 166 10.30

90 178 10.30

88 176 10.30

89 195 10.30

89 184 10.25

5 238 9.30

5 256 8.75

8 377 7.30

389 hogs, 4 cars, 16 consignors, \$7,327.91.

Tulare, April 11

104 148 10.85

19 117 10.65

86 165 10.65

98 164 10.60

93 172 10.55

59 167 10.50

80 200 10.40

47 242 9.25

11 341 8.25

23 400 7.50

6 stags 400 2.65

1 230 2.00

627 hogs, 7 cars, 65 consignors, \$11,605.15.

Visalia, April 2

94 175 10.65

105 165 10.55

103 159½ 10.35

8 119 10.30

64 225 9.50

6 265 8.50

1 150 8.00

15 272 7.15

3 430 4.60

399 hogs, 4 cars, 23 consignors, \$7,225.93.

Hanford, April 13

19 120 11.00

80 219 10.75

99 161 10.70

86 185 10.70

21 201 10.60

11 260 9.60

5 514 7.60

1 stag 620 3.50

322 hogs, 4 cars, 34 consignors, \$6,476.05.

Total for the week, 1,737 hogs, 19 cars, 138 consignors, \$32,635.04.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock this morning by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 10.00@15.00 crate; poorer, 9.00.

Asparagus: 8 @11; white, 10@12; graded, 14@15.

Beans: 20@30 lb.

Bunched Vegetables: Carrots, 50@60 per doz.; turnips, 45@55 per doz.; beets, 50@60 per doz.; parsley, 15@20; radishes, 30 doz. bunches.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 1.00@1.25 sack.

Cauliflower: 1.25@1.50 doz.

Celery: Crate 2.00@4.00.

Chicory: 2.25@2.50 crate.

Cucumbers: Hothouse, fancy, 2.00@3.00 per doz.; small, 3.50 per crate; English, 2.50@2.75.

Eggplant: Florida and Mexican, 10@25 lb.

Endive: 25@30 lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Imperial Valley, iced, 2.25@2.75 per crate; Los Angeles, 1.75@2.25 crate; local, 75@1.50.

Mushrooms: Choice, 25@50; cultivated, 75@1.00.

Olives: 5@7 per lb.

Onions: Australian cold storage browns, 8.50@9.00; green onions, 1.75@2.00 box.

Parsnips: 1.75 per sack.

Peas: So., 11@12½ lb.; Imp., 10@11.

Potatoes: River, fancy, 1.40@2.20; Oregon Burbanks, 2.00@2.15; Idaho Netted Gems, 1.85@2.25; off grades lower; Salinas, 2.25@2.75 cwt.; new, 12 lb.

Peppers: Florida and New Mexico, Bella, 20@35; Chilis, 5@10.

Pumpkins: 75@1.00 per 90 lb sack.

Rhubarb: 3@5 lb.

Squash: Hubbard and Banana, 6@8 lb.

Spinach: 3@4 lb.

Sweet Potatoes: 3.50@3.90 per cwt.; Arkansas and New Mex. yams, 1.75@2.00 per 50 lb. crate.

Tomatoes: Mexican, repacked, 3.00@3.25 1.75.

Turnips: 1.25@1.50 per sack.

FRESH FRUIT

Bananas: Best Eastern and Hawaiian, 7@8 lb.

Loquats: 15@20 lb.

Olives: Ripe dry, 8@10 lb.

Pears: Choice, 4.50@5.50.

Strawberries: Imperial, 3.00@3.50 cr.; local, 1.50 dr.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack, 1.50@4.00; Arizona, 4.25@4.50 box.

Lemons: Special pack, 5.00@5.75 box; Choice, 4.00@4.50 box; Lemonettes, 2.90@2.25.

Oranges: Special pack, 100-150s, fancy, 6.00@6.50; 176-216s, 6.50@7.00; choice, 5.25@6.25; culls, 1.75@3.50.

Tangerines: 2.50@3.50 per half orange box.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

In 50s

Choice 13½

Extra choice 13½

Fancy 15

Apricots

Slabs 18½

Standard 18½

Choice 22

Extra choice 23

Fancy 26

Extra fancy 28

Moorparks, fancy 29

Moorparks, extra fancy 31½

Figs

California Peach and Fig Growers' prices:

White—

Standard (in 50s) 07½

Choice (in 50s) 08½

Fancy (in 50s) 11

Bricks, 12 No. 10s 1.10

Bricks, 24 No. 8s 1.80

Bricks, 50 No. 6s 2.80

Bricks, 70 No. 4s 2.95

Layers, 10 lb., 4 row 1.60

Layers, 10 lb., 5 row 1.40

Calimyrna—

Bricks, 24 No. 8s 2.05

Peaches

California Peach and Fig Growers' prices:

Slabs (in 25s) 10

Standard (in 25s) 10½

Practically peeled, Standard (in 25s) 11½

GRAIN
Barley: Feed, 1.35@1.42½; shipping, 1.45@1.60.
Wheat: Mill, 2.30@2.35; Feed, 2.30@2.35.
Red Feed Oats: 1.75@1.80.
Corn: California yellow, 2.10@2.20; eastern yellow, No. 2, 1.44@1.46; No. 3, 1.25@1.27; kaffir, in bulk, 1.80@1.85; eastern, 1.65@1.67½; do, No. 2, in bulk, 1.70@1.73; white Egyptian, 2.00@2.10; California red milo, 1.77½@1.82½; do, bulk, 1.75@1.80; eastern red, 1.75@1.77½.

Citrus Markets
Los Angeles, April 19, 1922.
Practically all Navels have been shipped. Valencia's going forward slowly, sizes small from nearly all districts. Trees are late blooming, almost a month. Orchardists are watching closely to determine effect of frosts on vitality of trees.
Poor stock lemons selling on parity with foreigners in Eastern markets; good fruit holding up well.
Shipments
Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 12,425 cars; lemons, 3,532; total, 15,957. To same date last season: Oranges, 17,191; lemons, 3,520; total, 20,710. From Central California to date this season: Oranges, 4,586; lemons, 105; total, 5,691. To same date last season: Oranges, 4,507; lemons, 129; total, 5,636. From Northern California to date this season: Oranges, 372; lemons, 8; total, 380. To same date last season: Oranges, 305; lemons, 5; total, 310.

AT THE AUCTIONS
April 18
New York: 17 or., 6 mix., 2 lem. Nav. 3.95@7.20, Val. 4.05@4.75, St. Mikes 3.40@4.90, Seed. 3.55@4.70, Bloods 4.40@5.95, Sweet 3.30@5.05, Tang. halves 2.30, lem. 3.90@4.60.
Boston: 17 or., 1 lem. Nav. 3.00@7.70, Val. 4.25, Sweet 3.90@4.70, St. Mike halves 1.65@2.10, Bloods halves 1.85@2.35, lem. 3.05@4.75.
Pittsburg: 4 or., 1 lem. Nav. 2.55@5.70, Sweet 3.00@5.50, lem. 2.20@2.35.
Philadelphia: 4 or., 2 lem. Nav. 3.70@5.20, Seed. 3.25@4.25, Ruby Blood halves 2.20@2.60, lem. 2.65@3.35.

A GENTLE PROTEST
"I say, Nell, I was reading that there are 60 different ways of cooking potatoes."
"I've heard so, but boiled——"
"Well, don't you think it would be exciting to try one of the other 59 ways once, just as an experiment?"



SEMI - DISPERSAL SALE
50 REGISTERED
JERSEYS
HYNES, CALIF.
at Rhoades & Rhoades Sale Pavilion
Tuesday, May 9, at 10 a.m.
Here is the opportunity registered Jersey buyers have been hoping for for months past—to find available for purchase a high class lot of Jersey females.
This sale includes every cow and bred heifer in the well known herd of GEO. W. THOMAS & SONS, Arlington, Calif., also the two herd sires. Mr. Thomas and his sons are retaining only their unbred heifers and heifer calves as foundation for their future herd.
THIS IS A HERD OF SPLENDID INDIVIDUALS, IN EXCELLENT PHYSICAL CONDITION, THE ENTIRE HERD IN MILK AVERAGING 38 LBS. BUTTER FAT PER MONTH AT THE PRESENT TIME.
The entire herd was recently tested by a Deputy State Veterinarian, and not a single animal responded to the test. Every animal guaranteed to be a breeder and sold subject to tuberculin test by the buyer.
TERMS OF SALE: Responsible parties may arrange for credit on basis of one-third cash, balance in three, six and nine months before sale with California Breeders Sales and Pedigree Company.
Write for catalog now.
Management
CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager,
Sacramento, Calif.
Auctioneer
Col. Ben A. Rhoades, Los Angeles

COMING EVENTS
(Corrections and Additions Requested.)
Farm Picnic, University Farm, Davis, April 29.
State Scrip Auction, Sacramento, May 1.
Santa Rosa Rose Carnival, Santa Rosa, May —.
Days of '49, Sacramento, May 23-28.
Valencia Orange Show, Anaheim, May 23-30.
State Grange Picnic, Monterey County, May 27.
Western Directors Departments of Agriculture, Sacramento, May 29-30.
County Horticultural Commissioners, Sacramento, May 29-June 2.
Federal Horticultural Board, Sacramento, May 31.
California Nurserymen, Sacramento, June 1.
Western Plant Quarantine Board, Sacramento, June 1-2.
California Rodeo, Salinas, July 24-29.
San Joaquin Valley Fair, Stockton, August 16-22.
Sonoma County Fair, Santa Rosa, August 23-27.
State Fair, Sacramento, September 2-10.
Grape Day, Escondido, September 9.
Tehama County Fair, Red Bluff, September 11-17.
Tulare County Fair, Visalia, September 12-19.
Colusa County Fair, Colusa, September 14-17.
Glenn County Fair, Orland, September 18-23.
Kings County Fair, Hanford, September 20-23.
Fresno County Fair, Fresno, September 25-30.
Shasta County Fair, Anderson, September 28-30.
Ventura County Fair, Ventura, October 1-8.
Kern County Fair, Bakersfield, October 2-7.
Butte County Fair, Oroville, October 2-7.
Pork Day, Turlock, October 4.
Southern California Fair, Riverside, October 10-15.
San Francisco Livestock Show, October 18-22.
Imperial Valley Fair, October 23-28.
Orange and Olive Festival, Oroville, November 28-December 2.
COAST AND GENERAL
National Foreign Trade Convention, Philadelphia, May 10-12.
Plant Quarantine Conference, Washington, D. C.
Rose Festival, Portland, Oregon, June 7-9.
Southwest Washington Fair, Chehalis-Centralia, August 28-September 2.
Interstate Fair, Spokane, Washington, September 4-9.
Washington State Fair, Yakima, September 18-23.
Oregon State Fair, Salem, September 25-30.
Arizona State Fair, Phoenix, October 30-November 3.

LARGE PLANTING NEAR TERRA BELLA
A large acreage has been planted this season in the Terra Bella district in Tulare County to various varieties of fruits and grapes. Among the largest of these plantings is that of the Deer Creek Orchard Company which has planted several hundred acres to plums and prunes, and judging from the way their tracts are showing up there certainly is no question about the quality of the Terra Bella soil. In addition to furnishing the nursery stock for the Deer Creek Orchard Company's plant, the Fresno Nursery Company reports having furnished several thousand trees for other plantings in this same district.
The April issue of the state department of agriculture monthly bulletin has an article on the potato as one of the chief agents in the distribution of the root knot nematode. It is written by D. G. Milbrath. In addition G. R. Horton of the U. S. bureau of entomology writes on Swallow-tail butterfly injurious to California orange trees. Other subjects touched upon are ripening of plums, cherry fruit sawfly (this article is also issued as a separate), European red mite, "mara-bou," a menace to cattle ranges.
"A Connecticut preacher declares that the hen is temperamental and that her routine must be varied if she is to lay eggs. We don't grasp his meaning fully, but we presume that he means in cases where it is impossible to take the hens to a moving picture show it will do just as well to take them into the parlor and treat them to a little music on the Victrola. Poultry fanciers can use their own judgment. — Fulton County Tribune.

COW TESTING IN STANISLAUS
During March 1,194 cows were tested. The average butter fat production was 29.1 pounds per cow and 791 pounds milk per cow. Of this large number, 205 produced over 40 pounds fat per cow, which is a little better than a sixth of the number of cows of the association now tested. The high cow of the association was a registered Jersey, Lady Kate Allie, owned by D. F. Conant of Modesto, which produced 1,578 pounds milk and 85.1 pounds butter fat. The herd having the highest butter fat average for the month was a grade and registered Jersey herd composed of 25 cows, which is owned by Peter Meier of Hickman. This herd had a butter fat average of 43 pounds per cow and a milk production of 789 pounds per cow.
During the month the butter fat average of the testing association was four pounds higher than in February. Doubtless this average will become higher as the dairymen are putting their cows on green feed and others are introducing the feeding of concentrates. During the past month 280 additional cows were signed up and some 20 cows culled from different herds.
On March 30 a dairymen's meeting was held at Patterson. In the near future we hope to hold another meeting at that place to actually sign up the dairymen in the testing association.—M. L. Gorow, Testing Supervisor.

MAKING SURE OF VIRGIN WOOL
J. B. Wilson, vice president of the National Sheep and Wool Bureau of America is receiving many inquiries from various parts of the United States, asking where virgin wool cloth and clothes may be purchased, and how proof of virgin wool can be had. Although the National Sheep and Wool Bureau has made diligent inquiry it has been able to learn of but very few manufacturers, either manufacturers of fabrics for outer apparel, underwear manufacturers, or blanket manufacturers, who are known to manufacture only virgin wool cloth, or who will provide the proof of virgin wool. In consequence, in some eighteen states, the farm and wool growers' organizations are making and marketing their own virgin wool cloth and blankets. The Capper-French truth in fabric bill makes it compulsory to stamp wool cloth and to identify contents in clear and unmistakable terms, and would right the wrong that now results from shoddy's counterfeiting virgin wool.

ARGENTINE WOOL CLIP BELOW AVERAGE
The 1921-22 wool clip of Argentina will be below average and will hardly reach 220,000,000 pounds, according to information received by the United States department of agriculture. The exports of wool from Argentina during the past commercial year (Oct. 1, 1920, to Sept 30, 1921) amounted to 291,565,000 pounds, compared with 279,349,000 pounds during 1919-20 and 262,100,000 during 1918-19.
ORMONDALE SHORTHORN DISPERSAL
Lovers of the Shorthorn who plan to attend the Ormondale Ranch dispersal on May 4 will be met at the train at Palo Alto and from there motored to the ranch where sale will be held. Former notice stated morning trains would be met at Redwood City. Remember, Palo Alto is the station.

Reports from the lower San Joaquin Valley state that 16,000 head of lambs have been contracted in the valley to go to San Francisco market between April 10 and May 10 at 12½ cents per pound weighed at country points. This approximates \$8.75 per head. San Joaquin County reports 4000 lambs contracted at \$8 to be shipped after April 20. These lambs probably will go to an eastern market, either Omaha or Chicago.
Sam H. Greene, secretary-manager of the California Dairy Council, has been elected one of the nine vice-presidents of the World's Dairy Congress Association, in recognition of the fact that California Dairy Council was the first Dairy Council to subscribe a membership in the Dairy Congress Association.

J. S. GIBSON HERD WILL NOT BE SOLD
Holstein breeders generally will be glad to know that the J. S. Gibson Company of Williams has reconsidered its decision to disperse its large herd of registered Holsteins, sale of which had already been announced for May 23-24. This decision was reached after a careful survey of the big 1,800 acre Gigson ranch and its possibilities had been made, and the present plan is to continue the herd on possibly a somewhat smaller scale. A limited number of cows and heifers is being offered at private sale, and it is expected that this will make the slight reduction in the herd contemplated at present.

STOCKTON JERSEY SALE
C. R. Thomas, manager of the Pacific Purebred Sales Company, announces its initial sale of Jerseys at Stockton, May 4. With the exception of four or five mature cows, all are under three years old. Each of the two year olds has had one calf and each is bred again. Every animal has been bred with the exception of one heifer that is yet too young to breed. She is of most excellent breeding and her dam is one of the best young cows to be offered in the sale.

WEATHER REPORT				
San Francisco, Cal., April 15, 1922.				
Stations	Week	Season	Norm.	Temp.
Eureka	.93	33.57	40.82	50 36
Red Bluff	.12	16.09	22.49	64 34
Sacramento	.40	13.62	18.41	62 38
San Francisco	.47	19.10	20.59	58 44
San Jose	.24	14.22	15.48	62 35
Fresno	.10	16.22	8.48	66 36
San Luis Obispo	.12	22.56	18.51	64 34
Los Angeles	—	18.99	14.64	64 42
San Diego	.01	18.23	9.23	64 45

Dispersal Extraordinary
71 Registered Guernseys

Edgemoor Farm, Santee, Calif.
Owned by G. L. Strobeck
Selling at
HYNES, CALIF.
(Rhoades & Rhoades Pavilion)
Wednesday, May 17
at 10 A.M.

The decision of Mr. G. L. Strobeck, owner of Edgemoor Farm, Santee, Calif., to disperse the splendid herd of registered Guernseys owned by him, places at the disposal of buyers a herd that has gained international fame both in the show ring and production lists.

19 Females of Milking Age
The females of milking age include imported cows of fashionable blood lines, some with good A. R. records, part of them now fresh, and those that are bred are in calf to the great MASTERPIECE OF EDGEMOOR, or to DEANIE'S MAROSE OF APPLETREE POINT.

39 Bred and Open Heifers
This great group of heifers presents a rare opportunity for selection for foundation purposes, representing most substantial and popular breeding, and the bred heifers carrying the service of such bulls as MASTERPIECE OF EDGEMOOR, DEANIE'S MAROSE OF APPLETREE POINT, and others of sound worth. The open heifers are nearly all close to breeding age.

14 Bulls of Service Age
Every bull in the sale is of service age, mostly old enough for heavy service, and the group affords a most attractive occasion for selection at a time when there is a strong demand for high class Guernsey bulls in California.

Every Animal Positively Guaranteed to Be a Breeder; Every Animal Tuberculin Tested and Sold Subject to Retest by the Buyer.

TERMS OF SALE: Responsible parties may arrange with sale manager, before sale, for credit on the basis of one-third cash, balance in three, six and nine months, with approved note bearing eight per cent interest.

WRITE FOR CATALOG NOW
Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager,
Sacramento, Cal.
Auctioneers:
Rhoades & Rhoades, Los Angeles

Coast Tires

WEAR DEFIERS

COAST TIRES are making good on their SERVICE

Every day we receive enthusiastic letters from users who find that Coast Tires are money-savers because they give more mileage.

As one dealer expressed it: "They are made right; the quality is there, and they stand up better than any tire I know of. Every Coast Tire I sell makes a friend for my business."

You may be interested in reading what some of our customers say about them:

A Record Made on the Lava Roads of Hawaii

ROYAL HAWAIIAN SALES CO.
Limited

AUTOMOBILES, TRACTORS AND
ACCESSORIES

Honolulu, T. H., Sept. 13, 1921.

Coast Tire & Rubber Company,
Syndicate Building,
Oakland, Calif.

Gentlemen:

The information given below may be of interest to you, and it may possibly help your advertising campaign:

"Up to the morning of September 10th, a 34x4½ Coast Cord had traveled exactly 7,319 miles, on the rear wheel of a Hudson Super-Six Rent Car, which travels daily between Lahaina and Wailuku on the Island of Maui, T. H., a distance of some 22 miles each way, over one of the roughest roads on the Island. (When we say 'roughest' we mean that the tire had to travel over seven miles of mountainous road, which is nothing better than loose rock.)

"Two weeks before this tire was applied to said Hudson car, another brand of Cord tire was put on the opposite wheel, and blew out at 5,177 miles. The tire was completely worn out. From the latest reports the Coast Cords should see better than 9,000 miles, as the tread and carcass are in perfect condition. No stone cuts appear on tread."

One might say that this is an official test made under the auspices of the Royal Hawaiian Sales Co., Ltd., Territorial Agents for Coast Cords.

Very truly yours,

ROYAL HAWAIIAN SALES CO., LTD.

By E. W. Burgess, Tire Department.

Stand Mountain Roads

Oakland, California, Oct. 14, 1921.

Coast Tire & Rubber Company,
Oakland, California.

Gentlemen:

I have used Coast Tires on my Chalmers car for more than a year and have found them the most satisfactory tires that I have ever used in every respect.

Last March I placed two "Coast Cord" tires on the rear wheels which have gone over 5,000 miles, and which includes two trips across the Sierra Nevada Mountains as well as over some of the worst roads in the State, yet they show very little wear and have never been off the car.

For long wear and service I do not think there is a better tire made than your product.

Very truly yours,

NBC:MN

N. B. CAMPBELL.



Non-Skid Qualities

City of Portland, Oregon
Department of Public Safety
Geo. L. Baker, Commissioner
Bureau of Police

May 24, 1921.

Coast Tire and Rubber Company,
Oakland, California.

Gentlemen:

In response to your inquiry regarding the service we are getting from the Coast Tires which are being used on my official car, I am glad to say that I think this tire has wonderful non-skid qualities, and is therefore of special value to us.

We have had an opportunity to give these tires a good trial during the recent bad weather conditions when the streets were very wet much of the time, and I feel that I can conscientiously recommend the Coast Tire.

Yours very truly,

L. V. JENKINS,
Chief of Police.

Mayor of Oakland Likes Them

CITY OF OAKLAND
California

JOHN L. DAVIE

Mayor

September 8, 1921.

Mr. Holmes Ives, President,
Coast Tire and Rubber Company,
52nd Avenue and E. 12th Street,
Oakland, California.

Dear Sir:

I am sending you these few lines in appreciation of the splendid service which I am receiving from the Coast Tires.

Early in this year my official car was equipped all round with your tires. They have given and are giving splendid service. My car is subjected to difficult strain and covers territory of every description—highways and mountain roads.

I am highly pleased with the record of performance made by your tires and wish to congratulate you on the fact that a home industry produces a product of such excellence.

With my best wishes for the development of a very successful business, I am

Very truly yours,

JOHN L. DAVIE,
Mayor of the City of Oakland.

It will pay you to give Coast Tires a trial. There are hundreds of Coast Tire dealers on the Pacific Coast, but if there should be no dealer in your vicinity, we will be pleased to send you prices and complete description of our tires. Write to

The Coast Tire and Rubber Company
Oakland, Calif.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

April 29, 1922

No. 17

A Well-Kept Pear Orchard in Sacramento County



Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916.

Vol. LVIII

No. 17

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Frank J. Ironmonger, Pres. and Manager
J. H. Yetter, V.-Pres. and Adv. Manager
W. R. Wood, Sec. and Treasurer

C. B. Messenger, Editor.
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Fred M. Reed	Louis B. Stanton
G. E. Gordon	M. E. Bemis
A. R. Gould	E. L. Koethen

Subscription Price - \$1.00 Per Year

Copy for change of advertisement must be in the office on Saturday preceding date of issue. New advertising copy must be in the office Tuesday preceding date of issue to insure insertion. Advertising rates furnished on application.

The Sacramento office is Room 210, Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822, Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member

Eastern Offices:

F. H. Bell, Steger
Building, Chicago, Ill.
S. E. Leith, Fifth Avenue
Building, New York
C. A. Cour, Globe Bldg.,
St. Louis, Mo.
R. R. Ring,
333 Palace Bldg.
Minneapolis

Member Audit Bureau of Circulations.

Entered as second-class matter February 12, 1900, at the postoffice at Los Angeles, California, under the Act of March 3, 1879.

Saturday, April 29, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

A well kept pear orchard in Sacramento County as it appears on the cover looks like a wonderfully attractive holding. Apparently there is not a leaf which the fire blight has touched. Plainly there is not a weed but the cultivator has touched. The home, like a watch tower, on the hill beyond gives an impression that it is filled with comforts and even luxuries because of the fruits of the orchard.

* * *

Such an orchard in such a condition in such a valley has meant lots of work. It has meant work for today in keeping down the weeds and for a part of tonight in planning for tomorrow's work for the blight or for other manifestation of nature which was decreed some years ago when it was said, "In the sweat of thy face thou shalt eat bread." But the end has justified the price. Occasionally some of us are not willing to pay the "price" which such an orchard demands.

* * *

Speaking of Sacramento, we are re-

mindful of its enterprise by a bit of publicity work being sent out by Secretary Dudley. It is publicity for the entire state of California. It contains showing of "California's Resort Wonderland." In addition to giving list of many of these resorts with illustrations there are maps showing roads from San Diego to Siskiyou. Another feature is a list of the auto camping facilities in various towns of the state.

* * *

Sacramento is particularly alive at this moment because of her work to make ready for the "Days of '49." It is only a step back into the hills of Sacramento to where Marshall picked up the first nugget. We will all expect to find them in abundance in the streets of Sacramento when the days of '49 again pass in review.

* * *

The state of Illinois is conducting a campaign with the slogan, "Plan to Plant Another Tree." One feature of the suggestion is that farmers pick up the business of growing Christmas trees. Millions of little Christmas trees are needed every year. Why not grow them in the home acre?

* * *

It has been suggested that a farmer's national "bloc" be organized. There certainly is need of some organization to father and encourage legislation which shall be at least just to agriculture. Class legislation has been deprecated and endured almost since congress began, but since the agricultural bloc secured a measure of relief for agriculture there has been suggestion that the time has come for termination of class legislation. The bloc has been materially reduced in power to do things, but we believe the country will be well served if the organization is continued.

* * *

Grape growers who have read with profit and pleasure the "Planning and Planting a Vineyard" written for the Cultivator by Fred K. Howard, who has been at the head of the field department of the raisin association, will be glad to know of Mr. Howard's advancement. He will, after May first, have charge of the publicity of that great organization. The publicity has been handled during the past year by Al Joy.

* * *

Crime never seemed so rampant as at present. There is debauchery in cities and sometimes in the country a crude and brutal effort to secure justice by direct action. This direct action or mob law is condoned by some, ordinarily law abiding citizens because of the assertion that if our courts are helpless to secure justice some means must be provided by the common people. This feeling has been more general than it should be ever since the prompt disposal of criminals in Santa Rosa something like a year ago. The most recent manifestation was that at Inglewood, Los Angeles County, this week. There seems to have been no provocation similar to that at Santa Rosa. It seems more like a practice stunt on the part of the Ku Klux Klan. It resulted in the death of one and wounding of two others, all, we believe, members of the mob. Los Angeles County has taken a strong hand, and it is rumored the members of the mob will be severely dealt with, and doubtless there will be discouragement of further effort at mob law enforcement. Meantime here is hoping that technicalities may have less consideration in our courts.

IGNORANCE OF LAW

Wm. Mulholland, chief engineer of the Los Angeles water department, remarked the other day that if he were asked as to the exact content of the proposed California Water and Power Act he would have to confess that he has never as yet read it; further, if he did read it, he would be compelled to ask some attorney as to the meaning of certain phrases. Likewise, he has never read all of the criminal code—and still remains out of jail. There is much of legal phraseology in bills and enactments that adds to bulk and gives little real information to the casual reader. Hence it is easy to make assertions regarding results when a proposed act becomes an act.

For instance, it has been said that the Water and Power Act will result in confiscation of properties now held by public utility corporations. We believe a careful reading of the act will show that it will change procedure in that particular in no way whatever. The general laws of the state permit the people to acquire these great public utilities, as was done recently in taking over the distributing system of the Edison Company within the city limits of Los Angeles. The new law will in no way change that procedure.

"It favors the cities." Possibly, but not to the extent that it favors the rural districts. There are three or four of the larger cities of the state which have sufficient wealth to develop their own power systems. There is no rural district which can do this without state aid and direction.

One large hydroelectric power company stands ready to invest one billion dollars in the development of the Southwest. To secure a part, at least, of this billion dollars the company offered preferred stock drawing eight per cent interest at 94. The state of California can secure far cheaper money. Besides, if one corporation, with possibly 30,000 or 40,000 stockholders, can secure a billion dollars for the development of the hydroelectric power of the Southwest, why may not three and one-half million stockholders in the state of California afford to spend half a billion in developing and retaining as their own power from the waters which God has showered upon their mountains?

GETTING READY TO FIGHT

Orchardists propose to knock out Jack Frost. Committees are studying and investigating as to improvements possible on heaters. They are reaching into the air and asking how it can be made to protect citrus fruits and, in fact, all other fruits. The low stack heater with imperfect combustion is dreaded by people living in sections where frost fighting is a feature every two or three years. The smudge is not only disagreeable but destructive or at least injurious to many fine fabrics and certainly to comfort. But the golden fruit means too much of wealth to California to let even the occasional smudge discourage or put it out of commission.

The growers not only have appointed committees, which are at work, but there are many self appointed committees, or rather investigators, giving of their time and ability to help solve the problem. Saturday of this week there are held two meetings, one at Claremont and one at Covina, to discuss and inspect different frost fighting methods. The Covina people are centering on the air circulation plan, rather plans, for there are many ways suggested. These vary from the large windmill on a tower down to the electrically operated fan. In a year like the present the upper strata of air seem to have been as cold as that close to the earth, and mere agitation makes little change in temperature.

The Covina chamber has no ax to grind other than it is anxious to secure protection for the citrus orchard, and at the same time, if possible, elimination of the smudges. The Covina meeting will be extended through the entire day.

The Claremont idea contemplates one central plant for, say, each 20 acres of orchard, with a pump similar to those established for compressed air in filling stations. The air is to be

distributed through pressure pipes after passing through a heater at the central plant. It is claimed it can be installed at a much less price than the pots, and as to labor—"just light one match, turn the electric current on the pump and go to bed."

Assuming that there may be some installations which will not be so easily solved—as to the labor problem—we have one suggestion which appeals to us as having merit for sections where the small orchardist with limited command of labor can be relieved or, rather, assured of a labor supply. This was secured in Colorado apple orchards by the organization of volunteer frost fighters. Each volunteer company was made up of bankers, storekeepers, clerks, high school boys and others who would respond to the alarm, as to a fire alarm, by going at once to the orchard or field and joining the frost fighters. These volunteer companies were prepared by going through regular drills until they fully understood the handling of the equipment. For many orchardists this would have no value, but we know that in California orange and lemon producing sections there are small orchardists unable to pay the large wages demanded and even unable to give of their time to go out and organize a corps of frost fighters.

FLORIDA COMING TO CALIFORNIA

Edgar A. Wright, editor of the Florida Grower and at one time a resident of California, is working up an excursion of Florida fruit growers to California. They expect to arrive in Los Angeles early in June and propose to "do" the citrus sections of the state. Mr. Wright says:

"My object in encouraging such a trip and the consequent effort to see it were not possible to get together a party of Florida folks to visit California this summer was to show them what had been accomplished in citrus building, believing that every one who participated would come back with ideas that could be utilized for the good of this state. My plan would be to keep such a party intact until the sightseeing in California was over, say a week, and then let each one choose his, or her, own time of departure and route home.

"To this time we are assured of enough members to secure a special car, and I have no reason to doubt but that we can get together 125, which will assure a special train, with dining attached. I believe that a visit to California by such a delegation will result in untold good for the individual member and for his or her community and for all Florida. California is a beautifully attractive country, though her hills will be brown by the time we arrive. You know California has no rainfall from May to October; every thing that grows must be irrigated, so that her natural grasses have dried up and her hills will be bare. You will not need umbrellas, overshoes or rain coats. Heavy underclothing and overcoats will be a necessity at times, for her summer evenings are chilly, especially near the ocean front.

"You will be interested in the beautiful cities, especially Los Angeles, which has grown faster than any city in the United States in the past 25 years, and you will want to know why this growth has been possible. You will soon know that Los Angeles owes much of her growth to her attractiveness, her parks, wonderful street railways, splendid homes. You will see many developments that could be duplicated in Florida, and perhaps you will find out how to bring such development about and thus make your trip worth while for yourself and for your home state. You will see her fine beach towns built on beaches that have not the attractiveness of Florida beaches—beaches where the waters are never as warm as off our Florida shores and that run off into deep water very quickly.

"You will want to see their packing houses; they pack Valencia oranges all summer long out there, you know, and their packing houses are seldom idle, the season for one variety running closely into the season of another. You will want to see their roads. They probably have the finest and most complete system of roads, ways of any section of the world. Possibly you will want to climb the mountains; you can do it by train or on the back of a burro—take your choice."

California Cultivator

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Los Angeles, April 29, 1922

One Dollar Yearly

What Will the 1922 Harvest Be?

THERE is still uncertainty as to the full effect of the frosts. These manifestations of nature have been most partial in the manner of distribution. They covered a period of two weeks. As time passes more hope is expressed that the damage was overestimated. Reports which have come in since those given in the issue of April 22 are:

Fred Seulberger, Horticultural Commissioner, Alameda County

(News Dispatch)—Damage to crops along the east side of San Francisco Bay by the frosts of April 8, 9 and 10 totaled probably \$2,000,000. The loss of apricots probably will be 95 per cent, peas for the early market 40 per cent, new potatoes 50 to 60 per cent, and currants about 50 per cent. New growth on ornamental trees also severely injured.

J. K. Turner, Horticultural Commissioner, Placer County

It is impossible to make any estimate of the Placer County fruit crop at present; the season is about three weeks late. Nearly all varieties of

plums and peaches have bloomed heavily. Cherries are also showing lots of bloom and pears will do the same. We have had several cold nights lately but so far I have had no reports of killing frosts. What effect the cold will have on the fruit remains to be seen. Under this year's conditions I do not believe that we can make an intelligent estimate of the crop before May 1 at the earliest.

Sun-Maid Raisin Growers, by Karl B. Clark, Growers' Service Department

Conditions are generally quite favorable for a large crop this year. The rainfall has been above normal and the ground is in most sections well soaked. The heaviest mountain snowfall for years gives promise of an abundant irrigation supply. The season is two or three weeks later this year than last. Some frost damage was done to the grape crop on the night of April 8. The frost is spotted and in no way so severe as the freeze of last year. For the most part Muscats and most table grape varieties were not out far enough to be seriously injured. The Thompson crop was

damaged probably as much as 25 per cent in some districts. The districts caught by the frost this year are, for the most part, different from those caught last year. Estimates that have been made so far seem to indicate that the loss was five to ten per cent of last year's loss, which would mean that probably not over three per cent of the total crop has been destroyed. There was some injury to figs and other fruits in the frosted districts.

Clifford G. Tanner, Horticultural Commissioner, San Luis Obispo County

Almonds, heavy set of fruit. Apples, prospects good for heavy crop as the fruit buds are looking fine. Apricots, brown rot and weather conditions caused considerable damage, 50 per cent crop. Cherries, favorable at present. Peaches, impossible to state as spraying was done too late, due to weather, and the recent frost killed some. Pears, prospects very favorable for the largest crop ever in this county. Prunes looking good. Grapes, heavy planting of young stock, table and wine; older plantings look good.

Geo. Marchbank, Horticultural Commissioner, Madera County.

Apricots, 40 per cent. Peaches, 100 per cent. Plums, in full bloom; looks like 100 per cent. Grapes, 85 per cent. The weather may modify this estimate to some extent. About two weeks from now I would be better able to give a more accurate report of the crop conditions, but this is how it looks now. I am unable to report on almonds and apples as yet. The apple growers are mostly in the mountains and I haven't had a report from any of them. I have not been able to inspect the almonds so far this year on account of other business. There are no pears and cherries grown commercially in this county, only a few in family orchards.

F. W. Waite, Horticultural Commissioner, Imperial County

Almonds not grown commercially. Apples not grown commercially. Apricots, small acreage, 90 per cent. Cherries not grown commercially. Peaches not grown commercially. Pears, Winter Bartlett, 100 per cent. Prunes not grown commercially. Grapes, 90 per cent, winds damaging early grapes. Cool weather delays tomatoes and cantaloupes.

E. E. Kaufman, California Cooperative Crop Reporting Service

Just at this time I haven't any official knowledge to pass along. Our regular inquiry regarding the condition of various fruit crops will not be made until May 1. Unofficially I might say that prospects seem pretty good. Saturday and Sunday night last it was pretty chilly in a few spots, and there is some report of frost damage to apricots in the Santa Clara Valley, how serious, I don't know. Also heard a little about how cool it was Saturday night in Fresno and possibly a slight injury to some grapes. This, however, is not official as I have had no direct advices. I have not figured on apricots to any great extent as they have been afflicted with brown rot to such an extent around the Bay counties for a couple of years that it is doubtful whether there would have been much fruit anyway. The blooming period of all fruits is undoubtedly two to four weeks late, all of which has been of some benefit under our present weather conditions as the danger from killing frosts has been materially decreased by the lateness of the blossom.

H. M. Kingwill, Horticultural Commissioner, Glenn County

It is a little bit early to report on any of our crops as yet, but I believe that so far as we know to date, almonds will show about a 90 per cent crop and apricots about 85 per cent. So far as the other products are concerned, it will be inadvisable at this time to make a report as they are not far enough along to give the figures any value.

J. C. Metzgar, Secretary Santa Ana Chamber of Commerce, Santa Ana, Orange County

Almonds not grown commercially. Apples and apricots, too early to judge by buds, etc., but we have had an extra good year as to rain. The trees

(Continued on Page 459.)



It Harnesses the San Joaquin

Here is shown the great Kerckhoff Dam on the San Joaquin River. It is the property of the Joaquin Light & Power Corporation. Completed in 1920, it stands as one of the several big engineering accomplishments which tend to make the past two years notable for intensive electrical development in central California. The dam is 400 feet across and 110 feet high. The piers on it are men, and they afford a means of gauging its proportions. The intake to the canal is shown in the picture—the boxlike structure at the water's edge. The Sierra Nevada is rich in thousands of similar hydroelectric possibilities. Unlike oil coal which may be exhausted in a score or a few score years, hydroelectric development is all time to come. Hence the intense interest in the vote which will be taken next November on the California Water and Power Act.—Engraving through courtesy of Standard Oil

Agricultural News Notes of the Pacific Coast

Northern California

Farm picnic today, April 29, at University Farm, Davis.

Sheepmen have begun to come into Red Bluff with the 1922 wool clip.

Rice sale in Sacramento last week at \$2.80 for No. 1 paddy, the best of the season.

Shasta County sheepmen have begun to come into Red Bluff with the 1922 wool clip.

Red Bluff and Eureka chambers of commerce confer on improvements of Bee Gum road.

Colusa County fair date has been changed to September 14-17. Fair will be held at Colusa.

San Francisco's eighth annual exhibit of wild flowers was held at the St. Francis, April 20-22.

Tehama County reports much of the fall sown grain drowned out; winter sown is showing up much better.

There is a movement on foot to organize deciduous fruit growers of Tehama County in a marketing concern.

Twenty-three local exchanges were represented at the annual meeting of the California Almond Growers Exchange.

The state highway commission has advertised for bids on road between Trinidad and Orick in Humboldt County.

Tractor school for Butte County will be held at Chico week beginning May 22. It is in charge of L. J. Fletcher of the state university.

C. J. Koopman and W. C. Smith will represent the Corning district of Tehama County at the Fresno meeting of olive growers of the state.

The Fair Oaks-Orangevale Almond Growers Association at its annual meeting endorsed the reorganization plan of the state exchange.

E. E. Kaufman reports condition of wheat in California on April 1, 94 per cent of normal compared with last year same date 93 per cent.

County Bee Inspector Dickenson of Nevada reports 1,000 stands of bees in the county, with prospect of doubling the number before the end of the season.

Home departments have been organized in Paradise, Fair View, Rio Bonito, Thermalito, Wyandotte, West Gridley and Manzanita in Butte County.

Officers of Jersey Breeders of Humboldt County: President, Dr. H. G. Gross of Eureka; vice-president, W. E. Elliott of Loleta; secretary and treasurer, Ernest Peugh of Elk River.

The Jersey Cattle Club of Orland has elected the following officers: President, M. Fortini; vice-president, C. A. Whitsett; secretary, Kirby Clark; treasurer, W. G. Gurnett. Another calf club is to be started immediately.

Farm Adviser Baade of Napa County estimates number poultry in that county at approximately 85,000, 50,000 of which are in the vicinity of Napa, 20,000 near St. Helena and 15,000 in upper Napa Valley and about Calistoga.

The last three months have made up the coldest first quarter of the year California has experienced in a decade. It was the coldest January since 1913 and the coldest February in 11 years. The temperature during February was three degrees below normal every day, and in March 3.3 degrees below.

Central California

Lockeford community picnic, May 13, is the 23rd annual.

General Grant National Park will be open May 24 to October 10.

Heavy shipments of artichokes are being made from Santa Cruz.

Twenty carloads of "Nickel Sun-Maids" are en route to London.

Tulare hopes to secure the next annual meeting of the California Creamery Operators.

Aromas section of Monterey County reports serious damage to apricots from brown rot.

Trials are being made of black paper "mulch" to keep down weeds and warm up soil in melon fields at Delhi.

San Joaquin Valley counties sent representatives to Hanford last week to outline campaign for encouraging tourists.

The May meeting of the Association of Commercial Secretaries of San Joaquin Valley will be held at Modesto on the 27th.

The city of Stockton has decided to place itself under state meat inspection in accordance with act passed by the last legislature.

The second annual banquet and tour of the dairy department of the Kings County farm bureau was held at Hanford, April 12 and 13.

Richgrove-Jasmine Citrus Association has been incorporated and will build packing house at Richgrove in time to handle next winter's Navels.

The Tulare Cooperative Poultry Association paid 22 cents for No. 1 and 17 cents for No. 2 eggs during March. Total business amounted to \$26,000.

The annual meeting of the Madera branch of the California Cattlemen's Association was held at Coarsegold, April 15. Henry Krohn was elected president.

The California Olive Association (canners) has decided to use four standardized sizes and shapes of can. These will be five ounce, pint, quart and No. 10 packers.

A largely attended meeting of Emperor growers and shippers at Fresno, April 18, adopted recommendations for standard drum pack to serve as guide to the state standardization service.

Olive growers of Terra Bella, Plano, Porterville, Ducor and southern portion of Tulare County met at Terra Bella April 17 to consider the state marketing association now being formed.

The Lodi district of San Joaquin County reports slight damage to Tragedy plums, early apricots and possibly almonds by the frost of April 14; grapes, which are several weeks backward, not injured.

Sunmaid Raisin Growers' headquarters reports indicate damage ranging from 10 to 40 per cent resulted from frost of April 9, heaviest being west of Dinuba. The young Thompson Seedless vines suffered the most. Peaches were unhurt.

Stanislaus County peach growers are staging a contest which will be decided on October 15, Peach Growers' Day. The California Canning Peach Growers and the farm bureau are backing the plan. The purpose is to improve tonnage, quality and orchard conditions.

Southern California

Carload onion shipments from Coachella Valley begin first of May.

Bean planting has started in the Camarillo section of Ventura County.

Recent storms have pounded away nearly 200 feet of the beach at Hueneme.

Riverside County supervisors have appropriated \$8,000 for the Southern California Fair.

Heavy shipments of lettuce are being made from Palo Verde Valley in Riverside County.

First summer squash from Imperial Valley sold in Los Angeles markets at \$3.25@3.50 per crate.

An express train of six carloads of peas left Brawley one day last week. Five cars went to New York, one to Chicago.

Julian, San Diego County, is planning to hold a big celebration this fall on the completion of the road into Imperial County.

One San Diego hay and feed buyer reports shipping from Imperial Valley 300 carloads during 1921 over the new San Diego and Arizona Railway.

Citrus growers met with federal and state departments of agriculture representatives at Riverside last week to discuss the frosted fruit problem.

Three headlight testing stations have been established in Ventura County. Traffic officers are also hard after drivers of overloaded trucks.

During March a daily average of 16,280 inches of waters of the Santa Ana were spread over the debris cone by the Water Conservation Association.

Big floods for the Colorado River the latter part of May or first of June are predicted by government engineers because of heavy snows in the upper basin.

The Automobile Club of Southern California suggests that to avoid accidents pedestrians walk on the left side of highways in order to face approaching traffic.

Speakers for and against the proposed state water and power act were heard at farm bureau meetings in Los Angeles County at Baldwin Park, April 25; Owensmouth, 27.

Grain growers of Los Angeles, Riverside and Orange Counties met at San Juan Capistrano to discuss bulk handling. Success of the community elevator at Murrietta was explained.

The farm bureau travel conference will spend May 9 and 10 in Los Angeles County, 11 in Riverside and San Bernardino Counties, 12 in Orange County, 13 in San Diego County. It is hoped to have 50 automobiles in the tour.

Coachella Valley date growers are considering establishing a packing plant near the coast where packers may be more easily secured and at lower figures. If this plan is followed dates will be placed in cold storage until marketed.

The Lima Bean Bulletin chronicles: "We are sorry to report having seen some very beautiful Madagascar lima beans coming into Baltimore last week. They are 1921 crop, hand picked, free from any imperfection and are being purchased at six cents delivered Baltimore, duty paid."

The Coast and General

Oregon Jersey Jubilee, Willamette Valley, May 25-27.

Northwest Guernsey Breeders' sale at Portland, June 5.

Squirrel poisoning campaign is being prosecuted in Northern Idaho.

Whatcom County, Washington, will hold its annual fair the week of September 25.

Maricopa County, Arizona, has 30,000 acres in wheat; total for the state is 52,000.

A cattle and horse raisers' convention will be held at Enterprise, Oregon, May 24-25.

Vegetable growers of the Kamiah Valley of Idaho have formed a marketing association.

The Hood River Valley Apple Growers' Association does an annual business of \$2,500,000.

Yuma, Arizona, celebrated on April 16 turning of irrigation water on 60,000 acres of mesa land.

The annual jubilee of the Guernsey breeders of Oregon will be held in Tillamook County June 13-15.

Contracts for feeder lambs for next fall are reported being made through the western states at 11 cents.

Seed potato growers of Cassia County, Idaho, have formed a cooperative purchasing and marketing association.

Members of the Ada County, Idaho Lettuce Growers Association are incorporating under the name of Idaho Fruit and Vegetable Exchange.

The Puyallup and Sumner Fruit Growers Association, Washington, has voted to admit no new members; only those marketing with the association in 1921 may work with the association.

The Washington Cooperative Egg and Poultry Association has installed new processing machines in its Lynden and Bellingham plants. The process is a dip that seals the eggs for storage.

Apple growers of Washington, Oregon and Idaho are asked to contribute one cent per box for advertising. A committee appointed at Spokane meeting last December is in charge of the movement which aims at united effort by all apple interests.

A pool for Australian canned fruit has been formed by the commonwealth government. Cooperative companies each state will act as agents in collection of fruit. The marketing commission will include a canning expert and a representative of the fruit growers.

The condition of the Arizona wheat crop on April 1 was 95 per cent of normal, compared with 80 per cent on April 21, 1921. Based on average influences on the crop until harvest, the forecast is for a crop of about 1,482,000 bushels compared with 840,000 bushels one year ago.

Barley acreage in Arizona will be smaller than last year. California reports about the same acreage as on year ago, though the weather has prevented the seeding of heavy soils until too late to insure a good crop. An official report for the entire country will not be made until June.

G. D. Railsback of Medical Lake, Washington, has been selected manager of the Inland Empire Dairy Producers Association. The association has a membership of more than 70 in the territory of eastern Washington and northern Idaho tributary to Spokane, where a by-products plant has been established.

Some Wild Flowering Shrubs of California

By Leonard Coates

 CALIFORNIA abounds in beautiful flowering shrubs, but it is a most difficult part of the propagator's art to grow them from seed or to transplant from the hills and woods. Among the most beautiful, and most rarely met within cultivation, are the madrone (*Arbutus Menziesii*), manzanita in several species, the most common being *Arctostaphylos pungens*, tree poppy (*Dendromecon rigidum*), Western dogwood (*Cornus nuttalli*), and *Styrax Californica*.

I remember that in the nursery we had for years tried to raise a stock of madrone from seed, but without success, until some seven or eight years ago we collected a lot of berries from one tree, which, when sown, germinated like peas, and a fine lot of trees

was raised. In this case lack of fertility was the cause of former failures, the after treatment being the same.

Propagation of the manzanita was still more difficult, either by seed, which sometimes germinated well but failed in the transplanting, or by using small plants taken up and shipped to the nurseries. Getting them established seemed impossible. In Lake County I have found that occasionally on burnt over land where these shrubs grow, thousands of seedlings will spring up, as the wattles do in New Zealand. I moved a lot of plants myself on a wet day and planted them. Nearly all grew and formed a

dense mass of fibrous roots. The next year I transferred them to five gallon cans and sent a whole truck load of beautiful bushes, two to three feet high, to the nurseries in Santa Clara Valley. There are in these hills *dendromecon*, *styrax*, *Cornus nuttalli*, *garrya*, etc., and I understand small plants of these sometimes appear in same manner as manzanita, but not so plentiful.

Dendromecon is a large yellow poppy, the only tree poppy.

Styrax is related to *halesia*, the snowdrop tree of Europe, a most beautiful shrub with pendant snow white blossoms. I have found it up

the Kings River in Fresno County also.

Cornus nuttalli is the Western dogwood, with very large greenish white single blossoms three or four inches in diameter. It grows to quite a large tree.

Garrya has a wide range also. It grows in the hills back of Oakland and in the mountains of Lake: known sometimes as quinine bush, sometimes as silk tassel because of the very long, graceful catkinlike bloom of the male plant.

In the hurry and rush of money making how little is known of the wild growth of California? In the automobile one has a fleeting glimpse of what he is passing: on foot, or horseback is the only way to enjoy nature.

The Turkey Growers Problem

By Jean A. Koethen

 TURKEYS are hard to raise." I wonder how many thousand times every year that remark is made, and yet every fall, when the turkey crop is gathered, there is turkey for everybody, and the grower usually finds his balance on the right side of the ledger. Young turkeys are very hard to raise, no doubt about that, but if every poult lived that is hatched what would we do with them all, and where would the producer's profit be?

To illustrate: Last spring I bought ten turkey eggs for \$2.80, put them under one of my Rhode Island Red hens and hatched six. Four of the six dropped out of the race the first month and the other two, a hen and a gobbler, lived and grew to a fine, husky maturity. We had the hen (she weighed ten pounds dressed) for Thanksgiving dinner, but kept the tom till Christmas, by which time he was too large for us to handle, and we sold him to a market for \$9.60. There was \$15 worth of turkey meat for an outlay of \$2.80 plus cost of raising, which could hardly have been over \$5. Allowing \$7.50 for cost of eggs and feed, my profit was just 100 per cent. And yet I raised only two birds out of six. Probably that is about the average, and the aim of every turkey grower in America is to raise this average and thereby increase the profit.

Turkeys are hard to raise the first two months. After that they are far easier to handle than chickens. They require no shelter, are not troubled by insect pests, and if their constitution and environment are right will almost take care of themselves. My turkeys lived on bran, barley and green feed after the first two months, and roosted on top of the chicken fence. In feeding I followed a Gardena turkey rancher who markets hundreds of turkeys every fall. He feeds them very carefully for two months, then turns them into an open yard where they have a hopper with two compartments, one filled with rolled barley and the other with bran. They have some light shelter until they take to the outdoor roost, which they do naturally when they are ready. A pile of shell always available and young corn to eat completes this man's provision for his young turkeys, but this, remember, is after two months of age. It is those critical two months that discourage so many of us.

Igor First

The first essential to every little tur-

key's equipment for life is a vigorous body, and that comes from its progenitors. If anything is wrong in the parent stock it is sure to come out in the offspring. Like begets like. If the breeders are the leftovers, the late hatched or slow growing turkeys that were not large enough for the Thanksgiving market, they can hardly be expected to produce large and vigorous offspring. If the breeders are from rousy stock or from stock that has been inbred the offspring are quite sure to lack vitality.

I wonder how many persons who go out in the spring to buy turkey eggs ask whether the hens and the tom that produced them were related. I wonder how many who buy toms to mate to their own hens are careful to learn just what is the pedigree of the tom and to satisfy themselves that tom and hens are not from the same stock a generation or so back. Inbreeding is bad enough with chickens but worse with turkeys.

In birds that habitually and preferably roost out of doors rousp is an inexcusable disease. Its only explanation is that there has been rousp at some time among the breeding stock. Rousp is a disease originating in damp or unventilated houses. It has no place in the program of a bird that can roost out in the coldest winter. Birds that ever have a touch of rousp should be sent to market and never allowed to pass on their weakness to the next generation.

Size nearly always goes hand in hand with vigor. The breeding male should be a heavy bird, not the heaviest but well up to standard, and the hen should be plump and firm of flesh. In order to attain a good size at Thanksgiving the young stock must have this stocky ancestry. Skinny turkeys are almost sure to lack vigor.

Climate and Weather

The more I see of turkeys the more convinced I am that weather, climate and drainage play a large part in the success or failure of turkey culture. Dampness is one of the greatest enemies of the little turkey. One who is able to choose the location of his turkey ranch should go well back from the coast. Two or three years ago I had two broods of poult come off in the foggiest, chilliest days in May, and not a single turkey lived over two weeks. Most of them dropped off, with

hardly a sign of illness, before they were a week old. I know now that I did not protect them carefully enough. I had the idea then that the turkey was an outdoor bird and didn't mind the fog if only it was warm at night. Too late I realized that the little turkey with a chicken mother must be more carefully protected than a chick the first week. If the hen is careless about hovering her charges she must be put in a coop where she will be compelled to hover them. I mean a low, dark coop in which she cannot move around. April is a better month for hatching turkeys than May near the coast because there is less fog. Little turkeys like the sun, they like a dry, sandy soil and dry air. If they can be kept on a well drained hillside, so much the better. It seems superfluous to say, "Keep poult out of the rain," but it may be necessary. Not only out of the rain but off wet ground and out of the dewy grass in early morning. Dampness in any form must be avoided while turkeys are small.

Cleanliness

Next to dampness the little turkey's greatest enemy is filth. They must have clean ground to run on and clean coops to sleep in. It seems likely that the old objection to keeping turkeys with chickens is an objection to filth rather than to chickens. The Rhode Island station a few years ago thought it had proved that blackhead originated in the droppings of chickens. Later investigation showed that it was contaminated, filthy soil, and their coops, if they are hovered by hens, must be moved to clean ground or cleaned, if they have board bottoms, every day.

Hovering

How shall I brood my turkeys? This is a question that has given rise to a good deal of discussion. The sensible answer would seem to be "Use what you have," depending of course on the number of poult to be raised. Men and women who hatch with incubators and raise turkeys by the hundreds are finding that they do quite as well in brooders as with hen mothers. Any type of brooder that is successful with chickens may be used. I have seen one man using outdoor brooders with excellent success, another using a large brooder house heated by pipes under the floor, and a very successful

woman is trying out the small unit brooder house. It doesn't matter what method of brooding is used as long as the poult are kept warm and dry and clean.

The turkey hen is generally preferred to the chicken hen as a mother because she is less fussy, but most large turkey ranchers use some chicken hens rather than let the turkey hen stop laying the first time she goes broody. The plan is to break up the turkey hen and make her lay two or three clutches of eggs, letting her hatch the last clutch but giving the others to chicken hens. I have met some turkey people who preferred chicken hens because they are more easily handled. My own experience has been entirely with chicken hens, and I find most of them are excellent mothers, a trifle fussy, perhaps, but dependable if properly managed. Of course, if you let a hen go wandering about with her brood she will tire them out and take them into damp and dangerous places. If she is carefully confined in a comfortable coop and allowed out only when the day is so warm the poult need no hovering she is a good mother.

Green Feed

The providing of green feed is a serious problem in California, and one no turkey breeder dare overlook. Without doubt alfalfa is the best green for turkeys. Little turkeys that can be turned out to run on green alfalfa as soon as their first few days of quiet are over have an easy road to maturity. I heard recently of an Imperial woman who fed her baby turkeys just two weeks, then turned them out on alfalfa and gave them no more attention except a feed of grain at night. She was very successful, of course. The nearer we can get our turkeys to Mother Nature the better, and we must never forget that Mother Nature wears a green dress. Onions and their green tops are considered an absolute necessity for turkeys. Perhaps any green would do just as well. At any rate, green they must have, and provision must be made for it before the birds are hatched. Melilotus, green barley or wheat, young corn, alfalfa, clover, weeds, they like it all, and it is all their staff of life. The ideal turkey ranch is an alfalfa ranch. Lacking this, the grower must provide what he is able. The younger the birds the more their health depends on an abundance of green in their diet.

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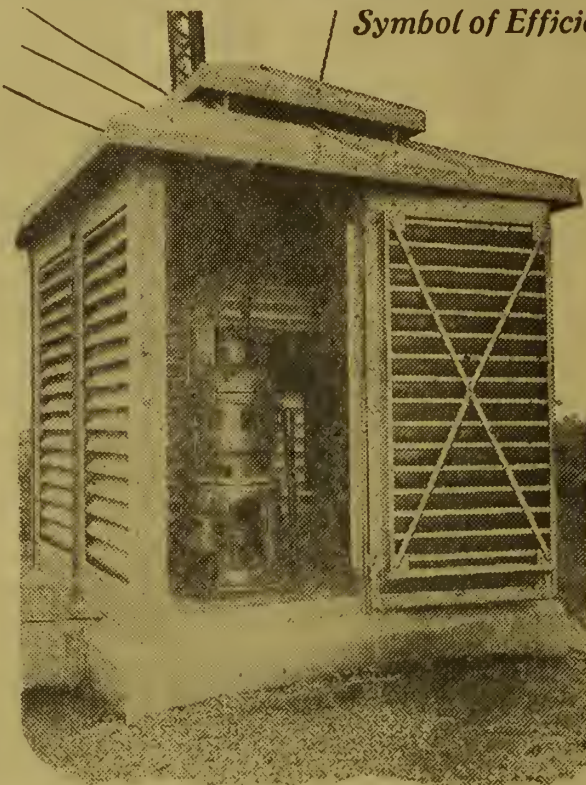
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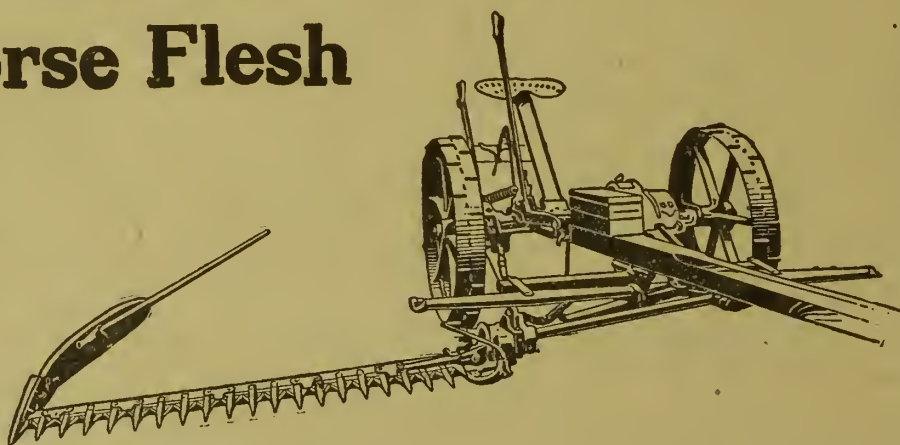
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SPRAYING APPLES AND PEARS

By T. D. Urbahns, Bureau Pest Control, State Department of Agriculture

Growers should be able to protect 95 per cent of their fruit against infestation by worms of codling moth. The spraying should be done with arsenate of lead, using four pounds arsenate of lead paste or two pounds arsenate of lead powder to 100 gallons of water. For best results it is necessary to use a good powder outfit with extensive rods and the proper nozzles. At least 200 pounds pressure should be maintained while the nozzles are spraying.

The first spray (calyx spray) is by far the most important and should be applied while the calyx cups are still open. On both apples and pears the spray should begin when two-thirds of the petals are off; on the apple should be applied within about three days and on the pears within seven days from that time. The calyx cup of the apple closes more rapidly than those of the pear and therefore gives less time for applying the first spray. This application should be driven down from above with an extensive rod and angle nozzle with a one-sixteenth inch disk so that the spray will be deposited in the calyx cups where most of the worms begin feeding. If the bloom is very irregular it may be advisable to repeat the calyx spray to protect the late blossoms.

The second application should be made about three weeks after the first regular spraying. This is necessary to protect the fruit again from worms attempting to enter from the outside. Every effort should be made to thoroughly coat the fruit and leaves with a thin, uniform film of the spray. This result can be secured by using nozzles with disks having one-third second inch opening and high pressure and constantly keeping the nozzle moving so that no excess of spray will collect on the fruit.

The third application should be made about four weeks after the second. A fine mist spray under high pressure uniformly distributed will best protect the fruit against worms and will avoid the deposit of unnecessary spray residue which is very objectionable when the fruit is being marketed. In orchards of late varieties it is necessary to make an additional application about the middle of July for the purpose of destroying worms of the second generation. Equal care should be given at this time to secure a fine, uniform distribution of the spray and every effort should be made to protect the fruit on all parts of the tree.

OLIVE GROWERS ORGANIZING

The olive growers of the state are discouraged, but not down and out. Their situation is serious enough, however, that they are, honestly and earnestly seeking relief through cooperation. A movement started in the central part of the state resulted in the selection of a committee of which T. J. McKelvy of Fresno is chairman and Wm. Glass secretary. The general plan of procedure contemplates dividing the state into three districts. District No. 1—Los Angeles, Riverside, San Diego, San Bernardino, Ventura, Orange, Imperial, Santa Barbara and San Luis Obispo Counties. District No. 2—Tulare, Fresno, Kern, Madera, Merced, Stanislaus, San Joaquin, Mariposa and Santa Clara Counties. District No. 3—Butte, Tehama, Sacramento, Glenn, Shasta, Yuba, Yolo, Placer, Sutter, Napa, Calaveras, Alameda, Contra Costa and Sonoma Counties.

Olive growers in these districts are urged to get together and appoint a board of 25 trustees. At this writing the hope is that these trustees may be named prior to April 30. Then an early meeting of these trustees will be held in Fresno.

Mr. McKelvy's committee has formulated a working agreement which is said to be merely suggestive but it is hoped that from it may be built a plan and form of contract. The plan contemplates a stock corporation to be formed with subscriptions by growers only, each share of stock to have a par value of \$50 per acre owned by the subscriber. The trustees are termed voting trustees, and they are expected to elect the executive committee.

mittee of board of directors which shall have actual charge of the business of the association. A five year contract is provided for but withdrawals are permitted during the years 1923, '25 and '27 during the month of February. The plan of organization is very similar to that of the Sun-Maid Raisin Growers.

APPLE MARKETING COMMITTEE

As an outgrowth of a mass meeting of pear and apple growers representing all parts of Southern California held at Yucaipa, February 7, under the general auspices of the Southern California farm bureaus, the Pear and Apple Marketing Committee of 16 of Southern California has been organized. During the past month this committee has held several meetings resulting in the appointment of special sub-committees on various phases of the apple and pear marketing problem. The personnel of the committee, together with the districts represented is as follows:

H. S. Bissell, central part Los Angeles County; F. H. Gilmore, John Hundley, P. B. Hasbrouck, C. B. Rous, Yucaipa; Henry Mennig and Norman Evans, Antelope Valley; H. B. Woodrough, Orange County; Fred White, Chino; E. H. Richardson and W. A. Foster, Mojave Valley; H. L. Rivers, Oak Glen; R. B. Peters, Devore; C. T. McKenney, Tehachapi; R. L. Wilson, Beaumont; E. W. Allen, Downey. R. B. Peters was chosen chairman and an executive committee was elected as follows: E. H. Richardson, chairman; Bissell, Hasbrouck, Woodrough, Mennig, and Peters. Executive committee selected sub-committees as follows: By-products: Peters, Gilmore, Wilson, White, Mennig. Storage: Hasbrouck, Rivers, Mennig. Marketing: Woodrough, Evans, McKinney, Hundley, White. Market Information: Bissell. Publicity: Peters, Rous, Allen.

In the districts mentioned there are in excess of 15,000 acres of apples and pears in partial bearing. This acreage should soon be able to produce from 1½ to 4 million boxes annually. The local market is not able to consume this production, part will have to be shipped out. At present there are many selling agencies resulting in disorderly marketing.

Large quantities of fruit the past year rotted on the ground for lack of a by-products industry. This has resulted in many cases in very low returns to the producer, yet the consumer has received very little benefit from these low prices. There are certain practices on the part of the cold storage companies which will receive serious consideration.

The Committee of 16, through its sub-committees, will endeavor to study the situation, and suggest ways and means whereby some of the conditions outlined above may be improved and the industry as a whole be developed, so that a fair price may result to the producer and the consumer have the benefit of the fine quality of apples and pears produced here in our midst, and at a fair price to him also.

WHAT WILL HARVEST BE?

(Continued from Page 455.)

It look in excellent condition and good crops should result. Cherries not grown in commercial quantities. Prunes not grown in commercial quantities.

San Fernando Valley

A Cultivator field man reports that careful observation in Owensmouth, San Nuys and other San Fernando Valley points shows material reduction of the apricot crop by frost on April 11 and 12. Peaches likewise lightly affected.

San Joaquin County

The freeze of April 12 got about 90 per cent of the apricots in two-thirds of the valley. The north side is hardly touched. Walnuts also suffered to an extent not yet known but will run to as high as 75 per cent in some orchards. These two crops are grown extensively in the Simi Valley.

San Joaquin County

Almonds, 5 per cent; apricots, 25 per cent; cherries, too early, prospects good; prunes, too early.

Thos. Briles, Horticultural Commissioner, Modoc County

It is yet too early, owing to the extreme lateness of the season, to give you anything definite as to fruit crop conditions. However barring later frosts, prospects are good. Our only commercial fruit crop in Modoc County as yet is apples, and this season the trees will not bloom until the later part of May. Other deciduous fruits such as apricots, pears and cherries grow in this altitude to a high degree of perfection but as yet are little grown commercially.

F. H. Taylor, Horticultural Commissioner, Lassen County

The season is so late that we cannot give figures at this time, but the outlook seems to be very good.

C. E. Sullivan, County Agent, Sutter County

Bumper yields predicted in all crops. No damage of any kind reported as yet to any crops in Sutter County.

Almonds, 100 per cent. Apples, 100 per cent. Apricots, 100 per cent.

Cherries, 100 per cent. Peaches, 10 per cent so far, but danger of frost not completely over, probably will be when paper goes to press. Pears, 100 per cent. Prunes, 100 per cent, frost danger not over, same as peaches. Grapes, 100 per cent, frost danger not over, same as peaches.

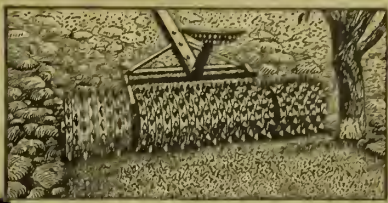
California Prune and Apricot Growers, by H. L. Dunlap

Your request for information as to crop prospects comes just a little early for the best information except of

course with reference to apricots. According to reports, apricot crop everywhere damaged. In the coast districts especially damaged by both brown rot and recent frost. Reports just coming in on the frost damage from all districts. Just as a rough estimate at this time it begins to be a little doubtful if the state's crop would exceed last year's light production, but would not attempt definite prediction for a short time. Prune blossoms everywhere good, but critical season still ahead of us.

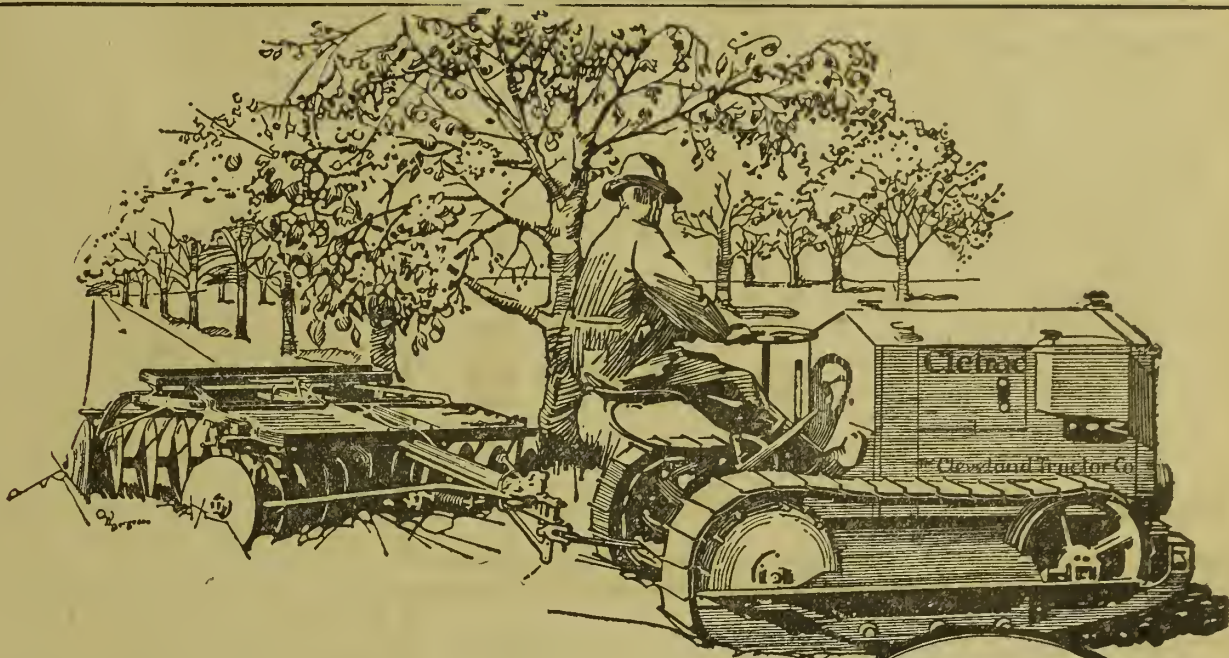
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Cletrac works fast without injuring the trees

Cletrac will speed up your orchard disking and harrowing. Strong, low-set and with power to spare, Cletrac cultivates under the branches and close to the trunks without harming the trees.

When the job is done, it is ready to move the sprayer about and hurry along any work you put it to. Hauling loaded fruit boxes out of the orchard during the rush of picking season is only one of the many extra jobs on which Cletrac saves time and cuts production costs.

The two wide tank-type treads get a firm grip on hilly or soft land. No power is lost through slipping or digging in, and Cletrac travels steadily along—always delivering an abundance of draw-bar pull from its big motor.

Cletrac's short-turn ability makes it mighty handy among the trees. Its heavy-duty motor is unusually flexible—and the governor automatically adjusts the fuel to the load.

In the hot, horse-killing days of dust-heavy summer, the Cletrac user can push his tractor to the limit—twenty-four hours a day if necessary. Dust does not reach Cletrac's motor—the water air-washer prevents that.

Send for a copy of "Selecting Your Tractor"—it gives the whole interesting story. And talk it over with your local Cletrac dealer.

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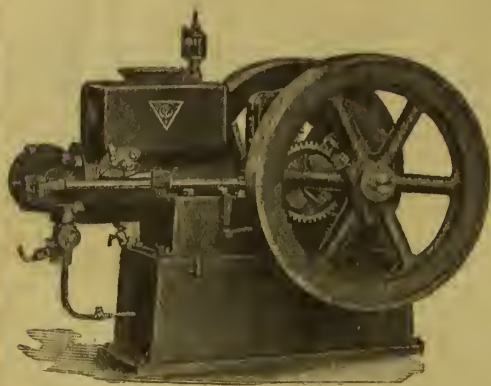


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Specifications

Horsepower: 12 at draw-bar, 20 at belt pulley.
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Width: 50 inches.
Height: 52 inches.
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Belt Pulley: Dia. 8 inches; face, 6 inches.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department. Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Right of Redemption Sold

A mortgage was foreclosed on certain real property. The property sold for less than the mortgage and a deficiency judgment was given against the mortgagor. The mortgagor sold his right of redemption to a third party with a covenant in the deed to the effect that the third party would pay the amount necessary for redemption and also the total amount of personal judgment. Is the mortgagor and judgment debtor cleared of his obligation? For how long a time can action be taken upon such judgment?—Subscriber, Encinitas.

The sole amount necessary for redemption is the amount for which the property was sold, with one per cent per month interest to date of redemption, but in case such as this where a party agrees to pay additional amounts such agreement could be enforced by an action at law just as any other agreement could be. He would, however, get clear title to the property without paying the personal judgment, if he pays to the sheriff the amount necessary for redemption. The point as to the personal judgment would remain to be enforced against the redemptioner by the mortgagor. Such a transaction, unless made with the consent in writing of the judgment creditor, could not, of course, clear the judgment debtor from his obligation. The sole way that it would affect the judgment creditor would be by probably giving him additional right of action against the redemptioner. Execution may be taken out upon a judgment up to five years from the date of entry and after that time there is no statute of limitations on such judgment, but an affidavit to the effect that the judgment has not been paid must be filed and an order of court secured for the issuance of execution.

Changing Interest Rate

I purchased real property on contract in 1919. For one installment I requested and was granted permission to make a payment before it was due. I have now received a letter stating that the rate of interest will now be seven per cent instead of six per cent. Must I pay this extra money?—Subscriber, Chartiers.

Unless in some manner the terms of the original contract have been altered by an agreement in writing upon your part you are entitled to stand upon the terms as originally drawn. Questions of interest can not be made and enforced by one party without the consent of the other where there is a contract governing the matter.

Wishes to Re-Deed

Two single men purchased a ranch together as tenants in common. Each made a deed to the other of his undivided half, which deeds were placed in escrow to be delivered up at the death of either. One of the parties married and would like to give his share to his wife. What is the best way?—Subscriber, Lodi.

The simplest method would be to make a deed to the wife of all right, title and interest in and to the property and file that deed in escrow with the original deeds, giving the appropriate instructions.

Book Agent's Contract

A year ago a book agent persuaded me to sign a contract for a set of books. He said that if I did not like them I could return them. I paid nothing. I did return them but now I receive a letter that the book people intend to bring action to collect. Can they make me pay?—Subscriber, Downey.

These book contracts are usually very skillfully drawn and provide against any return of books as that is the last thing which the book agent desires to have done. They usually find a very rough course in bringing any action upon such contracts and in view of your return and the accept-

ance of the books it is very probable that any court would find there has been a rescission of contract which has been accepted and that judgment would be for you.

Homestead Sold

Several years ago my father purchased a place, built a house, and filed a homestead declaration. Later I sold the place. My mother tells me that she never signed any deed. Could the place be regained, and is there any limitation of time?—Subscriber, Honolulu.

A homestead of a married person can not be conveyed or encumbered unless the instrument by which it is conveyed or encumbered is executed and acknowledged by both husband and wife. It has been held that even if there are two instruments, each executed by the husband and wife, that this is insufficient. The same instrument must be executed by both. However, if the party purchasing the property, holding as he does the deed from your father, has been in the continued occupation and possession of the property for five years and paid all taxes levied and assessed thereon, he is deemed to have acquired title thereto by adverse possession and could set up such title in defense of any action brought.

Claim of Homestead

A homestead was declared upon property during the lifetime and residence thereof of husband and wife. Seven years after the wife's death suit was brought. In such suit the husband relied upon adverse possession and made no claim as to homestead. If he desired to set up the homestead claim would he be compelled to state another action and could he be kept off the place in the meantime?—Subscriber, Fresno.

It is evident that the party in the instance has had the advice of attorneys and set up in some court action the defense which he may have. It is one of the prime axioms of the law that when a person goes to court he must in such action set up all of the defenses which he may have to the action or be forever barred from asserting them. This rule, of course, does have numerous exceptions depending upon the facts of the individual case. It might be that in some other action some right might be set up to the homestead, but there having been a judgment evidently disposing of the subscriber, such judgment must stand until either reversed or some other judgment taken. Generally speaking, concerning the disposition of the homestead on the death of the spouse, the rule is as follows: "If the selection was made by a married person of community property of the separate property of the spouse making the selection or joining therein the land so selected, on the death of either of the spouses title vests in the survivor. In other cases on the death of the person whose property was selected as a homestead, it would go to the heirs or devisees subject to the right of the court to assign it for a limited period to the family of the decedent."

Not Responsible for Workmen's Tools

A contractor erected a small building wherein carpenters were permitted to place their tool chests at night. The tool house was locked at night by the contractor, but one night thieves broke in and stole all the tools. Can the carpenters hold the contractor for the loss of their personal tools?—Subscriber, Glendora.

This was evidently a deposit of the tools for which the contractor received no consideration. The law binds him, therefore, to use no more than slight care for the preservation of the thing deposited. As he erected the house and placed a lock thereon he certainly has used all the care that it would be required of him to use and therefore would in no wise be liable for theft by breaking in. Of course, if he had received some compensation for the storage of the tools over night, then the case might be different.

Not a Law

I have understood that it is a greater offense to hit a man who wears glasses than one who does not. Is this true?—Subscriber, Glendora.

The question stated is one which

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very commonly brought up and seems to be one of the general superstitions in respect to the law. There never has been any such rule and undoubtedly never could be. It probably arose from the fact that the result of the injury in hitting a man in the face, breaking his glasses and forcing them into the eyes would be decidedly greater than if there was no glass about the eyes. If the injury made be greater the punishment might be more, but the law itself is entirely silent upon the subject.

Case for Juvenile Court

I am 16 years of age. My stepfather forces me to work, takes all wages earned and is otherwise very cruel to me. He also brings disreputable people to our home. I ran away and now they threaten to put me in a reform school. What can be done?—Subscriber, Ontario.

You undoubtedly should see the juvenile court officers in your county, and they would probably direct you to file a petition to the effect that you should be declared free from the custody and control of parents. The parents will then be cited into court and the matter be determined. This does not mean that you would be confined to the reform school by any means, but the court would take such measures that you would be given the rights which a child of your age should have.

Marriage in Mexico

May a person cross the border into Mexico, be married and come back again without living there any length of time?—Subscriber, Ontario.

Such marriages have been performed many times and unless it is shown that the trip was made purely to evade some laws of the country of residence, they are undoubtedly valid.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Edible Bamboo

Is the edible bamboo grown in California or will any kind do if properly grown and properly cooked? I have been experimenting with a common one grown here.—Subscriber, E. San Diego.

But one species, *Phyllostachys mitis*, is grown for food in Japan; other species are too bitter to be palatable. This species has been grown for food for centuries and is the largest of the sturdy species grown in Japan. It easily grows to 50 feet in height and some of the edible culms or sprouts are six inches or more in diameter. We do not know of any for sale in California nurseries.

Budding Walnuts

Please tell us about budding the black walnut.—Subscriber, Los Angeles.

Budding is not generally practiced enough in the hands of experts occasional successes are secured. It is usually done in the fall, September being preferred. The buds are expected to remain dormant over winter. If, however, one wishes to test out spring budding May and June are the best months. Grafting may be performed in February or early March. It is probably too late to get dormant buds for this work, however, for this season. These buds should have been cut several weeks ago and kept in cold storage or moist sand.

Water for Bees

I am wondering if you could give me some information on how to get rid of bees that are such a nuisance around iceless water cooler and olla which keep out under a tree during summer weather. They were such a nuisance last summer on hot days. The kiddies got several stings. If you know of anything that would be offensive to them I surely would be grateful for knowledge of it.—Subscriber, Hemet.

Keeping a supply of water for the bees is perhaps the best way to avoid this nuisance, a small fountain or,

perhaps easier, a dripping hydrant around which has been made a small basin of cement with sloping sides or even a pan kept filled in which is a shingle or thin board on which the bees may light and secure their water. After this provision is made the locality of the olla may be made offensive to the bees by dusting about a very small quantity of buhac or insect powder.

Sunburn

I enclose a piece of bark from an apple tree about eight years old. Trees on both sides full of blossoms but this one only has about a dozen. Can you tell me what the trouble is and the cure? This bark on the bottom up to 18 inches where it forks is broken, some smaller and others larger, warping on the side or ends, leaving the body of the tree bare. Otherwise it is a vigorous tree.—Subscriber, Bakersfield.

We can see no indications of disease, and it is possible that the injury comes from sunscald or the burning effect of the sun. Of course there is

no saving of the bark where it is already peeled off, but other trees should be protected by low heading or encouraging low growing foliage or else by use of artificial protectors. This protection is required especially in winter time when tree is dormant. Old newspapers wrapped about afford protection and even a coat of whitewash is beneficial.

Pacific Garden

Is there a publication called Pacific Garden and where may it be addressed?—Subscriber, Oakland.

The Pacific Garden ceased publication some years ago.

Plowing Orchards

Can you tell me whether it is injurious to peach trees or fruit to plow orchard when the buds are swelling or just beginning to open? Is it necessary to cut the surface roots off of grapes one year old? Will tying cotton around grape canes near the bottom keep cutworms from injuring buds? I have been told that the

worms cannot cross cotton.—Subscriber, Modesto.

It is injurious to any orchard trees to plow deeply at time of blossoming. If plowing is so shallow that no roots are injured probably no harm will result, but it is not recommended. It is not necessary to cut grape roots. A collar of cotton batting is a very effective deterrent to climbing cutworms. Unroll batting and cut into thin sheets four inches wide. Wrap these around trunks and allow to overlap an inch. Then tie at the bottom with common white twine and roll top of band down over bottom edge. It would be as well, in connection with banding, to put poisoned bait around bottom of trunks unless chickens or domestic animals run among vines.

Squirrels and Crops

How can I get rid of squirrels? I have tried almost everything. Where can I sell walnuts? Where can I sell rhubarb root, not the pieplant grown for stalks?—Subscriber, Elsinore.

There is no other method or agency

Why the \$10.90 USCO is better than just a \$10.90 tire



ON November 10, 1921, the 30x3½ "Usco" was marked to sell for \$10.90.

This odd and closely figured price was the lowest quotation ever made on any tire of known standards.

A genuine pioneering step by the makers of U. S. Tires.

Now comes a lot of different \$10.90 tires being rushed into the market. "Special" tires. "New" treads.

Unfamiliar to look at—with perhaps an atmosphere of having been made to meet the price.

But the "Usco" still occupies a place by itself. A good old standby on millions of cars for years. Better than it ever was.

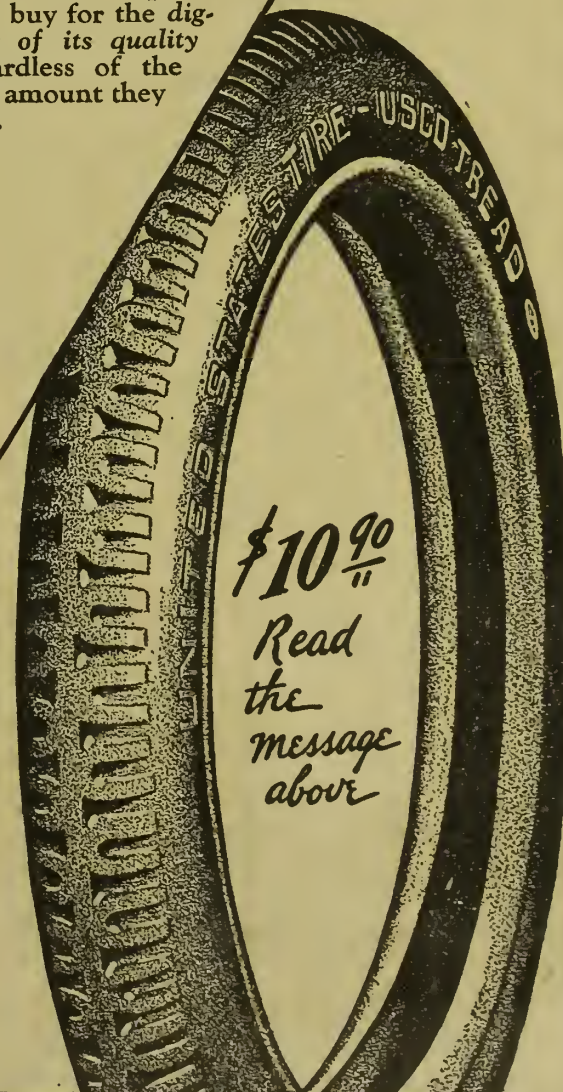
United States Tires are Good Tires

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Still putting the emphasis on honest quality, even if it does sell for only ten dollars and ninety cents.

The \$10.90 tire with the record of a proven product.

The tire that people still buy for the dignity of its quality regardless of the low amount they pay.



\$10.90
Read the message above

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"Look at this. Page 66 tells you how to use Hercules Farm Dynamite in the orchard. Blasting between the rows is what'll fix those trees. Dynamite's the only way to do it and think of the time it'll save."



Send for this book—
It is free.

HERCULES FARM DYNAMITE

Read this new Hercules book, "Land Development". It tells you all you want to know about dynamite on the farm, tree-planting, blasting between the rows, ditching, stumping, boulder blasting. Send for it today.

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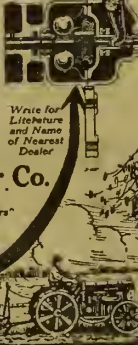
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so successful in extermination of squirrels as carbon bisulphide, though poisons are used with success. The horticultural commissioners of many counties keep these materials on hand and supply residents of counties at cost. They will also, in case of sufficient help, send a man to show proper use of materials. Write A. E. Bottel, Court House, Riverside. For large quantities of walnuts would write California Walnut Growers' Association, Los Angeles. Small quantities could be sold to wholesalers. For rhubarb root, ask your local druggist for name of a wholesale firm dealing in such materials.

Asparagus

We have an asparagus bed six years old. Should it be kept clean cut until the end of the cutting season, say the middle of May or first of June, or should a portion of it be allowed to grow up before that time? And is it best to leave the thick winter mulch on after you begin cutting in the spring or rake it off—Subscriber, Santa Barbara.

So long as the cutting season lasts every stalk should be cut, whether large or small, edible or otherwise. After cutting season allow everything to grow until fall, or about August, then cut and burn tops as a protection against rust. It is possible, however, to injure a bed by cutting over too long a season. Allow the mulch to remain; too much seldom accumulates. Asparagus does best in a cool, moist, very rich soil.

TRACTOR REORGANIZATION

The California Tractor and Implement Association held a reorganization meeting at Hotel Bellevue, San Francisco last week. A lengthy financial and operative report was presented by W. V. Freeman, president of the association, and a new constitution was outlined.

Bigger and broader lines of activity for a new organization were discussed and tentative plans made to embrace a larger field of endeavor. It will be the plan of the new organization to embrace farm machinery interests of every class with the aim of rendering the greatest possible cooperation to all users of machinery on the farm. It is hoped to secure a membership of at least 100.

There were in attendance at this meeting representatives of 20 tractor and implement companies, together with representatives of allied interests. After discussion relative to the desirability of discontinuing the old organization and forming a new one along broader lines this decision was finally reached and the old California Tractor and Implement Association was declared no longer to exist. Steps were immediately taken to form a new organization of general farm machinery equipment interests, and a questionnaire is being prepared which will be submitted to the members of the old California Tractor and Implement Association asking their opinion relative to the name and general activities of the proposed new association.

The next meeting of the proposed new association will be held on Monday, May 1, at the Bellevue Hotel, San Francisco.

WALNUT FROST INJURY

In cooperation with Dr. L. D. Batchelor of the citrus experiment station, a frost injury survey of the walnut districts of Los Angeles County has been completed by Farm Adviser Hodgson and has brought out the fact that many of the younger plantings were greatly injured by the November frost. At the time the preliminary report on the survey was made it was stated that no distinct varietal differences had been noted, but since that time it has become apparent that in certain districts the Eureka has suffered considerably more than others, the Placencia and Ehrhardt having escaped practically any injury in many orchards where the Eureka was badly frosted. Arrangements are now being made for a series of field meetings later in the season to demonstrate proper methods of rebuilding damaged trees.

SAN FERNANDO GRAPES

A varietal test plat of grapes has been planted on the place of Norma C. Johnson, San Fernando, and will doubtless prove of great value in indicating varieties which will prove successful under San Fernando Valley conditions. A half acre was selected on which eleven promising varieties recommended by Prof. Bioletti were planted as follows: Kurtelask, Golden Queen, Dattier, Chaouc, Henah, Damas Rose, Hunisa, Moliner, Red Emperor, Cornichon, and Black Monukka.

The Fontana Citrus Association reports a banner price of \$8.15 a box paid for oranges packed 200 in a box. \$6.70 is the lowest price received for the last month. Superintendent Boy reports that the apricots of which there are some 700 acres are setting a bumper crop showing no ill effect from the cold weather; 400 acres of Spanish peanuts are now being planted, 2 acres of potatoes and 50 acres of sweet potatoes are making a good growth and some 300 acres of alfalfa are now being planted.

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These are just a few of the reasons that farmers everywhere prefer A & M Selected Dwarf Milo Maize. Those who have raised it in the past are one and all planting it this season. The same high quality as in previous years.

Field selected specially for seed purposes. It's the strain desired by particular growers.

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Household Department

THE LITTLE TOWN

Great cities are most wonderful;
I love their domes of smoke
And miles and miles of avenues
Crowded full of folk.
And no man looks at mountains
More lovingly than I
When sunset points them sharp and clear
Upon the western sky.

I love the lilac fringe of foam
Along the summer sea,
And every tossing mile of blue
Is beautiful to me;
I love the quiet havens
Where the white looming sails
Slip softly in at twilight
With easks and costly bales.

But best I love the little towns
With leisure to be wise,
Brooding over many things,
With quiet in their eyes.
The little towns are my best friends,
Most innocent and dear—
Oh, these I have loved best of all
For many a happy year.

Even Time is good to them,
Affable and kind,
Weathering and shaping them
Slowly to his mind,
Ripening their beauty
While the seasons run,
Touching them most tenderly
With rain and wind and sun.

Rome, Paris, London,—
Boston, if you will,—
Have a million lovers
Who will love and praise them still.
I shall praise the little towns
While I am given breath—
Concord Town and Stratford
And little Nazareth.—Odell Shephard in
Youth's Companion.

BUTTON! BUTTON! WHO'S GOT THE SAFETY PIN?

By Clara Peterson

CYRUS CIRCLE, the jolly ruler of Pin-Pin City, hadn't smiled for a day and a half. His face was long and sad as he sat in his brown velvet chair before the window and watched the crows hopping around under the cherry trees.

"Only the day before yesterday I was as happy as a baby with a balloon, and now look at me," sighed Cyrus Circle. "To think that a Safety Pin Merchant should find it possible to ruin Pin-Pin City!"

The crows flew away with a great deal of cawing and the ruler turned his tired head so that he found himself gazing straight at his own reflection in the long and shining mirror between the windows.

A dimple arrived in his cheek. His mouth turned up at the corners. Cyrus Circle smiled. Very lovingly he rubbed his fingers over the necklace of buttons which hung over his crimson robe—blue buttons and white ones, pink and black, even green and orange buttons, all strung carefully like some priceless beads.

"Brother Silas was very kind to send a shipload of buttons across the ocean to me," said Cyrus Circle to himself. "I'll never forget how happy all the city babies were, though some of the big boys did look a bit odd."

He smiled again, thinking of that happy day before yesterday. Brother Silas had written that he was sending a shipload of buttons which would prove to be extremely useful to Pin-Pin City. Cyrus Circle had turned red with excitement when the letter came, for he had not an idea in the world as to what buttons were. Perhaps they were a new kind of cookie—or maybe watermelons with a different name; they might even be doll pianos, which would be fine indeed for all the little girls.

The ship arrived almost as soon as the letter, and what do you think! Cyrus Circle found that buttons were nothing but round flat things with two holes in them—beads, of course.

Cyrus had taken all the golden candlesticks from his candlestick safe, which was the largest in the palace, and had filled it to the brim with buttons. All that morning he had sat before the safe and beamed at the boxes of buttons, stopping every servant who passed so that everyone in the building had seen and admired the boxes of red shiny buttons and the racks of green dull ones and all the others, too.

That is, had seen all kinds Cyrus Circle had kept for himself. For no sooner had the ship come in than he had begun to plan a way to share this wonderful treasure his brother had sent—brother Silas, you know, was

very rich and always sent valuable things. And not two minutes after Cyrus had seen the great piles of buttons in the ship he had thought how very, very wonderful it would be to give every child in the city a long, long necklace of these precious beads. So, as I have said, Cyrus sat before his safe all the morning of the day the ship arrived, but all that afternoon he rode around in his coach and gave to every child in the city one long and shining string of buttons. A hundred ladies worked till six o'clock stringing them.

Cyrus Circle went home tired and happy that so many, many children should have such lovely jewelry. His face was completely filled by one large smile as his black and white horses turned in at the palace gates. But the next minute Cyrus Circle had stopped smiling (and his face had crinkled only once since), for there at the upper part of the driveway had stood the purple coach of Samuel Slasher—and Samuel Slasher himself, dread Safety Pin Merchant of Pin-Pin City, was just hobbling through the crystal doors of the palace, frowning and muttering as usual.

The Safety Pin Merchant was spoiling inch by inch the beautiful city of Pin-Pin. Just the moment some spot in the city began to look lovelier than any other, just the moment an orchard grew old enough to bear red cheeked apples, just the moment a happy group of neighbors painted houses and planted rose trees and trained vines over sparkling peeping windows, just then would Samuel Slasher hop in and build one of his hideous stores or a dark and gloomy factory right in the middle of everything. What could the people do? What could Cyrus Circle do? The city had to have safety pins and there wasn't another person anywhere around who knew how to make them. The people used white safety pins to fasten little girls' dresses and little boys' waists, and black safety pins to fasten big people's clothes, and oh, how very many they did use! It was no wonder that Samuel Slasher was richer than anybody. He could have built his factories and stores of marble and silver, but he didn't. He was so stingy and cruel that when he did put up a building (in the most charming spot to be found, of course) he built it of rough black stone and the windows in it were so small that they could hardly be seen.

Cyrus Circle groaned as he sat in the brown velvet chair. Another safety pin factory right in the middle of Arbutus Park! That was what Samuel Slasher had come to see him about. Cyrus could remember his very words. The Safety Pin Merchant always bit off his words and nodded his head fiercely as he talked. "Yes, I've decided on Arbutus Park. I'll leave some of the trees standing so I won't have to put up awnings, and there will be plenty of room to pile my brass wire boxes all over the grass. I'll pay the city just what the park is worth and not a cent more. How's that? What if there isn't any other place for a park! What good is a park—full of nursemaids and children and flowers—not even a potato planted! I tell you the matter's settled, Cyrus Circle."

The trouble was that Samuel covered his safety pins with a kind of paint which wore off very quickly and left them too ugly and tarnished for any use, so every month his carts went around collecting all the pins to be repainted. After that he sold them over again. And this was just the first of the month when nearly every safety pin in the city had been turned in to one of the factories. When kind Cyrus Circle had dared to say that he just couldn't give up the children's park, Samuel had stamped his foot and said very angrily that if they didn't sell him the park within a week he would pack all the safety pins into wagons and leave the city forever and ever.

"What shall we do?" sighed Cyrus Circle. "I'm so worried I can't even enjoy these beautiful button beads. Oh, how do you do, Miss Betsy Elizabeth Circle! How are you today?"

The ruler almost smiled as he said the last words, for his little girl had come hopping into the room. She had on a light green gingham dress and dark green socks and slippers and her



Mr. Jenkins Took a Cracked Club To Tame Lions

The exhibition ended rather badly. It very nearly was a big day for the lions and a sad day for Mr. Jenkins—all for want of proper care in getting ready.

Many a man who has business to do and a living to make and a job to fill is as careless how he feeds his body as Mr. Jenkins was in picking out a club. And an improperly nourished body often fails under a hard test.

Some foods are too heavy, some are too starchy, many lack necessary elements and so starve the body—and many load the system down with fermentation and auto-intoxication.

Grape-Nuts helps build health and strength. It contains the full richness of wheat and malted barley, including the vital mineral elements, without which the body cannot be fully sustained. Grape-Nuts digests quickly and wholesomely. Served with cream or good milk, it is a complete food—crisp and delicious.

Grape-Nuts is just the food for those who care to meet life's situations well prepared in health. Order Grape-Nuts from your grocer today. Try it with cream or milk for breakfast or lunch, or made into a delightful pudding for dinner.

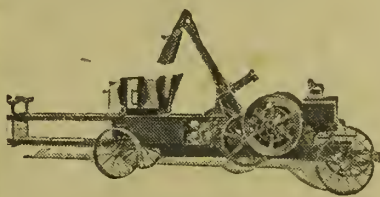
Grape-Nuts—the Body Builder

"There's a Reason"

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ANNOUNCEMENT

In spite of fire having swept our plant April 18th, we can make deliveries on the Western Star Horsepower Hay Press now and after May 1st will be under production on Western Special Power Hay Balers, Triumph Buck Rakes and Stackers.



Before you buy be sure and see The Western Special Power Baler

With true gears, easy running and thoroughly proven under California conditions.

If not convenient to call, send for a MAN-OF-WARR who will call and give you full information and REFERENCES.

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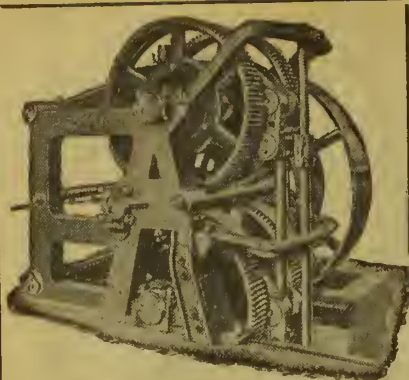
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NATURE
TO GROW
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The result of 40 years of sprayer making. An Ospraymo Sprayer assures you of high power, and high power makes your spraying job effective.



Above is a popular style of power sprayer for citrus fruits and general orchard spraying. We make mounted traction Red Jacket and Yellow Jacket Sprayers for beans, potatoes and vegetables. Barrel, Bucket, Knapsack and Hand Sprayers. Send today for our latest catalog. Don't buy any sprayer until it comes. We have local dealers at many points but write direct for catalog to either address below.

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GENUINE U.S. OFFICERS' POPLIN SHIRTS

2 for \$3.75
formerly sold at \$3.00 each
SEND NO MONEY
Guaranteed not to fade. Double stitched throughout. Stronger at points of strain. Double flap, double buttons, double button holes. Sizes 14-18. Pay postman. Rush order to Dept. F.

U.S. STORES
461 8th Ave. New York

The California Cultivator is only
One Dollar Per Year.

brown braids were crossed and looped up with middling green ribbons. Even her eyes were green and sparkling and she was pulling quite a large green wagon across the marble floor—clackety bang it went! She began to talk so fast that her lips could hardly keep up with her tongue.

"I'm quite well today, Father Cyrus I've been down to the brook and caught a polliwog and I've made two apple men with cloves and toothpicks, and—and—"

"My child, my child!" cried Cyrus Circle. "Where are your beautiful button beads?"

"I was just going to tell you about that, Father Cyrus. I've had just a terrible time. When the polliwog tried to get away I leaned so far over that the string broke and some of them fell into the water, but I put the rest into my pocket and strung them again. But then, I went down to the pasture to give a cookie to William Billy-Goat, and what do you think! He just grabbed the chain and ate half of the rest of the beads before I could stop him. He had taken only one bite of the cookie so I ate the rest of it myself right before his eyes to punish him."

"Dear, dear me!" said Cyrus Circle. "Now, father, don't be sad. I have the rest of them in a perfectly safe place and it's just the cunningest cunning thing you ever saw. I came to show you."

She drew the wagon up before the brown velvet chair and took off the faded quilt which was spread carefully over it.

Five dolls lay in a beautiful row. Betsy Elizabeth bent over and kissed each one and giggled to herself.

"See, father, all of my doll safety pins were back at the factory so I just used these buttons instead. I sewed the red ones on Polly because she has the reddest cheeks. Molly has the blue buttons because her eyes are blue and Dolly the brown ones because her eyes are brown. The orange buttons just matched my Holly's orange slippers and last I sewed all the shiny green ones on my darling Lolly-pop's dress because I love her best and I want her to match me. Isn't it the cunningest cunning thing!"

The ruler bent over Polly and Molly and Dolly and Holly and Lolly-pop. They were all asleep, of course, because they were lying down, but their china mouths were smiling beautifully. They all wore embroidery kimonas just alike.

And down the front of each kimona was a row of buttons with the holes in the embroidery neatly buttoned over them!

Five doll kimonas fastened without a single safety pin!

Cyrus Circle just stared and stared. He knew now why his brother had said that buttons would be extremely useful to Pin-Pin City.

"Hurrah! Hurrah!" cried Cyrus Circle holding out his string of buttons and dancing happily before the mirror. "Samuel Slasher may load up his wagons and leave the city forever. We'll tear down his ugly stores and factories and build them where they belong and let the people have their parks and their flowers and their orchards! Hurrah!"

And that is just exactly what did happen.

TO SMOKE SMALL AMOUNT OF MEAT

Walter Myers, Phoenix, Oregon, sends to the Oregon Farmer the following recommendation for a device to smoke meat where one has only a small amount to smoke:

Take a box four or five feet long, two or three feet wide and about four feet deep. Drive large nails around inside the box about two inches from the top to hang the meat on. Make a hole in the bottom of the box for a two inch pipe. Dig a hole in the ground about two feet square and 18 inches deep. Cover with two pieces of tin or sheet iron, first making a hole in one piece for the two inch pipe. Set the box on space over this hole so that it will stand about two feet above the ground. Connect the pipe between the piece of sheet iron and the box. Build a fire in the hole and when it is well started cover it with dirt so that the smoke will not get out, but will go through the pipe into the box. Have a hole in the top of the box for the smoke to go out.

Mr. Myers says this will not heat

the meat, as is sometimes done in a smokehouse where the fire is put inside under the meat.

HINTS FROM HOUSEKEEPERS

Lemon Meringue Pie

1 1/4 cups sugar, 1/2 cup flour, little salt, juice one lemon or two, grated rind of one, 3 yolks eggs, 1 cup boiling water, 1 teaspoon butter. Mix sugar and flour, add boiling water, butter, beaten egg yolks, rind and juice. Cook till thick, put in pie crust, bake for few minutes. Beat white of eggs, put on top, put under fire till light brown. Add sugar to beaten white of egg as you beat.

Crust: 1 cup flour, 1/2 teaspoon salt, 1 teaspoon baking powder, 1/3 cup fat, ice water.

HOUSEHOLD QUERIES

Mome Made Mustard

Please give me recipe for home made mustard, the kind sold in groceries.—Subscriber, Eureka.

Equal quantities powdered mustard, wheat or rye flour, brown sugar. Add sufficient hot vinegar to make smooth paste, salt to taste. Use more or less flour according to pungency desired. Omit sugar if not liked. Paste may be cooked in double boiler if to be kept for some time but remember pungency is destroyed by too much heat. Sometimes spices are added, cinnamon, mace, white pepper, cloves, etc.

Meringue Falls

Why does meringue fall after taken from oven?—Subscriber, Eureka.

Use only one tablespoon sugar (level) to one egg white. Beat white, add sugar, beat again to be sure sugar is thoroughly dissolved through egg. If more sugar is added and not thoroughly dissolved it would have a tendency to fall. Also you probably use too hot an oven so that top is browned and meringue removed before thoroughly set all through. Use slower oven.

Whole Wheat Bread

Will you please give me a recipe for whole wheat bread? I have trouble with mine crumbling. I enjoy the Cultivator very much.—Subscriber, Bellflower.

Two cups water, 3 tablespoons corn syrup, 2 tablespoons sugar, 2 teaspoons salt. Mix thoroughly then crumble in one yeast cake and stir until dissolved, then add 7 1/2 cups whole wheat flour. Work to smooth elastic dough and proceed as for white bread. The syrup helps to keep bread moist. Also if bread is kept in ice box it will retain moisture and be softer. I use a small ice box for a bread box, taking care to leave open to air a little while every morning. Bread and cake keep moist and soft, but, of course, one must watch to keep from molding.

GROWING PAINS

When we look out on this world full of unrest, of problems to be solved, of difficulties to be met, of perils and needs everywhere, it is well to remember that many of these troubles are only what our grandmothers used to call "growing pains." If old things would always satisfy, if the old garments of law, conditions, and knowledge would fit the new generations, and no inquiring mind would discover fallacies in past teachings, this would be a much quieter world. But it would also be a world falling into decay.

Humanity cannot stand still. Either it must step forward or stagnate, and it cannot move forward without struggle and conflict. All nations are hungering and thirsting after something higher and better than they have—after righteousness, though they do not know it by that name—and, each in his place, we must bear our share of the burden it brings to belong to a growing world.—Forward.

"MY LOVE TO ALL"

The teacher had been trying to explain to the class how generosity need not be confined to money or concrete objects.

"Suppose," she suggested as an example "that I were to love all mankind with whom I came in contact; then with my love I would be—what?"

A hand shot up.

"Well, Susan?"

"You'd be omniverous!"

The Cultivator Patterns



3964. Misses' Dress.—Cut in 3 sizes: 16, 18 and 20 years. An 18 year size requires 5 yards of 40 inch material. The width of this skirt at the foot is 2 yds. Price 10c.

3958. Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size requires 3 yards of 36 inch material. Price 10c.

3970. Ladies' House Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 4 1/2 yards of 40 inch material. The width at the foot is about 2 yards. Price 10c.

3954. Child's Romper.—Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 2 year size requires 2 1/2 yards of 27 inch material. Price 10c.

3972-3822. Ladies' "Knicker" Suit.—Skirt 3972 cut in 6 sizes: 25, 27, 29, 31, 33 and 35 inches waist measure. Blouse and knickers 3822 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It will require 2 1/2 yards of 36 inch material for the blouse and 2 1/2 yards for the "knickers"; for the skirt 3 1/2 yards of 44 inch material will be required to make this "outfit" for a medium size. The width of the skirt is about 2 1/2 yards. TWO separate patterns, 10c FOR EACH pattern.

3966. Girls' Dress.—Cut in 4 sizes: 6, 8, 10 and 12 years. A 10 year size requires 2 yards for the gulle and 2 1/2 yards for the dress of material 27 inches wide. Price 10c.

3974. Morning Negligee.—Cut in 4 sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size requires 3 1/2 yards of 40 inch material. The width at the foot is 2 1/2 yards. Price 10c.

3952. Child's Dress.—Cut in 4 sizes: 1, 2, 4 and 5 years. A 2 year size requires 2 1/2 yards of 27 inch material. Price 10c.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Do not expect patterns under **Two Weeks** from date of order.

CATALOGUE NOTICE

Send 12c in silver or stamps for our Up To Date Spring and Summer 1922 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker. Also colored plates.

PATTERN DEPARTMENT

California Cultivator Los Angeles

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

In my last article I gave the diet for a child of nine months to one year, and although this varies little to 18 months yet there are a few changes. At 16 months a child should be drinking 1½ pints of milk daily. His eggs may be coddled, soft boiled or poached and a whole egg given, but not more than three times a week. Occasionally it may be given in custards. A broiled lamb chop or steak that is scraped or finely minced may be added, starting with one teaspoon and slowly increasing to one dessert spoon. Crisp bacon (one or two small slices twice a week). Cottage cheese is a wonderful substitute for meat, and if the child refuses it try to mix it with apple sauce or prune juice.

The vegetables need not be put through a strainer at this age, but should be mashed well. Never use canned vegetables if it is possible to get fresh.

The beef juice, broth and creamed soups are continued.

Pea or Bean Puree

Soak beans over night. Drain off water and put to cook in enough water to cover. Add one medium size carrot and half an onion. Cook slowly until tender. Mash through a sieve, using the water they were cooked in. To one tablespoon bean pulp add enough milk or cream to make five ounces. Add a small amount of water and cook several minutes. Add salt.

At 18 or 19 months it is advisable to put the child on a three meal schedule. Give a lunch of milk and crackers at 10 o'clock if necessary. Keep the diet varied and do not allow the child to make an entire meal of any one or two articles. If you give an egg in the morning do not give any meat at noon but substitute beef juice, pea puree or cottage cheese. Insist on slow eating and thorough chewing.

Never force food.

Normal Weight

Please tell me how much a child should weigh who is five years, three months, 20 days old and three feet, nine inches tall. Is there a place where I could have her examined for protruding shoulder blades?—H. P. S., Fillmore.

The child should weigh between 40 and 46 pounds. In most large cities there is a mothers' educational center where one can take a child and have it examined free. This is located in the Chamber of Commerce Building, Los Angeles. Inquire at Ventura; there may be a clinic there.

THE SEASON IN NATIONAL PARKS

Those who are planning auto trips for the vacation season will be interested in the schedule of opening and closing dates for the national parks, just announced by Secretary Fall.

Crater Lake National Park, Oregon, July 1 to September 20; General Grant National Park, California, May 24 to October 10; Glacier National Park, Montana, June 15 to September 15; Grand Canyon National Park, Arizona, open all year; Hawaiian National Park, Hawaiian Islands, open all year; Hot Springs National Park, Arkansas, open all year; La Fayette National Park, Maine, June 1 to November 1; Lassen Volcanic National Park, California, June 15 to September 1; Mesa Verde National Park, Colorado, May 15 to November 1; Mount McKinley National Park, Alaska, no official season (summer only); Mount Rainier National Park, Washington, June 15 to September 15; Rocky Mountain National Park, Colorado, June 15 to October 1; Sequoia National Park, California, May 24 to October 10; Wind Cave National Park, South Dakota, June 1 to September 30; Yellowstone National Park, Wyoming, June 20 to September 15; Yosemite National Park, California, open all year; Zion National Park, Utah, May 15 to October 15.

FIFTY-FIFTY

A sausage maker had won great fame for his wonderful rabbit sausage. However, a pure food slough-foot became suspicious.

"Are you sure there's no horse meat in this rabbit sausage?" he inquired. "Well—yes," the manufacturer finally admitted, "about 50 per cent. One horse to one rabbit."

TRIED AND TRUE RECIPES

By A. M. H.

A good way to fix cheap cuts of beef is to grind in food chopper, add salt and pepper to suit taste, and add some dampened bread crusts, thoroughly mix and make out in cakes to fry.

To make a fine breakfast food use home ground graham flour and make mush the same as corn meal. Have water boiling and salted before stirring in graham flour, and cook well on back of stove while preparing breakfast. Serve with sugar and cream. This is fine for infants over four months old, for children and grown people and especially good for delicate people.

To make good brown sugar syrup use three cups sugar and one cup water. Put sugar in skillet, let half of it melt and brown a little, then add the water. If there are any lumps, mash them with the spoon while boiling; let boil about five minutes and it is done.

If troubled with eczema use a plentiful supply of olive oil to which has been added dry sulphur. If used regularly it will cure some of the worst cases. For delicate children mothers will find a free use of the nutritious olive oil invaluable, as they will a saturated solution of boric acid.

One can easily prepare this by dissolving a heaping teaspoon of granulated boric acid in one pint of either distilled or boiled water. This will be found most useful as a wash for eyes, ears, mouth, little abrasions, small cuts and for chafing and all skin eruptions. For earache it is warmed and dropped in the ear as hot as can be borne, and toothache often yields to a bit of cotton saturated with the solution and placed around the tooth. The best way to treat feet that perspire freely is to wipe them off with the solution and use dry boric powder in the shoes.

To relieve rheumatism melt several tablespoons of lard and stir in 20 drops of laudanum and rub well on parts affected. Melted lard thickened with flour till as thick as salve, put on a wound or swelling or warm as can be borne is excellent. For a chronic sore take a hard stump or heart of a cabbage and let it simmer on the back of the stove with a tablespoon of pure lard and use this for an ointment.

HUSTLE AND GRIN

Smile and the world smiles with you;
"Knock" and you do it alone;
For the cheerful grin
Will let you in
Where the kicker is never known.

Growl and the world looks dreary;
Laugh and the path is bright;
For a welcome smile
Brings sunshine, while
A frown shuts out the light.

Sigh, and you "rake-in" nothing,
Work, and the prize is won;
For the nifty man
With backbone can
By nothing be outdone.

Hustle, and fortune awaits you,
Shirk, and defeat is sure;
For there's no chance
Of deliverance
For the chap who can't endure.

Sing, and the world's harmonious;
Grumble, and things go wrong;
And all the time
You are out of rhyme
With the busy, hustling throng.

Kick, and there's trouble brewing,
Whistle and life is gay
And the world's in tune
Like a day in June,
And the clouds all melt away.
Author Unknown.

DRIVING OR DRIVEN?

Bill—I saw you out driving in your car yesterday.
Will—No, my wife was out driving.
Bill—But she was on the back seat.
Will—Just the same, I insist my wife was out driving.

POOR FINDERS

"Johnny: "Say, paw, I can't get these 'rithmetic examples. Teacher said somethin' 'bout findin' the great common divisor."

Paw (in disgust): "Great Scott Haven't they found that thing yet? Why, they were huntin' for it when I was a boy."

A chuckle a day will keep a man gay.

A lazy man is no worse than a dead one, but he takes up more room.



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A Beautiful
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upon
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Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

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Golden Gate Weed Cutter

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THOROUGHLY PULVERIZES THE SOIL

No need to plow after using this tool, for it leaves the soil in a perfect mulch. Here is the cheapest and best solution to the weed problem. Cuts 7 feet or less in width and adjustable to any depth. Weight, 230 lbs. Constructed of steel throughout.

SEND FOR CIRCULAR which tells you all about this handy tool and what users think about it.

C. G. SIGURD, Manufacturer
Capital Ave. and McKee Road, San Jose, Cal.



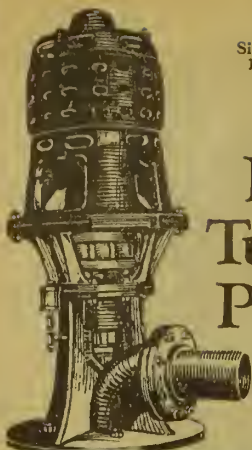
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The vapor is over 2½ times as heavy as air and penetrates to the lowest recesses of the burrows.

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15 and 24 inches

Bean Turbine Pumps

These pumps assure maximum delivery of water at highest efficiencies, against varying heads. They are made in very small sizes to fit your domestic well and deliver from 100 to 180 gallons per minute. Made also to deliver up to 3500 gallons per minute.

Careful, high grade engineering skill and workmanship is employed throughout.

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Write for these booklets.

Animal Industry Department

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SHARPLES PORTABLE MILKER
NEVER HAS HURT A COW
Inexpensive Operation—Long Life

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SEND FOR CATALOG

JORDAN-HILL CO.
112 MARKET STREET SAN FRANCISCO, CAL.

An Important Milking Shorthorn Event

One of the most interesting features of the livestock industry of this state is found in the development of the herds of Milking Shorthorns that has been under way for several years past.

It is a matter of record that the first improved cattle brought to this state were Shorthorns of Bates breeding—the bloodlines that furnish the foundation of the best milking families. Those early importations, many direct from England, were made by the pioneer breeder, Robt. Ashburner. Later, Glide, Gibson, Rush, Howard and others brought in high class cattle

During the early history of the herd few females were ever offered for sale and it has taken almost eight years to reach a point where the owners felt justified in making a draft for a public sale.

The coming event will therefore prove of interest to others than established breeders. Indeed Messrs Rowe say that they could have sold all that they care to spare at private treaty, but it is their plan to hold an annual sale and the present seemed an opportune time to make the start.



Bellevue Daisy
Weight 1,700 pounds, age 12 years. Undefeated during 1921-1922 show circuits. Won eight grand championships. Her daughter, Innisfail Daisy, produced 10,026.3 pounds milk and 402.64 pounds fat as a senior two year old. Her son, Innisfail Perfecter, weighed 1,150 pounds at 14 months. He won three junior championships, five firsts and one third at 1921 shows. Cows of this type are real "double deckers."

of the same bloodlines. These early Shorthorns, mostly red in color, while primarily beef cattle were usually heavy milkers. Many found their way to the ranges and many others were used in grading up small herds that until the introduction of the Holstein and Jersey furnished the bulk of milk and butter produced locally. It can therefore be said that the first improvement of our native cattle stocks was largely through the use of Bates bred Shorthorns, and today the general structure of our cattle industry rests on such a foundation.

When came the almost universal switch to Shorthorns of Scotch extraction those old Bates families were quite neglected by California breeders as well as breeders throughout the country. But as time went on a growing number of breeders had borne in upon them the fact that there was a lot of real merit in old style red and roan Shorthorns that swung big udders and had their ample frames upholstered with a thick covering of flesh. Here and there a few breeders began conserving the old families and developing them along modern lines. This rather scattered work continued until a comparatively short time ago when a definite and well organized effort to develop milking Shorthorns got under way. Of recent years the progress made toward the dual goal of milk and beef has been quite outstanding.

As this new-old strain developed in the East there developed in California a demand for cattle of similar type and in the past eight years some very high class herds have been assembled.

Doubtless the most distinguished herd is the Innisfail herd which was established in 1914 by Alexander and Kellogg. The foundation for this herd was drawn from the leading American herds, and on several occasions imported animals were added at long prices. Almost from its inception this herd has been a dominating factor in the show rings of the West, and more recently, since the herd came under the management of J. D. Rowe and Sons, the regularity with which creditable production records have been announced has served to give the herd a high place among the better American herds.

CALIFORNIA BREEDING FARMS BERYLWOOD STOCK FARM

By Jack Klein



TRANSFORMING a 450 acre beet and bean ranch into an up-to-date stock farm, fully equipped in every detail and stocked with the best animals to be had, is a big job, but to do the trick in a little more than two years has kept J. W. Snodgrass, the manager of the Berylwood Stock Farm at Hueneme in Ventura County, on the job night and day.

Foresight into the probable precarious future of the beet and bean industry in the Hueneme valley prompted Mrs. Bard, widow of the late U. S. Senator Thos. R. Bard, to back Mr. Snodgrass to the fullest extent, and in consequence the Berylwood Stock Farm is one to which all Californians can point with pride for although only in its infancy it has taken its place among the leading breeding farms of the state.

Speaking in terms of pure bred livestock Ventura County, although one of the oldest settled sections of the coast, is still practically virgin territory. The hills have long been full of grade beef

stock but the valleys where the pure bred thrives have yielded so plentifully of beets and beans under the methods of extensive cultivation that vogue on immense ranches that livestock has not been welcome. It is a well known fact however that land cannot go on forever without crop rotation and fertilization and the people of Ventura County are awakening to the fact that there is nothing like livestock to provide a steady and persistent income and at the same time build up the land. At the present price of sugar there can be no very great margin of profit for the grower of beets, and hundreds of acres that were formerly used for that commodity are in grain or alfalfa this year. The bean

business has not been very profitable for the past two or three years and the bean men also are drifting into other lines in many instances.

The first venture into pure bred livestock at the Berylwood place was with a herd of Duroc hogs. This herd was of the Orion Cherry King strain and has produced some very nice individuals. It has acted as a market where the neighbors could get what they wanted in the way of breeding stock at a reasonable figure. At present there are about 150 hogs on the place and Mr. Snodgrass has the satisfaction of being able to say that the herd has never shown a loss since its beginning. A very careful system of bookkeeping allows a check on every department at any time and there is no guesswork as to the amount invested, the daily, weekly or monthly running expense nor of the income. It is Mr. Snodgrass' opinion that most of the failures and disappointments in the livestock business are due to the slipshod methods many breeders have of keeping their accounts. A careful check on operations and a study of costs and returns is the most profitable way an owner can spend his time. By this method and this

SANTA ANITA RANCHO

OFFERS FOR SALE

REGISTERED PERCHERON AND ARABIAN STALLIONS
MAMMOTH JACKS AND JENNETS
HOLSTEIN-FRIESIAN CATTLE
BIG TYPE POLAND-CHINA SWINE

The registered Percheron Stallions offered are an exceptionally fine lot of high-class young horses, of great size, style and quality, from two to five years old.

The Jacks are the big-boned, rangy kind so much desired and sought after by the discriminating breeder who likes to breed and raise a big work mule.

The Jennets are young and mostly all in foal to King Bersheba.

The registered Holstein-Friesian Bulls are twelve to eighteen months old, sired by Prince Walker Cornucopia and out of high yearly-record dams.

All Breeding Stock Guaranteed.

SUITABLE TERMS OF CREDIT MAY BE ARRANGED.

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Anita M. Baldwin, Owner SANTA ANITA, CALIF.

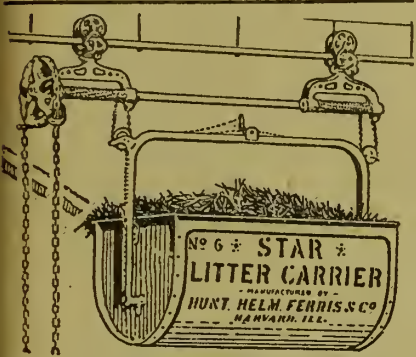




Part of the Herd and Excellent Barns at the Berylwood Stock Farms.

alone can mistakes be avoided and profits taken.

Alongside the hogs a modern 2,000



If You Have a Barn You Need a Star Litter Carrier

No matter what size or shape barn, no matter how complicated the layout, there's a Star Litter Carrier adapted to your needs.

These carriers are simple, serviceable, and durable—built to stand hard knocks and the wear and tear of heavy service. Yet they save their cost in a few months.

The Star Litter Carrier is a good investment and is needed on every farm. We know you'll say so when you get one because in all our experience we never heard of a farmer who would take a Star Litter Carrier out of his barn for the price he paid for it. Send for our catalog. It's the finest thing of its kind ever published.

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DR. HESS DIP and DISINFECTANT

Use the sprinkling can about your premises—the dipping tank where the occasion demands. For your hogs, a wallow is the most convenient, and quite effective. To every 70 to 100 gallons of water add one gallon of Dr. Hess Dip and Disinfectant. Then your premises—the cow barn, the stables, the pig pen, the poultry house, the sink, drains, closets, cesspools—everything, everywhere, will be pure and healthful.

You can dip, or you can spray or sprinkle, or apply with a sponge or brush. Dr. Hess Dip and Disinfectant to the animal body. There's scarcely an animal parasite, skin disease, or infection that Dr. Hess D. and D. will not remedy. *Guaranteed.*

DR. HESS & CLARK Ashland, Ohio

hen chicken plant has been put into successful operation. The best quality of White Leghorn stock was obtained, and under the most scientific methods of feeding combined with an abundance of skimmilk this department made a return of a few cents over \$2 a hen last year. Mr. Snodgrass attributes this large profit to the skimmilk, and his experience bears out the contention that there is no better combination than the White Leghorn hen and the Holstein cow. Wherever these two have worked together there has always been a fine profit, and chicken men should wake up to this fact and have a few cows along with their flocks. The sweet cream will pay for the feed and care of the cows and the skimmilk is ideal feed for the hens.

From the beginning the ultimate aim of the Berylwood Stock Farm has been to have a fine herd of Holsteins. Previous experience had taught Mr. Snodgrass to avoid the common mistake of getting together a herd without a place to put them, so his first duty was the building of the barns. Being an engineer and architect as well as lover of livestock, he has accomplished a set of barns and other buildings equal to any in the West. Everything is well built and arranged so that the necessary work can be done with the least amount of effort. Above all everything is kept scrupulously clean. The buildings adjoin the beautiful Bard estate and everything is in keeping with it.

The first notable purchase of cattle by the Berylwood Stock Farm was of three head from W. J. Higdon of Tulare. One of these animals, Fay Tritomia Hengerveld Walker, has achieved considerable fame by making the 305 day state record for 3½ year olds. She dropped twin calves to start with and then made 794.5 pounds butter in 305 days and dropped a third calf, all within 11 months. She is a remarkably fine heifer out of the great 30 pound cow Fay Tritomia Hengerveld and was sired by Prince Riverside Walker. Her last year's bull calf was junior champion at Riverside last fall and was sold for \$1000 when seven months old.

Later purchases of cattle have brought the herd up to nearly 100 head and practically all are top notchers. Systematic testing was begun only recently with the completion of an excellent though inexpensive test barn and the acquisition of Dick Ulken as herdsman. Mr. Ulken is well known throughout California for the fine work he has done in various herds, and under his direction the Berylwood cows will be given every chance to prove their worth. As a producer of records Mr. Snodgrass is no slouch himself. With only a limited knowledge of feeding, but with a large fund of common sense to draw upon, in one of his first attempts at testing he made a 30 pound record with the three year old, Queen Sadie Vale Veeman Karlay. He also made a 29 pound record with Hartwood Netherland Segis which he bought in the Clapp sale last October.

One of the interesting animals on the place is the senior yearling heifer, Queen Pietertje Hengerveld Fobes, who made 20.85 pounds butter in seven days six months after calving. She also made 84 pounds from 2300 pounds milk in 30 days. If nothing happens to her she is a candidate to

(Continued on Page 475.)

Milking Shorthorns

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FIRST PUBLIC SALE INNISFAIL HERD Davis, Cal., Friday, May 5

10 Bulls—Every one a good one and every one from a dam with a proven record of milk and butter production. Heading the list is the crack three year old, Innisfail Favorite, sired by Westward Ho and out of an imported dam with over 10,000 pounds of milk.

13 Cows—This group of cows is undoubtedly the most satisfactory lot ever offered in a western sale. Most of them have records from 5000 pounds to above 8300 pounds of milk. From the standpoint of type and breeding there is little to be desired. These cows are real double deckers by inheritance.

4 Bred Heifers—Two by Westward Ho, a grand champion, and two by Imp. Kelmscott Viscount 19th., a sire of distinction. No better will be offered this year.

15 Open Heifers—The sweetest lot of calves to sell in any sale. All have been bred in this herd and represent the results of a constructive plan of breeding. The best producing lines of the breed will be found in these heifers.

A WORD PERSONAL

Innisfail stands for constructive breeding and integrity. No money has been spared in purchasing foundation material and no effort has been overlooked to develop the herd. The showing records and the production records of the herd are matters of pride. You will find the cattle in proper condition. Every animal offered will be sold and sold on a guarantee. Come, visit the herd and get acquainted.

(Signed) R. P. ROYCE, Livestock Editor.

J. D. ROWE & SONS, Lessees Davis, Calif.

LAST CALL FOR THE PUBLIC SALE OF REGISTERED OREGON JERSEYS

FAIR GROUNDS
STOCKTON, CAL.

Thursday, May 4th, One O'Clock

40--HEAD--40

39 Bred Cows and Heifers—1 Young Bull

These animals were carefully selected and carry much of the best blood of the breed, but we do not expect record breaking or show yard prices, but expect them to sell within the reach of all.

Mr. Pure Bred Man, now is your opportunity.
Mr. Dairyman, now is your opportunity.

Splendid individuals. Excellent pedigrees. Tuberculin tested and from clean herds.

DO NOT FORGET THE TIME AND PLACE

Pacific Purebred Sales Co.

C. R. Thomas, Manager
808 Santa Fe Building
Col. Cy. N. Clark & Son, Auctioneers
San Francisco

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Sensational Dispersal

BURR FARM HERD

LOS ANGELES, CALIF.

June 1-2, 1922

140—Registered Holsteins—140

By the terms of the partnership contract existing between E. Burr, G. M. Brown, and Kenneth W. Abbott, operating as Burr Farm, nad which expires on June 1, 1922, a dispersal sale is necessary in order to adjust the partnership interests.

This sale will include every animal in the great Burr Farm herd that is in salable condition, with the sole exception of a small group of heifers now on pasture under contract.

King Korndyke Pontiac 20th Will Be Sold

The great \$12,000.00 son of Miss Valley Mead De Kol Walker will find a new owner in this sale, also a beautiful group of his young daughters.

The herd contains a very large number of high record females of splendid breeding and good type, bred to top notch bulls.

This herd has been tuberculin tested regularly every six months by a Deputy State Veterinarian, and every animal sold is guaranteed to be a breeder and sold subject to retest by the buyer.

Watch for detailed announcements in later issues, but write for catalog now.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

Edgemoor Farm Dispersal

71—REGISTERED GUERNSEYS—71

Owned by G. L. Strobeck, Santee, Calif.

Selling at

HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Wednesday, May 17, 1922

The dispersal of this herd permits buyers an opportunity to select from an offering from one of America's most famous Guernsey breeding farms, and with a choice ranging from open heifers to A. R. cows of exceptional merit.

The females include a large number of imported cows and heifers out of imported dams, many of them in calf to MASTERPIECE OF EDGEMOOR, or to DEANIE'S MAROSE OF APPLE TREE POINT.

14 BULLS IN SALE

The bull offering is especially attractive, owing to the wide range of selection afforded, the substantial breeding present, and the fact that every bull is ready for service. Dairy men and breeders alike will welcome this offering.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

Write for Catalog Now.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

MR. FARMER:—

You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now? Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs. of butter in 7 days, included in this offer. Call or write at once.

BURR FARM

26th and Downey Road, Los Angeles
RFD 2 Box 120

HOLSTEIN

Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

IT TAKES REAL CLASS to Break State Records in California

Forty-five per cent of the present State Records for Milk and Butter Production are held by cows that broke World's Records in at least one class.

Every calf we offer for breeding purposes is by the son of a former State Record Cow—brothers and grandsons of our own 4-year-old State Record Holder, Whittier Pontiac Netherland 4th, that made 1139 pounds of butter in 365 days, standing in the stanchions with only dairy care. The widest choice of 1000 to 1200 pound breeding at farmer's prices.

Los Angeles County Farm

HONDO, CALIFORNIA Three Miles South of Downey on Downey-Long Beach Boulevard

Care of the Family Cow



FEEDING and breeding almost exclusively influence the milk production of today, but there are many small management items which have considerable bearing on the milk flow of the cow. In the following article will be found the solution of many problems which face the owner of a family cow.

The Dry Cow

In practically every large dairy herd it is the common practice to have all cows dry for a short period before calving. A cow that is not given a rest before calving will start at a lower level of milk production than if given opportunity to recuperate, with a consequent lower level throughout the lactation period. Under ordinary conditions six weeks is sufficient, but if thin she should be dry for two months. A common method of drying a cow is to lengthen the interval between milkings by omitting one milking each day. After a few days the milk is drawn only once in two days until secretion is stopped. This may require two weeks or more. If a cow is producing 14 or 15 pounds a day or more the grain may be withheld from the ration, forcing her to subsist wholly upon roughage.

The dry cow is not a mere boarder, but a prospective milker. If she be run down and thin grain or other sufficient feed should be given to enable her to thoroughly recuperate. If pasture is ample no grain is really necessary. However, it is considered good practice to feed some in order that she may reach an excellent condition by calving time. She should have plenty of exercise at will. As parturition approaches it will be well to feed her a laxative ration. Her stall in the barn should not incline badly toward the rear.

The question of milking before calving is an unsettled one, some claiming it aids milk fever, others that it tends to prevent it. Only in the case of very high producing cows should this be necessary, most cows not requiring this precaution.

The strain upon the cow's system of calving brings on some fever and nervousness. If she has been dry for six weeks and is in good condition she will probably be all right. Give her plenty of fresh water, not too cold. No feed need be given for some hours. Special attention should be given to avoid infection of the navel of the calf, which would bring on white scours.

Removing Calf

Cows have a strong attachment for their calves only after having lived with them for a few days; consequently the removal of the calf at once, or within a day or so, causes her no particular bereavement. The calf should be removed from sight and hearing of the dam while she is absent from the stall. She should be fed a moderate mess of steamed oats or bran mash and while she is eating groom with a brush, handle the udder and teats, and gently draw a small quantity of milk. If handled properly she will give milk as freely as though she were suckled by the calf. The cow should be milked three times a day or oftener until the inflammation leaves the udder.

Milk Fever

The symptoms of milk fever, which may follow calving, are first, a general restlessness and nervousness. Within a short time paralysis of the hind legs begins, showing in a staggering gait. The animal soon falls and is unable to rise, unconsciousness following. Death usually occurs within from 18 to 48 hours unless treated. The injection of air into the udder by apparatus designed for this purpose is the most common remedy. In such a case the owner had best call a veterinarian.

Hard Milker

Some cows have a stronger sphincter muscle than others, closing the teat opening tighter than it should, causing the animal to milk unusually hard. This condition may be remedied by the use of teat plugs. These

plugs, which are made of lead or hard rubber, are placed in the teat duct and a tape tied around the teat through an eyehole in the plug. The animal wears the plugs from one milking to another until the muscles relax somewhat and the opening remains larger. Occasionally this treatment is not sufficient to effect a permanent enlargement of the opening and in other cases the hard milking results from a hard lump in the upper part of the teat, which drops down when milking. When the ordinary teat plug will not suffice a teat slitter or bistoury can be used which will produce a permanently enlarged opening. A certain amount of skill and practice is required to handle this instrument and where its use is necessary a veterinarian should be called.

Milk Leaking

Occasionally cows lose part of their milk by slowly leaking teats on account of a weakened condition of the sphincter muscle. There is no known practical remedy, but the teat opening may be closed after each milking with collodion.

Sore Teats

Sore or chapped teats may be caused by the udder coming in contact with irritating plant growth, cold damp stalls, milking with wet hands in cold weather, sudden chilling of the teats after the calf has suckled, etc. The animal should be placed in a clean dry stall and vaseline applied to the affected parts. If severe the teats should be thoroughly washed and softened with warm water, after which glycerite of tannin may be applied.

Warts

Warts on teats may be greatly benefited or entirely removed by the application of pure olive oil or vaseline. If large, they may be cut off with a pair of scissors and the spot touched with a stick of caustic potash.

Bitter Milk

When far along in the lactation period it is not uncommon for milk of certain cows to have an abnormal taste and odor, known as bitter milk. This condition usually occurs when the animal is fat and receiving more feed than necessary, rarely occurring when the cow is on green feed. The milk has a rather salty taste, described by some as bitter. This is present in the milk when fresh and rapidly grows worse for 24 hours or so. Reducing the grain ration to the amount the cow actually needs and giving two or three one to one and a half pound doses of epsom salts at intervals of three days usually remedies this condition.

Bloody Milk

Blood in the milk is caused by a rupture of some small blood vessel that allows blood to escape into the milk cistern or milk ducts. It cannot be prevented or stopped and the only thing to do is to reject the milk. The trouble will remedy itself in a short time.

Kicking Cow

Does the cow kick when being milked? If so it may be caused by pain and if such is the case can be remedied by removing the cause. However, if it is a habit she should be tied before milking. This is best done by taking a rather heavy strap with a strong loop. The strap is put around one leg over the hock and the end drawn through the loop. The strap is then put around the other leg and buckled so the two legs are held close together. The cow may struggle some but soon learns to stand quietly when the strap is in place.

Self Sucker

The self sucking cow is not very common but usually difficult to stop. The most effective treatment seem to be to put a bull ring in the cow's nose and hang a second ring from the first. The rings will interfere and result in discouraging the cow.

A purebred bull without a fault

Should be on every farm.

A measly scrub doesn't earn his salt, Besides, he does some harm.

LOS ANGELES COUNTY DAIRY
COW COMPETITION

Records for March:

Class A—First, G. W. Walters, El Monte, Holstein, 86.2 pounds fat; second, Maxwell Farms, Hollywood, Holstein, 65.6 pounds fat.

Class AA—First, Arden Dairy El Monte, Holstein, 69 pounds fat; second, T. H. Lambert, El Monte, Holstein, 61.8 pounds fat.

Class B—First, Maxwell Farms, Hollywood, Holstein, 120.8 pounds fat; second, Fred Hartsook, Lankershim, Holstein, 103.7 pounds fat.

Class BB—First, E. L. White, Burbank, Holstein, 108.3 pounds fat; second, Ira Hostetler, Pomona, Jersey, 97.3 pounds fat.

Class C—First, D. C. Nowels, Artesia, Holstein, 250.2 pounds; second, Agee Bros., Rivera, Holstein, 259.8 pounds fat.

Class D—First, Fred Hartsook, Lankershim, Holstein, 477.6 pounds fat; second, Maxwell Farms, Hollywood, Holstein, 425.2 pounds fat.

Class E—First, Ira Welch, Pomona, Holstein, 351.2 pounds fat; second, Krist Cederez, Whittier, Holstein, 334.9 pounds fat.

Class F—First, E. L. White, Burbank, Holstein, 481.2 pounds fat; second, E. Paggi, San Fernando, Holstein, 352.7 pounds fat.

Class G—First, Adohr Stock Farm, Van Nuys, Guernseys, 377.7 pounds fat; second, Arden Dairy, El Monte, Holstein, 354.3 pounds fat.

Herds tested, 37; cows, 3539; average pounds milk per cow, 953; average pounds fat per cow, 36.9; average per cent test, 3.9; number cows making 40 pounds fat, 1236; best five cows (fat), 562.5; number cows over 100 pounds fat, 8.

MAKE YOUR IDEAS PAY

With hogs selling at 11½ or 12 cents a pound, and with the prices of feeds not too high, an increased interest is being manifested in the production of pork in California. With a decreased pig crop in the east and with a large acreage of corn it is highly probable that fewer hogs will be shipped into California during the coming year than during the past year. If the demand for pork products continues, and if the supply remains constant, one might expect the price of hogs to remain good.

The president of the California Swine Breeders' Association is announcing a prize for the best slogan for the California Swine Breeders' Association. This association is composed of men producing pork in California. In announcing this prize he places upon it no restriction except that the slogan be sent with the name and address of the person writing it to the Secretary of the California Swine Breeders' Association, Davis, California.

WESTERN HOLSTEIN BREEDERS

The Western Cooperative Holstein Breeders Association, organized some time ago at Modesto, has its organization perfected by the election of its full board of directors as follows: A. M. Bibens, E. E. Freeman, W. M. Way and F. L. Hogue of Modesto, F. R. Beals of Tillamook, Oregon, Ralph Newman of Elk Grove, W. P. Coombs of Chowchilla, H. I. Sisson of Willits and Henry McCall of Pruneville.

Ray C. Gruhlke of Dixon, Solano County, a breeder of Holstein-Friesians and prominently identified with farm bureau work for the past five years, has been named field secretary and assumed active work March 1.

A DARKEY'S PRAYER

"O, Lawd, give Thy servant this mornin' de eyes of an eagle and de wisdom of de owl; connect his soul with de gospel telephone in de central skies; 'luminate his brow with de sun of heaben; pizen his mind with love for de people; turpentine his 'magination; grease his tongue with de sledge-hammer of Thy power; 'lectrify his brain with de lightnin' of de word; put 'petual motion in his arms; fill him plum' full of de dynamite of Thy glory; 'noint him all over with de kerosene oil of Thy salvation, and sot him on the fire. Amen!"

A man may smile and bid you hail
Yet wish you with the devil,
But when a good dog wags his tail
You know he's on the level.

Last Call! Last Call!

Ormondale Shorthorn Dispersal

Ormondale Ranch, Redwood City, Calif.

Thursday, May 4, at 12 o'Clock Noon

This is the opportunity of a generation to buy at your own price such registered Shorthorns as compose this nationally famous herd, It is a complete dispersion, every animal on the place will sell.

Review Some of the Great Attractions Once More

THE CALEDONIAN, outstanding son of Imp. Caledonia and a Rosa Hope dam; COUNT KINGWOOD, great son of Imm. Kingwood and a Marigold dam by Count Avon; GREAT SCOTCH COWS AND HEIFERS, including Mayflower 4th, First Prize 2 year old at 1917 California State Fair; SWEETHEART AND HER THREE DAUGHTERS, two of them full sisters to the 1919 International Grand Champion, Little Sweetheart; NINE DAUGHTERS OF IMP. BOQUHAN'S GUINEA STAMP, the \$12,000.00 imported bull of royal breeding; NINE DAUGHTERS OF GOLDEN GOODS JR., sire of the 1919 International Grand Champion, Little Sweetheart.

A Total of 50 Choice Females and Two Great Young Herd Sires

Every animal sold as a single lot positively guaranteed a breeder; every animal over six months old tuberculin tested and individual certificate furnished to buyer.

TERMS OF SALE: Responsible parties may arrange for credit, before sale, with California Breeders Sales and Pedigree Co., on the basis of one-half cash, balance in six months, with approved note bearing eight per cent interest.

ORMONDALE RANCH is 34 miles south of San Francisco; 9 miles southwest of Redwood City. Paved highway right to the ranch entrance. Trains will be met at Palo Alto, ONLY, on morning of sale as follows:

Leave San Francisco	9:00 A. M.	11:00 A. M.	Arrive Palo Alto	10:00 A. M.	12:04 P. M.
Leave San Jose (Market St.)	10:20 A. M.	11:04 A. M.	Arrive Palo Alto	10:55 A. M.	11:31 A. M.

Please Note That Sale Starts Promptly at 12 O'Clock Noon

AUCTIONEER:
Col. Ben A. Rhoades, Los Angeles
IN THE RING:
John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Calif.

E. R. STALDER

NUEVO, CALIF.

Will Disperse His Entire Herd of 50 Registered Holsteins

At HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Thursday, May 11

at 10 A.M.

MANY A. R. O. COWS with official records up to over 32 lbs. butter in 7 days.

MANY COWS AND HEIFERS bred to King Pontiac Netherland Segis 3d. This will be the very last opportunity to buy females bred to this great proven sire, now dead.

DAUGHTERS AND GRAND-DAUGHTERS of King Segis Pontiac.

COWS AND HEIFERS bred to King Segis Pontiac Aero, the youngest son of King Segis Pontiac. Such noted producers as Locust Terrace Gold Drop, Stanislaus Princess Cleopatra and others will appear in this sale. The calves they carry will be worth what the dams will probably bring.

GUARANTEED BREEDERS NO TUBERCULIN TEST CERTIFICATES

Write for Catalog
Management
CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento, Calif.



SEMI - DISPERSAL SALE

50 REGISTERED JERSEYS

HYNES, CALIF.

at Rhoades & Rhoades Sale Pavilion

Tuesday, May 9, at 10 a.m.

Here is the opportunity registered Jersey buyers have been hoping for for months past—to find available for purchase a high class lot of Jersey females.

This sale includes every cow and bred heifer in the well known herd of GEO. W. THOMAS & SONS, Arlington, Calif., also the two herd sires. Mr. Thomas and his sons are retaining only their unbred heifers and heifer calves as foundation for their future herd.

THIS IS A HERD OF SPLENDID INDIVIDUALS, IN EXCELLENT PHYSICAL CONDITION, THE ENTIRE HERD IN MILK AVERAGING 38 LBS. BUTTER FAT PER MONTH AT THE PRESENT TIME.

The entire herd was recently tested by a Deputy State Veterinarian, and not a single animal responded to the test. Every animal guaranteed to be a breeder and sold subject to tuberculin test by the buyer.

TERMS OF SALE: Responsible parties may arrange for credit on basis of one-third cash, balance in three, six and nine months before sale with California Breeders Sales and Pedigree Company.

Write for catalog now.
Management
CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager.
Sacramento, Calif.
Auctioneer
Col. Ben A. Rhoades, Los Angeles

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1505 So. Main St. Los Angeles, Cal.

A D Sales Pavilion E Stock Yards at S Hynes, Cal.

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& WE CONDUCT SALES OF

REG. DAIRY CATTLE R GRADE CATTLE H GEN. FARM SALES

O in all parts of A California and D adjoining States. E Satisfaction S guaranteed.

Write for dates and terms.

TOSANTOS Herd

Every Cow Has an A.R.O. Record

FOR SALE—A few Bull Calves from 3 to 10 months old.

E. D. Barry, Jr. Covina, Calif.
Workman and Azusa Ave.

California Breeders

have sold more than \$500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company

C. L. Hughes, Sales Mgr. Sacramento, Cal.

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4 1/2 cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Baby Chicks: When you buy baby chicks the big thing for you to remember is **QUALITY**, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery **ORANGE COUNTY HATCHERY**, Santa Ana, California.

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducks. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

Have you
had satisfaction
with your

BABY CHICKS?

If not, give us a trial.
Our chicks give satisfaction.

DAY OLD DUCKS
on orders.

STEELE'S EGG RANCH.
Phone Gardena Exchange 692.
Moneta, California.

Walter Hogan Stock White Leghorn baby chicks. All our eggs come from one flock of over 5,000 mature hens that are now laying their best and will produce fine, strong chicks. We are now selling at \$12.50 per 100, \$125.00 per 1,000, F. O. B. Gardena. \$2.00 deposit on each 100 with the order, balance C. O. D. Chicks shipped by parcel post, guaranteed to arrive safe. Don't buy chicks that come from many different flocks, some of them might not be very good. **Lyon Hatchery, Gardena, California.**

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. **Hargett & Son, Route 2, Box C, Compton, California.**

Baby Chicks hatched in Petaluma Incubators are a superior class. Strong, vigorous, sturdy, grow rapidly, lay early. Buy chicks from hatcheries using Petaluma Incubators. You will find one near you, if not, write us. Catalog free. **Petaluma Electric Incubator Co., Petaluma, California.**

S. C. Anconas—My selected Utility birds of the well known Peerless strain, bred to standard requirements, will produce the eggs. They are layers before all else. Hatching eggs, \$2 per 15; \$10 per 100. Baby chicks, \$20 per 100. **J. P. CLOUGH**, 3980 Peralta avenue, Fruitvale P. O., Oakland, California.

Baby Chicks From Mature Heavy Laying Hens—White Leghorns from cockerels with trapnest record mothers, \$13.00 per 100, Barred Rock and Rhode Island Reds, \$17.00 per 100. One-third cash with order. **Hawley's Hatchery, Route A, Box 315a, Lodi, California.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Brown and White Leghorn Baby Chicks; Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. **Anderson's Hatchery, Modesto.**

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. **Charles H. Vodden, Los Gatos, California.**

Pearl Guinea—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. **A. E. Nelson, El Monte, California.**

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pairs. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. **San Diego Co. Hatchery, R. I., San Diego, California.**

For Sale—10,000 Baby Chicks every week from California's finest breeding flocks. This season our chicks are hatching exceptionally well, stronger and larger than ever. Leghorns from the famous Craig breeding flock \$12.50 per hundred. Many leading ranches buy these to get new blood. R. I. Reds and Barred Rocks \$15.00 per 100; Light Brahmas 25 cents each. **P. Cook Chick Ranch, 1717 Valley Blvd., Alhambra.** We ship everywhere.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. **The Pioneer Hatchery, 409 Sixth St., Petaluma, California.**

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. **J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.**

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **B. W. Archibald, Sequel, Santa Cruz County, California.**

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. **E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.**

Baby Chicks, Hatching Eggs from Hoganized hens, well mated. White and Brown Leghorns, R. I. Reds, Barred Rocks. Safe arrival guaranteed. Order early. Write for circular. **Stubbe Poultry Ranch & Hatchery, Box 67-E, Palo Alto, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Baby Chix: White Leghorns (Tancreds), Golden Buff and Brown Leghorns, Anconas, Black Minorcas, Buff Orpingtons, Rhode Island Reds, Barred and White Rocks every week. **Enoch Crews, Seabright, California.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. **Model Poultry Farm, W. C. Smith, Prop., Corning, California.**

For Sale—Anconas exclusively, Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. **Richard Mitchell, 420 Grismos Ave., RR 2, Box 130, Burbank, California.**

Black Minorca Baby Chicks hatched every Wednesday from our own Hoganized stock. **L. S. Rogers, Cupertino, California.**

Blue Andalusians—Stock and Eggs. 17 years breeding. Write for circular. **J. R. Huddleston, 342 Edgeware Road, Los Angeles.**

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. I., 504a, San Jose, California.**

For Sale: White Wyandotte eggs \$2.50 per setting; \$8.50 per hundred. **Mrs. Flora Cox, Anaheim, California. R. 2.**

Partridge Wyandottes, prize winners; eggs \$3; fifteen. **Mrs. J. L. Dunn, Valley Home, California.**

Pit Games—Old and young trios. **R. H. Crane, Santa Rosa.**

POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. To date one County Agent has ordered 7,400 White Leghorns, 3,000 Brown Leghorns, 1,250 Reds, 200 Rocks, 200 Minorcas, 12 Breeding Males. His orders are coming after years extensive trial throughout his county. "Recommend your Turks because mine hatched June, 1921, averaged 20 lbs. at 7 months, gobblers 24 lbs." "Your Barred Rock Chicks bought May, 1919, proved great winter layers." "My Reds laid at 5 months, Leghorns at 4 1/2; cleared per pullet \$2.50 first six months." "Get more winter eggs from 60 your Leghorns than from 200 formerly." These strains 180-290 egg Leghorns, Reds, Rocks, Anconas, Minorcas, Wyandottes, Andalusians, Brahmas, Orpingtons, Ducks, Turkeys, lead many egg-laying contests; build foundation flocks, fill repeat orders for hundred. Why? **ELECTRIC HATCHED**, vigor, growth, winter-laying profit, guarantee; very low May, June prices. Smallest, largest orders welcomed. Write **PROFITABLE POULTRY**, 13 North Fair Oaks, Pasadena.

White Leghorns—Eggs for hatching; 100% fertility guaranteed. Absolutely first class cockerels and pullets ready soon. Finest laying strain. Prices very reasonable. Send for folder "Secret of Success." **Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, California.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Silver Campine Special—Some fine males, \$2.50—while they last. **Roy Ward, Lindsay, California.**

TREES

FOR SALE

NAVEL AND VALENCIA

NURSERY STOCK,

NOT FROSTED.

W. B. Ames, 9th Floor, Merritt Bldg., 8th and Broadway. Phone 1156. Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fucite, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. **A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.**

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. **Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.**

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. **Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.**

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. **Y. Yamaguchi Co., Upland, California. Phone 75-W-1.**

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. **Mathers' Avocado Nursery, Pasadena. P. O. Box 685, Phone Colorado 6044.**

For Sale: Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. **W. W. Burns, 630 Security Bldg., 63110. Los Angeles.**

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. **Van Nuys Nursery Company, Van Nuys, California. Phone 12.**

For Sale—Sacks and burlap for balling trees. **J. Ross, 313 No. Boyle Avenue, Los Angeles. Telephone Boyle 1800.**

TURKEYS

Giant Bronze Turkeys, Gold Nugget strain have continually proven their superiority by winning Gold Special Sweepstakes at the West's greatest shows for the past seven years. Why be satisfied with any but the best? Sold out of stock for this year; can book orders for few more setting eggs. Address **Blackman & Mumford, 607 East Third St., Los Angeles, Cal.**

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. **Bronze King Farm, Route 2, Box 88A, Merced, California.**

Mammoth White Holland Turkey Eggs—50c each, Chinese Pheasants, superior stock, eggs \$3.50 setting of fifteen. **PAUSE PHEASANTRY, Fair Oaks, California.**

Eggs from Purebred Mammoth Bronze Turkeys—\$10.00 for 13. **Mrs. M. L. Trehwhitt, R. F. D. B, Box 47, Hanford, California.**

Blackman's Gold Nugget Strain—Mammoth Bronze Turkey Eggs. Guaranteed fertility. **Andrews & Andrews, Hemet, California.**

Keys Ranch Turkey Eggs—Mammoth Bronze from \$25.00 per hundred to \$1.00 each. They are getting real turkeys. **El Monte, California.**

ROOFING MATERIAL

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For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. **B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.**

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Nasal Catarrh.

I have a six year old mare that had distemper two years ago. Now on the right side of the head below the eye it is large and she discharges thick matter from the nostril. This has continued for a year. What can be done for it?—Subscriber, MacDoel.

The discharge from the nose is probably caused by a bad tooth. The mare may have bitten onto a small stone

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For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 120 N. Main; Yds., 816 Yale, L. A.

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Caldwell's White Muscovy (quackless) Ducks. Eggs; Ducklings; Breeders. Free Circular. Caldwell Duck Ranch, Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California. Quackless Muscovy Duck Eggs—15c each. Also Two Drakes and Nine Ducks for sale. J. H. Morgan, Box 464, Monrovia.

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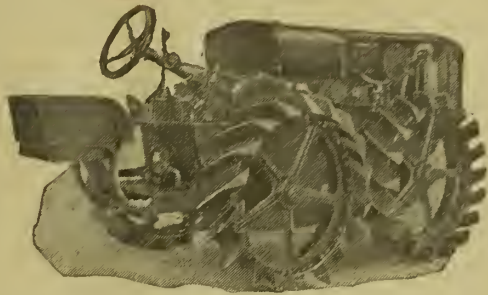
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Los Angeles Harbor, San Pedro, Cal.

QUALITY

or other hard substance in the feed and the tooth broke through into the nasal sinus or the tooth may only be split. You will have to get a veterinarian to extract it.

To Dehorn a Calf.

I have a three months old calf and want to prevent the horns from growing. How can I do it? At what age should a calf have water? How long should a calf be fed calf meal?—Subscriber, Porterville.

The horns should be treated as soon as you can feel them raising under the skin. Clip the hair off a spot over the little button from which the horn grows, about the size of a cent. Rub in some vaseline around the spot and then rub the end of a stick of caustic potash on the skin until the place is wet. This will form a scab and stop the growth of the horn. Handle the caustic potash carefully as it will burn your fingers if it touches them. Now that your calf is three months old the horns must be well started but still loose from the bone. Run the point of a sharp knife around the horn and tip it out, then treat the spot as described above. A calf should have water as soon as it will drink it. Other ground feed may be substituted for the calf meal any time after the calf is two months old.

POPENOE PROMOTED

We understand that Wilson Popenoe, for many years plant explorer for the United States department of agriculture, has been promoted to the head of the division of plant exploration. Mr. Popenoe, who has just returned from a long and arduous trip through Ecuador, South America, will soon pay a visit to California and be present at the May convention of the California Avocado Association.

PURE OIL

This is an age of specialization. Auto parts, oils, greases, etc., are no exception. One of the larger manufacturers of the country, specializing in

oils and greases, is the Pure Oil Company. This concern manufactures Tio-lene motor oils and greases. The Pacific Coast manager of this institution, recently appointed to push the sale of Pure Oils, is Leonard Freer, formerly Pacific Coast manager of the Tidewater Oil Sales Corporation. Mr. Freer's headquarters will be in San Francisco, and his district will cover all territory west of Denver. In this territory there are said to be over a million motor cars. Mr. Freer states that he plans to lose no time in perfecting a strong and aggressive sales organization in his territory and will cover the field with a large sales force. The Pure Oil Company is establishing a nation wide sales organization and has zoned the country in such a way that it has established distributing centers in Boston, New York, Philadelphia, Atlanta, Pittsburg, Columbus, Chicago, Minneapolis, Kansas City, Dallas, San Francisco and Los Angeles.

PELTON COMPANY ISSUES NEW PUMP CATALOGUES

The Pelton Water Wheel Company of San Francisco has published its Bulletin No. 18, "Pelton Centrifugal Pumps for Irrigation and General Utility." Both the type B pump, for general irrigation service, and the type FD for tank supply are described. Rules are given for the measurement of water and several useful tables for the water user are included.

The Warr Implement Company, manufacturing an extensive line of hay tools and farm implements on East First Street in Los Angeles, suffered a loss of several thousand dollars by fire Tuesday. The warehouse of Harper and Reynolds containing general hardware was completely destroyed at the same time. Mr. Warr states that manufacturing machinery on the ground floor was not greatly damaged and that the factory will be under production again by May first.

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Poultry Queries

Conducted by Jean A. Koethen

Unproductive Pigeons

I have a pair of Runt pigeons that have produced squabs before, but now have built their nest and are very friendly but there are no eggs. What shall I do? I should like to catch a pair of stray pigeons that light on our roof. How shall I go about it? Can I decoy them with my own?—Subscriber, Pasadena.

You do not say how many squabs your Runts have produced nor how old they are nor how long you have had them. If you purchased them from someone who did not guarantee them to be mated it is possible, you know, that they have never produced. Assuming that you know positively that they have produced squabs, it may be they are getting old or are lacking in vigor. If they are young you might try to find mates for them. If they are old there is nothing to be done but to wait till they are ready or get rid of them. I do not know how you can catch those stray pigeons. Has any one a suggestion?

Sick Hens

For two weeks past a White Leghorn hen has seemed to be crop-bound—at least that is what we have treated her for—but we finally had to kill her. She tried to eat but could not open her mouth far enough and would hold a grain of corn in her bill several seconds before giving up the attempt, though she could manage smaller grains to a limited extent. I believe now that she was not crop-bound but had some disease. Today we lost a Plymouth Rock. Her crop did not fill up and get hard, but was soft and pliable as it should be. She did not eat and died the third day. Our hens are kept under most sanitary conditions and are fed whole corn, wheat and barley for scratch, a quart a day to 15 hens, have hopper containing dry bran and charcoal always before them and wet mash of bran and beef scrap at noon. Possibly I feed too much beef scrap. How much should be added to two quarts of bran?—Subscriber, Del Mar.

A teacup of beef scrap (half a pint) to two quarts of bran is about the right proportion, but it is better to mix your mash in larger quantities, using more ingredients, or to purchase it already prepared. A simple mash which has given satisfaction in some laying contests consists of equal parts by weight of wheat bran, corn meal, ground oats, middlings and beef scrap. With this is fed a scratch consisting of equal parts cracked corn and wheat. With your scratch mixture of whole corn, wheat and barley you could omit the ground oats and make the proportion 50 per cent bran, 25 per cent each of corn meal and middlings and about 15 per cent beef scrap. The Plymouth Rock that died was evidently suffering from indigestion, which may have been caused by an excess of beef scrap or possibly by too heavy a feeding of wet mash. It is better to keep the dry mash before the birds constantly and feed the moist mash only in small quantities when there is special need of a forcing diet. If the Leghorn seemed hungry the trouble was more likely in her throat than in her crop. Did you examine her throat? There may have been some membrane or growth there that prevented her swallowing, as in diphtheritic roup.

Feeding Poults

Will you please give formulas for feeding baby turkeys? I see no bulletin on turkeys in the list sent from Berkeley.—Subscriber, Lakeside.

A very good bulletin is issued by the United States department of agriculture at Washington, and an article will appear soon in the Cultivator. Little turkeys should not be fed till they are from 48 to 60 hours old, according to the weather and the way they act. At first all they need is quiet and warmth. Grit and water may be put before them and they must be in a clean, warm coop. The standard nursery feed for turkeys is a mixture of chopped greens (always including onion or onion tops), hard boiled egg, boiled a long time till it is mealy, and very stale bread or other cereal. My little turkeys which came

off a week ago have had wheat flakes and very stale bread dried in the oven till it could be mashed to powder. I used sometimes the wheat flakes, sometimes the bread, and sometimes a little of both. The mixture should be at least half green and the other half equal parts cereal and egg. I chop it all together and add a good pinch of grit. Alfalfa is the best green to use with the onion, but this year for the first time I am using alfalfa, which seems to do just as well. The main thing is not to feed too much. Feed four times a day at first, then after a week three times, increasing the quantity as you diminish the number of meals. It doesn't matter as much what you feed as how much.

Trapnest Bulletins

If you have bulletins on construction of trapnests I would appreciate a copy.—Subscriber, Brawley.

I am afraid my one lone copy will be worn out or lost before it gets around to you, if it is not already lost. I understood from a subscriber who had written to Berkeley that the bulletin was no longer in print, but the information may not have been correct. You had better write and make sure about it.

Muscovy Duck

I have been watching the Cultivator for an article on the Muscovy duck but have failed so far to find it. Can you refer me to any bulletin relative to feeding and diseases of these birds? My young ducks are inclined to be egg bound and several have died from this cause.—Subscriber, Arcadia.

A very useful bulletin on duck culture is issued by the department of agriculture at Washington. That egg bound condition is hardly to be classed as a disease. It is due rather to the duck's trying to lay eggs that are too large and should be treated as the same condition is treated in hens. As your ducks are all affected in the same way I am inclined to think your ration is either too forcing or too fattening. A good ration for breeding ducks consists of two parts bran, two parts corn meal, one part middlings or low grade flour, one part beef scrap with about three per cent grit added, and at least 25 per cent cut greens or boiled vegetables, such as potatoes, turnips, mangel beets, alfalfa, cabbage or clover. This is moistened with cold water and fed night and morning. At noon the ducks get a light feed of corn. To treat that egg bound condition, obstruction of the oviduct, as it is called, inject olive oil and gently manipulate the parts. In case the expulsion of the egg cannot be obtained by injection of oil, immerse vent and lower part of body in water as warm as can be used without injury and hold there till the parts are relaxed. Then inject oil again and carefully press and manipulate. In cases where there is already external soreness you will have to puncture the egg and use some healing ointment, such as resinol, on the outside.

Cannibal Chicks

My thousand chicks, three weeks old, have taken to eating the feathers out of one another's tails. If I do not remove those that have been picked they devour them entirely. They have also toe-picked some. I have a fair sized yard; have given them lots of cooked meat and meat scrap.—Subscriber, Morgan Hill.

Are you keeping chick feed in litter or before the chicks in hoppers for them to pick at, and is a dry mash before them at least a part of the day? Either your chicks are hungry or else they have fallen into the habit of picking at each other because they have nothing else to do. Some experts think dry mash should not be kept before chicks all the time, but I have always done it without any bad effects whatever, and it keeps them busy. If you are not keeping something of this sort before them, get a good growing mash and set it in hoppers where they have constant access to it. With this and grain in litter or hoppers, and green feed before them a large part of the day you ought to keep them so busy they will not think of picking feathers. If they still persist in the habit try letting them out. Green range is the best of all remedies for all chick vices. If your yard is bare the chicks have a very trying en-

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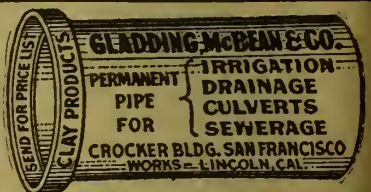
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The power of the tractor is used to dump, load and set the scraper. One tractor will operate the loading rope or dumping lever. Can be attached to any standard Fresno Scraper in thirty minutes. All the tools required are wrenches to tighten six bolts. Sold everywhere by dealers. Licensed Manufacturers
SOLANO IRON WORKS, BERKELEY, CALIF.
THE GUSTAV SCHAEFER WAGON CO., CLEVELAND, OHIO.

Macabee Gopher Trap



Small, simple, sure. At all dealers. If your dealer does not handle it, send 25 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post. Mfg. by Z. A. MACABEE, Los Gatos, Cal.



Chickens Sick?
Hens Not Laying
GERMOZONE will rid your chickens of roup, colds, canker, sore head, chicken pox, skin disorders, cholera, indigestion, bowel trouble and other ailments—and keep them healthy. For over 50 years the dependable remedy. Get Germozone, also famous Lee Free Booklets, at drug or feed stores. If no dealer, order by card. Postman will collect. 75c and \$1.50 sizes. No extra charge. GED. N. LEE CO., Dept. F-30, Pmaka, Neb.

vironment. Most poultrymen provide green barley for them to run on.

Book on Turkeys

Please inform me where I can get a good book on turkeys.—Subscriber, Perris.

A very good bulletin is issued by the U. S. department of agriculture at Washington, and you can get bulletins on prevention and treatment of blackhead from the R. I. experiment station at Kingston, R. I. The only turkey book I can recommend is one published a number of years ago by the Reliable Poultry Journal Publishing Company, Chicago. It is not up to date but contains a good deal of valuable information.

Enteritis

What is the cause and cure of bloody diarrhea?—Subscriber, Concord.

If you mean in hens, it is what is called enteritis or dysentery, and is caused by "bacterial infection coming from filthy conditions, foul drinking water, putrid meat or decaying food" and sometimes by "poisons such as paint skins, lye, unslaked lime, salt, ergot of rye, arsenic and copper in spraying mixtures." The cause of the trouble must first of all be removed, sick birds isolated, houses and runs cleaned and disinfected, drinking vessels and food troughs scalded daily. Mix powdered charcoal in the mash. Feed less bran and more middlings in the mash. Give Epsom salts, a teaspoon to each fowl, mixed in moist mash. For medical treatment Dr. Salmon recommends subnitrate of bismuth, 3 grains; powdered cinnamon or cloves, 1 grain; powdered willow charcoal, 3 grains. Give twice a day mixed with food or made into pills with flour and water. Bloody diarrhea in chicks is coccidiosis and is treated by cutting down the mash and grain and keeping buttermilk or sour milk before them. Cutting down the other feed compels them to consume a great deal of the sour milk, and this is the best cure.

Toe Marking Turkey

Would toe marking a turkey a year old injure it in any way? When is best age for such marking?—Subscriber, Daggett.

I have never heard of toe marking turkeys. Most people put on leg bands with the number of the bird. If it were ever done it should be done, as with chickens, as soon as they are hatched. It would certainly be injurious to a grown bird, and I cannot recommend it for any age.

May Be Cholera

I have lost three R. I. Red hens within a week. They act droopy, comb gets pale, they won't eat and die in three days or so. Sometimes the droppings are a little yellow or a little green, but not so bad as I have seen and cured with castor oil, which I have given in this case without results. Two others are sick. I have been feeding some corn that got wet in the field.—Subscriber, Watsonville.

The green and yellow droppings, as well as the rapid progress of the disease, are symptomatic of fowl cholera, but one can never be certain that his chickens have this disease without a bacterial examination. Dr. P. T. Woods, who has had considerable experience with this disease, outlines the following treatment: Establish a pest house and isolate all sick birds. Give these birds a few drops of creolin in the drinking water (just enough to turn it faintly milky) or drinking water in which one-tenth of a one grain tablet of corrosive sublimate (bichloride of mercury) has been dissolved. Clean up and disinfect thoroughly. This is practically the same treatment as that recommended by Dr. Beach of our own poultry division. There is very little to be done for cholera except to clean up thoroughly and use some kind of germicide in the drinking water. It may be your hens are only suffering from the effects of that moldy corn. Don't give them any more.

EGG MARKET PROSPECTS

Among eastern egg dealers there is at present considerable uncertainty regarding market prospects. A month ago everyone felt confident of a very heavy spring production, at least 20 per cent more than even the extraordinary production of last spring, but so

far this expectation has not been realized. The impression still prevails that there are many more hens in the country than there were last year, but egg production, which began early and was heavy in January and February, has been seriously retarded by unfavorable weather. There has been very cold weather and heavy snows in the Northwest and in New England and cold rains in the Middle West. Roads have been bad so that farmers could not get to town with what produce they had. As a consequence the egg receipts at the big eastern centers have been far below expectations. The question that interests everyone most just now is: What about production in May? Will it show sufficient increase to offset the shortage of March and April?

As to this, perhaps the poultryman is in a better position to speak than the egg dealer.

CALIFORNIA EGG LAYING CONTEST

The production of the contest flock climbed to 62.8 per cent for March; 32 out of 62 entries produced over 200 eggs per pen of ten hens. Over 50 per cent of the pens laid over 200 eggs. The blue ribbon winner was Boehm & Noel's pen with a yield of 243 eggs. Alex Stewart's pen was second with 242½ and R. H. Young third with 239. Blue ribbon for high hen went to Mrs. Kleinsmith with a record of 30 eggs in 31 days.

High Pens

Boehm & Noel, 243 eggs; Alex Stewart, 242½; R. H. Young, 239; Bolfin's Poultry Farm, 234½; E. D. Crewdson, 232; D. C. Berry, 230; W. A. Ford, 229; L. A. Thornewill, 228; D. B. Walls, 228; Hanson's Poultry Farm, 226½.

High Hens

Mrs. H. C. Kleinsmith, 30; W. A. Ford, 29; S. L. Gibson, 28; L. N. Thornewill, 28; R. H. Young, 28; Alex Stewart, 28; Geo. Gray, 28.

EXPERIMENTAL WORK ON FEEDING

During March nearly all pens in the experimental work at the Southern California Farm Bureau Egg Laying Contest made large gains in egg production over previous month. The dried milk albumen pen made the highest record with a production of 71.68 per cent, while the pen getting semi-solid 1-2 was lowest with a production of 51.13 per cent. Total production figures show the fresh buttermilk, dried skim milk and dried milk albumen pens still leading in this order as at the end of February. The check pen was raised from fifth to fourth place by an egg yield of 64.29 per cent, which was only slightly less than the average production of the contest flock. This pen is fed the same as the contest birds except that the mash it receives has 15 per cent meat in place of 7½ per cent meat and 7½ per cent fish and that it receives no moist mash. It must be remembered that these experiments have not been carried far enough to date to warrant any conclusions being drawn on this work.

PROSPECTUS OF U. C. COLLEGE OF AGRICULTURE

Students who are contemplating studying agriculture should obtain the new 1922-23 prospectus of the University of California college of agriculture which has just come off the press.

The prospectus is beautifully illustrated throughout its hundred pages and gives a detailed description of the work to be carried on at the college of agriculture in Berkeley and at the university farm school at Davis. Much helpful information is given in regard to outlining courses in any branch of agricultural study that a student may desire to pursue. General information in regard to expenses of the student while at college is also given.

A copy of this prospectus may be obtained free by writing to the University of California, College of Agriculture, Berkeley, California.

DESTROY MILK THISTLE

The milk thistle, silybum marianum, is one of our more disagreeable weeds whose control can best be effected at the present season, says the California department of agriculture. The milky-white splotches along the veins of its leaves, from which the common name is derived, make it readily recognizable at all stages. The time when this weed can be easily destroyed is quickly passing with the advent of warmer and drier weather. While in most sections the milk thistles have just begun to show themselves, in many places quite large plants may already be found, and occasionally a flowering stem.

The best tool for destroying the milk thistle is the spud, but a good hoe or a sharp spade will do very well. It is important to cut the plant well below the crown, for although the milk thistle is generally regarded as an annual, it possesses the properties of a biennial in its ability to produce new stalks from buds around the crown after the original stalk has been cut off.

We would again emphasize the importance of attacking this weed at the present time when the toproot is young and succulent, for within a month's time the root will be so large and tough that it can be cut only with great difficulty; moreover, there is the danger of allowing the seed to mature and disseminate.

THERE TO STAY

The pile of flints still to be broken was a very large one, thought the stone breaker, as he gazed at is disconsolately between the bites at a large sandwich of bread and cheese. A minister came along and gave him a cheery "good morning," remarking afterward that he had a deal of work to get through yet.

"Aye," said the eater, "them stones are like the Ten Commandments."

"Why so?" inquired the genial parson.

"You can go on breaking 'em," came the reply, "but you can't never get rid of 'em."—Christian Evangelist.

Time to Re-tire?

(Buy Fisk)

TRADE MARK REG U. S. PAT. OFF.



FISK
RED-TOP
EXTRA PLY OF FABRIC
HEAVY TREAD

How a Fisk Red-Top
outwore three other
tires of another make
*and still has a lot of
mileage in it*

WHAT a country dealer said to our
Memphis Manager:

"There is my car with a 30x3½ Red-Top on the left rear wheel. It was sold to me at the old price; at the same time I bought a cheap tire, and put it on the opposite wheel. I have since purchased three of those cheap tires for that right wheel. I have paid for them in all nearly twice the price of that Red-Top which is not yet more than half worn out. I don't want anything but Fisk Red-Tops after this."

It's the extra heavy, tough red tread and the extra ply of fabric that make this tire a sure success.

There's a Fisk Tire of extra value in every size,
for car, truck or speed wagon

Los Angeles Markets

Los Angeles, April 26, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 36 cents.
Prices extras past week:
April 20 21 22 24 25
35 1/2 35 1/2 — 36 36

CHEESE

Brokers' prices
California flats, 22@24.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 28; case count, 25; pullets, 24.
Prices extras past week:
April 20 21 22 24 25
28 29 — 28 28

POULTRY

Price to producers: Hens, 28; colored, 32; broilers, 26@30; roasters, 33; old roosters, 14; fryers, 40; ducks, old, 30; ducklings, Pekin, 3 1/4 up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 33@43.
Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, April 25.—Weighed and delivered off cars without food or water:
Hogs (hard grain fed), 125 to 175 lbs., 10.50; 175 to 225 lbs., 11.00.
Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.50; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 8.50; 150 to 225 lbs., 10.00.
Sheep: Ewes, 5.00@7.00; lambs, 11.50@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, April 25, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 80@90. Stocktons: Burbanks, per cwt., best mostly 2.00@2.25; poorer, 1.75@1.85; ungraded, 1.35@1.60 per sack. Idahos: Russets, 2.15@2.35. New stock, best, locals, 10@11; poorer, 8@9 per lb.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug 70@75. Arkansas: Nancy Halls, 4 1/2@5 per lb.; per bin, mostly 1.85@2.00.

Onions: Demand light, market weak. Australians: Browns, mostly 9.50@10.00; small lots lugs, 11 lb. New stock: Ordinary quality, Coachella Valley. White, cr., 2.75@3.00; Yellow, 2.50; Imp. Wh.,

2.75; Tex. cr. Crystal Wax, 2.75.
Garlic: 7@8 per lb.; fancy, 10@12.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, April 25, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Artichokes: Northern, fancy, large, 1.25@1.50; medium, 80@1.00; small, 50@75.

Asparagus: Per lb.: Local, best, 15@17; Northern, best, 12@14.
Beans: Imperial Valley string, lb. 20.
Bunched Vegetables: Per doz bunches: Turnips, 30; carrots, 65; beets 45@50; radishes, 25@30; parsley, 20@25.
Cabbage: Market steady. Per field cr., mostly 1.75@2.00.

Cauliflower: Quality fair. Per field cr., best, mostly 3.25@3.50; poorer, 2.50@3.00.
Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.00@6.00, according to quality. San Diego, mostly 7.50@8.00; few high as 10.00; Northern, small, 6.50.

Eggplant: Mex., 15 lb.
Lettuce: Market very weak. Locals: 90@1.00; ordinary, 50 per field crate.

Peas: San Pedro, best, mostly 9@11; mostly 10; Imperials, best, 6@7.
Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 10@12; Bells, mostly 30 per lb. Mexicans: Bells, 25 per lb.

Rhubarb: Local, best, Strawberry, packed box, 1.25@1.50; other varieties, 90. Northern, Strawberry, 2.25@2.50 per box.
Squash: 4 basket crates Summer squash, 2.50@2.75 per box.

Tomatoes: Market firm. Mexicans, per repacked lug, 2.50@3.00; original lugs, best, 2.00@2.50; small, 1.75; loose, per lb., best, 10@12; poorer and overripe, low as 4 lb.
Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Cantaloupes: Demand limited. Mexican, repacked, some green, pony crates, 6.00@6.25; standards, 7.50@8.00.
Loquats: Best, 15@20 lb.; No. 2, 10@12.

Strawberries: No. 1, mostly 4.50@5.00; No. 2, 3.50@4.00 per crate.

CITRUS FRUITS

Grapefruit: Market steady. Californias: Northern, packed box, 3.00@3.25; market pack, 2.75@3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@3.00; poorer, 2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, special brands, 176s and

larger, 6.75@7.00; market pack, 4.50@5.50; culls, 50@1.00 per field box; few best, 1.50@1.75; Valencias, special brands, 6.50@6.75.

Tangerines: Market firm, 8@10 lb.

HONEY

Continued heavy rains have practically assured a heavy crop of honey, although there is some uncertainty as to how large the orange blossom yield will be. Sage outlook is especially promising. Both Northern and Southern California report colonies in normal condition. Supplies of best white honey reported as very limited, but supplies of lower grades said to be still fairly abundant. Movement very light during recent weeks. Demand limited and market largely nominal. Few sales in carload lots reported at 11 cents for white sage and white orange and 8 1/2 cents for light amber, f. o. b. California points.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:
Tame Oats 20.00@26.00
Barley 18.00@22.00
Old alfalfa practically cleaned up. Prices quoted f. o. b. L. A. to producers are:
Rabbit Alfalfa 20.00@22.00
No. 1 Alfalfa 15.00@17.00
Standard Alfalfa 12.00@14.00

GRAIN

Prices L. A. Grain Exchange, April 25. 1.31 1/4.

San Francisco Markets

San Francisco, April 25, 1922.

BUTTER

Extras 36 1/2
Prime Firsts 36
Prices Extras last week:
April 19 20 21 24 25
36 1/2 36 36 37 36 1/2

CHEESE

Dairy Exchange quotations:
California Young America, fancy, 23 1/2
California Flats, fancy, 20 1/2
California Flats, firsts, 20
Oregon Trips, 26
Oregon Young America, 25

EGGS

Dairy Exchange Quotations:
California Extras 28
Extra Firsts 27
Extra Pullets 25
Undersized 21 1/2
Prices Extras last week:
April 19 20 21 24 25
28 1/2 28 28 27 28

POULTRY

Prices furnished by state department of agriculture division of markets:
Broilers: 1 to 1 1/4 lbs., 32@34 lb.; 1 1/4 to 1 3/4 lbs., 43@45 lb.; 1 3/4 to 2 lbs., 45@47 lb.
Fryers: 2 1/4 to 3 lbs., 42@46 lb.; do, colored, 50@52 lb.
Young Roosters: 3 1/2 to 4 lbs., 40@42 lb.; over 4 lbs., 36@44 lb.; do., colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.
Colored Old Roosters: 18@28 lb.
Leghorn Old Roosters: 15@18 lb.
Leghorn Hens: 2 1/2 to 3 lbs., 22@24 lb.; 3 lbs. and over, 25@27 lb.
Large Colored Hens: 32@34 lb.
Ducks: Young, 24@26 lb.
Geese: Young, 22@26 lb.
Live Turkeys: 32@35 lb.
Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.
Belgian Hares: Live, 16@18 lb.; dressed, 20@40 lb.
Squabs: Live, fancy, 50@55 lb.; common, 3.00@4.00 doz.
Old Pigeons: 2.50@3.00 per doz.
Guineas: Young, 8.00@10.00 doz.
Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
Weighed off cars at our yards in South San Francisco:
Cattle: No. 1 steers, 7 1/2@8 1/2; second quality, 6 1/4@6 3/4; cows and heifers, No. 1, 5 1/2@6 1/4; second quality, 4 1/2@5 1/4; bulls and stags, 4@5 per lb.
Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.
Sheep: Wethers, 8@9 lb.; ewes, 6@7.
Lambs: 12@13.
Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11 1/2 per lb.; do, 200 to 250 lbs., 10 1/2 per lb.; do., 250 to 300 lbs., 9 1/2 per lb.; light sows, 9 1/2 per lb.; heavy, 8 1/2 per lb.
California Farm Bureau Marketing Association reports:
No. Hogs Av. Wt. Dock Price
Turlock, April 19
62 172 40 10.40
6 211 — 9.90
2 220 — 9.40
2 295 — 8.40
2 400 40 7.00
74 hogs
1 car, 13 consignors, \$1,373.49.
Madera, April 20
73 158 — 10.50
17 205 — 10.00
10 230 — 9.50
1 500 — 7.00
101 hogs
1 car, 8 consignors, \$1,812.85.
Fresno, April 21
72 172 20 10.50
8 207 — 10.00
10 277 100 7.00
90 hogs
1 car, 7 consignors, \$1,646.65.
Total for the week, 265 hogs, 28 consignors, 3 cars, \$4,832.99.

POTATOES AND ONIONS

Prices furnished by state department of agriculture, division of markets:
Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock April 24 by

wholesalers from their sales to retail hotels, restaurants, cafeterias, etc. Term Cash on walk. Slight fluctuations may noted during the day's trading, where credit is given or goods are delivered.

Onions: Australian cold storage browns, 9.00@9.50; green onions, 1.75 2.00 per box. New crop whites, 5.00 crate.
Garlic: 4@6 per lb.

VEGETABLES

Prices furnished by state department agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock April 24, wholesalers from their sales to retail hotels, restaurants, cafeterias, etc. Term Cash on walk. Slight fluctuations may noted during the day's trading, where credit is given or goods are delivered.

Artichokes: Choice, 9.00@10.00 per crate; poorer, 7.00@9.00.
Asparagus: 4@5 per lb.; white, 5@6 per lb.; graded, 8@10 per lb.

Beans: Florida, 20@25 per lb.; Imperial, 25 per lb.
Bunched Vegetables: Carrots, 50@60 per doz.; turnips, 45@55 per doz.; best 50@60 per doz.; parsley, 15@20; radishes 30 doz. bunches.

Cabbage: 2.00@2.25 per crate, 2 per lb. 75@1.00 per doz.
Carrots: 2.75@3.00 sack.
Cauliflower: 75@1.00 doz.

Celery: Crate 2.00@4.00.
Chicory: 2.25@2.50 crate.
Cucumbers: Hothouse, fancy, 2.00@3.00 per doz.; small, 3.50 per crate; English 2.50@2.75.

Eggplant: Florida and Mexican, 15 25 lb.
Endive: 25@30 lb.
Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Imperial Valley, iced, 1.50 2.25 per crate; Los Angeles, 1.50@2.00 crate; local, 75@1.50.
Mushrooms: Choice, 25@50; cultivated 75@1.00.

Olives: 5@7 per lb.
Onions: Australian cold storage brown 8.50@9.00; green onions, 1.75@2.00 box. Parsnips: 1.75 per sack.

Peas: Pismo, 8@12 per lb.; Imp., 6@7 per lb.
Potatoes: Rivers, fancy, 1.40@2.20; Oregon Burbanks, 2.00@2.15; Idaho Nette Gems, 1.85@2.25; off grades lower; Selinas, 2.25@2.75 cwt.; new, 12 lb.

Peppers: Florida and New Mexico, Bells 20@35; Chilis, 5@10.
Pumpkins: 75@1.00 per 90 lb sack.
Rhubarb: 3@5 lb.

Squash: Hubbard and Banana, 6@8 lb. Summer, 2.50@3.00.
Spinach: 3@4 lb.

Sweet Potatoes: 3.50@3.90 per cwt. Arkansas and New Mex. yams, 1.75@2.00 per 50 lb. crate.

Tomatoes: Mexican, repacked, 2.75 3.00; off grades, 1.50@2.75.
Turnips: 1.75@2.00 per sack.

FRESH FRUIT

Bananas: Best Eastern and Hawaiian 7@8 lb.
Loquats: 15@20 lb.
Olives: Ripe dry, 8@10 lb.
Pears: Choice, 4.50@5.50.
Strawberries: Imperial, 2.75@3.50 cr. local, 1.35@1.60 dr.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack 3.50@4.00; Arizona, 4.25@4.50 box.
Lemons: Special pack, 5.00@5.75 box. Choice, 4.00@4.50 box; Lemonettes, 2.00@2.25.
Oranges: Special pack, 100-150s, fancy 6.00@6.50; 176-216s, 6.75@7.25; choice, 5.2@6.25; culls, 1.75@3.50; Valencias, 6.25@7.75.
Tangerines: 2.50@3.50 per half orange box.

RICE

Rice Association prices:
No. 1 Paddy, 2.80.

BEANS

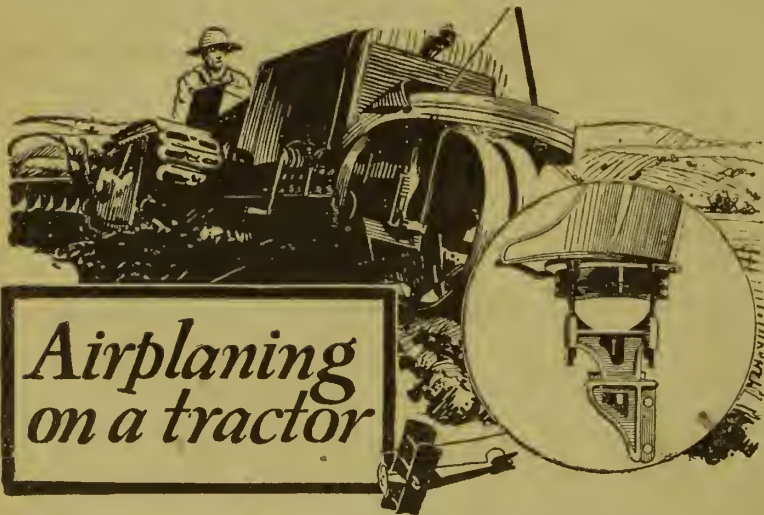
Large Whites — 6.31
Small Whites — 6.51
Pinks — 6.91
Mexican Reds — 5.91
Red Kidney — 8.21
Cranberries — 8.51
Bayos — 6.21
Blackeyes — 6.21
Henderson Bush Limas — 9.51

HAY AND FEEDSTUFF

A. W. Scott Co. reports under date April 22:
Receipts of hay past week 897 tons as compared with 748 previous week. Demand light, mainly for No. 1 Tame Oat. Export unusually slim and coast-wise shipping dull. Interior trading light. Bulk of trading for shipment to the south of the state which continues strong with the demand favoring better grades of tame oat, barley or barley and oat. Alfalfa movement has been light but steady, most of it still coming from Nevada, and the great majority directed toward the southern market.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Ton
Wheat Hay, No. 1 — 17.00@19.00
Wheat Hay, fair grade — 14.00@17.00
Tame Oat Hay — 15.00@19.00
Wild Oat Hay — 11.00@13.00
Alfalfa Hay — 15.00@18.00
Stock Hay — 9.00@11.00
Straw — Nominal
Barley, ground — 32.00@34.00
Barley, rolled — 30.00@31.00
Oats, rolled feed — 38.00@40.00



You ride on air when you ride on a SEIBEL AIR SPRING SEAT. You can scarcely believe you are driving a tractor, for all the vibration, jolting, bouncing and swaying are gone. It will protect you from a permanently injured spine and serious kidney trouble. You will feel 100% fresher at the end of the day.

\$18.50 ON TEN DAYS' TRIAL

Send \$18.50 to our nearest agency or to the company direct. Pay the return freight if you don't want to keep the seat and your money will be refunded.

Write for descriptive circular.

SEIBEL
AIR SPRING SEAT

SEIBEL AIR SPRING CO.

HUMBOLDT BANK BLDG.
SAN FRANCISCO

1048 SOUTH OLIVE ST.
LOS ANGELES

FACTORY: SAN MATEO

Dealers:

RALPH W. ROTH, 921 3d St., Napa
L. L. LOCEY, 406 High St., Modesto
J. I. McCORD, Templeton
HARLEY P. BREWER, Fullerton
ROTH & PINTO, Biltwell Garage, 9th and L
Sts., Sacramento, Cal.

E. BEAULIEU, 334 F St., Eureka
CHAS. PILGRIM, Box 1115, Fresno
LEM HORTON, Hollister
GROWERS' TRACTOR CO., 65 N. Market St.,
San Jose

Bran, 31.00@34.00; Millrun.....	32.00@34.00
Middlings.....	46.00@48.00
Linseed Meal.....	49.00@52.00
Coconut Meal.....	27.00@30.00
Alfalfa Meal.....	22.00@24.00
Cottonseed Meal.....	50.00@55.00
Sugar Beet Pulp.....	29.00@31.00
Molasses, tanks, 17.00; bbls.....	25.00
Milo.....	38.00@40.00
Corn Meal and Cr. Corn.....	35.00@37.00
Scratch Feed.....	42.00@44.00

GRAIN

Barley: Feed, 1.35@1.42½; shipping,	1.45@1.55.
Wheat: Mill, 2.30@2.35; Feed, 2.30@	2.35.
Red Oats: 1.75@1.80.	
Corn: California yellow, 1.40@1.45;	1.25@1.27; kafir, in bulk, 1.67½@1.70;
eastern, 1.65@1.67½; do, No. 2, in bulk,	1.70@1.73; white Egyptian, 2.00@2.10;
California red milo, 1.77½@1.82½; do,	bulk, 1.75@1.80; eastern red, 1.77½@1.80.

Citrus Markets

Los Angeles, April 26, 1922.

Navels continue to bring good prices; few sales of Valencia; Sweets, Seedlings, etc., in good demand. Tulare County estimates Valencia crop over 1,000 cars, some frost damage. Warm weather is showing up damaged fruit.

Lemons selling well; no shortage of summer fruit indicated in spite of importers assertions that Californias will not be able to fill the Eastern demand in hot months because of freeze.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California: Oranges, 13,022 cars; lemons, 3,728; total, 16,750. To same date last season: Oranges, 18,497; lemons, 3,771; total, 22,268. From Central California to date this season: Oranges, 4,714; lemons, 105; total, 4,819. To same date last season: Oranges, 4,684; lemons, 132; total, 4,816. From Northern California to date this season: Oranges, 372; lemons, 8; total, 380. To same date last season: Oranges, 305; lemons, 5; total, 310.

AT THE AUCTIONS

April 24

New York: 28 or., 5 mix., 4 lem. Nav. 3.75@7.70, Val. 3.40@4.40, Sweet 3.30@4.05, Homo. 3.40@4.15, Blood 4.45@5.90, Jaffa 4.30, Seed. 3.75@4.10, St. Mike 3.60@5.00, lem. 2.70@5.05.

Boston: 19 or., 4 lem. Nav. 3.10@7.55, Val. 2.75@4.70, Seed. 2.80@4.00, Sweet 5.00@5.05, Blood 3.30, lem. 3.10@5.25.

Philadelphia: 5 or., 2 lem. Nav. 3.10@7.70, Val. 2.75@4.55, Seed. 2.80@4.00, lem. 2.35@4.70.

Pittsburg: 9 or., 3 lem. Nav. 5.15@6.30, Val. 3.70@6.35, lem. 2.10@2.90.

Cleveland: 4 or., 2 lem. Nav. 5.85@6.80, Val. 4.20@5.10, Seed. 3.90@4.80, lem. 3.45@3.70.

St. Louis: 7 or., 2 lem. Nav. 2.85@6.25, Val. 3.20@5.00; Seed. 3.11@3.27, Budded 2.20@2.65, lem. 2.75@3.54.

Cincinnati: 4 or., 2 lem. Val. 2.95@5.35, lem. 2.60@3.75.

April 25

New York: 20 or., 3 mix., 1 lem. Nav. 85@7.65, Val. 3.05@6.15, St. Mike 3.90@5.20, Med. Sweet 3.80@4.85, Malta halves 2.45@3.15, Seed. 3.85@4.35, lem. 2.90@3.60.

Boston: 7 or., 3 lem. Nav. 4.75@7.45, Seed. 3.35@3.50, Med. 4.15@5.90, Blood 4.10@4.95, lem. 3.00@4.20.

Philadelphia: 5 or., 1 lem. Nav. 3.95@6.25, Val. 3.80@5.25, Sweet 4.20@5.60, Seed. 4.00@5.90, Mandarin 5.10, lem. 3.30@5.85.

Pittsburg: 3 or. Nav. 4.85@5.90, Seed. 3.75@4.45.

The "biggest and finest watermelons," "finest prunes" and even "sweetest oranges as shown by awards at state and other fairs" is the claim of the Williams chamber of commerce. This chamber of commerce is, by the way, one of the newer organizations of that kind in the state. The officers are: H. C. Stovall, who is president of the Williams bank, chairman of the board, and J. F. Fouch, leading merchant, secretary. The directing board consists of 15 representative business men.

A new livestock selling organization has been launched in this state. The organization has been incorporated with the following list of stockholders: Romie C. Jacks, Hereford breeder, Monterey; C. R. Thomas, sales manager, San Francisco; Frank Honeywell and Ralph Newman of the Pacific Rural Press, San Francisco; M. W. Jacks, Monterey; F. V. Cornish, attorney, Berkeley, and J. E. Thorp, Jersey breeder, Lockeford.

The dairymen's department of the Los Angeles County farm bureau is planning its regular spring quarterly field meeting May 8 at Adohr Stock Farms above Van Nuys. One of the big features of the day will be the barbecue at noon. A program of great interest is arranged. The cups to be given as prizes in the Los Angeles County farm bureau dairy competition, June 30, will be on exhibition. A special feature will be entertaining of the state farm bureau traveling conference. All dairymen and their families are very cordially invited.

It is poor economy that saves ourselves at the expense of another.

THE END OF A FAMOUS CALIFORNIA SHORTHORN HERD

Next Thursday, following the dispersal of the Ormondale Shorthorn herd, will mark the passing of one of the leading breeding establishments of the West. Ormondale ranch first gained international fame as the home of the great Thoroughbred stallion Ormonde, and for many years was a noted nursery of speed. After horse breeding was given up the owners established a herd of Shorthorns. From a modest beginning considerable progress was registered and then by a fortunate purchase the bull Golden Goods Jr. came into service. As soon as his heifer calves began to appear Shorthorn breeders remarked upon their uniformity and especially attractive heads. As they developed they continued to attract attention and when finally Thornton S. Glide purchased one of them, named Little Sweetheart, a transaction was negotiated that was destined to bring almost as much fame to the herd as was at one time enjoyed by the Thoroughbreds. After a sensational career in the show rings of the West Little Sweetheart was entered at the 1919 International, and in the greatest show of America she was made grand champion female. This exploit directed national attention to the herd and the owners found themselves in a position where they were almost forced to extend their operations. The following spring, \$12,000 was paid for the imported bull, Boquhan Guinea Stamp, and a little later an important group of females of select breeding was added. Boquhan Guinea Stamp had but a brief career and following his death, The Caledonian, a crack young son of Imp. Caledonia, was purchased. Later Count Kingwood a son of Imp. Kingwood was added. The stage seemed all set for the herd to make an enviable record when a sudden decision of the owners ordered its dispersal.

Few such opportunities have ever been presented the breeders of this state to profit by a dispersal sale as will be offered at the forthcoming event and the wide interest that has developed promises to attract one of the most distinguished crowds in the history of the breed in California.

JERSEYS AT AUCTION

Manager Thomas of the Pacific Purebred Sales Company announces all details perfected and Jerseys ready for the auction of purebred Jerseys at the fair grounds at Stockton next Thursday, May 4. The cattle to be offered are all Oregon bred. There are 39 females and one bull. Mr. Thomas says: "In bringing these cattle from Oregon it was deemed best to bring to you as our first offering almost entirely young animals whose ancestors are tried and true and through whose veins flows some of the very best blood of the breed; animals whose whole lives of usefulness will be yours, at your bidding; and every animal comes to you with a perfectly clean bill of health. These animals were selected from herds which have stood the health test from time to time and in none of these herds was there a reactor." The auctioneers will be Col. Cy N. Clark and son. The sale will be called at one o'clock.

BERYLWOOD STOCK FARM

(Continued from Page 467.)

beat the state record for butter for her age.

Many of the cows in the herd will command the spotlight before their day is done, for production or show ring winnings or both, as they have been very carefully chosen with both activities in view.

A year or more ago Mr. Snodgrass began the search for a bull to place at the head of this galaxy of females, and only recently did he find one that measured up to the standard he had set. The purchase of this young male, Prince Aaggie of Berylwood, from Morris and Sons has been fully recorded in these columns. This youngster, who is an excellent individual, has the distinction of being the highest record bull on the Pacific Coast and carries 100 per cent of the same blood as the bull sold by Morris to Arfmann and Amos of New York for \$11,000, who is backed up by an average of his seven nearest dams which

is the highest in the world. The dam of the Berylwood bull is making a record at present which promises to wrest this honor away from the Arfmann bull.

Prince Aaggie of Berylwood claims a three quarter relationship to King Korndyke Pontiac Acme, the \$41,000 bull at the head of the Santa Anita herd, and a like relationship to the \$9,250 Sir Aaggie Mead owned jointly by W. J. Higdon and F. S. Borror of Tulare. The dam is a full sister to Aralla De Kol Pontiac Mead that has just completed a yearly record of 1,065.43 pounds butter.

Another fact of impressive interest is that five of his seven nearest dams have proven their transmitting qualities by producing 1,000 pound daughters. The sixth dam has an 885 pound four year old daughter that has 954 pounds to her credit as a mature cow. The seventh dam, his own, is too young to have acquired producing daughters but as she has three daughters under milking age it is certain that she will be able to boast of at least one 1,000 pound daughter. Furthermore, five of the seven dams have each produced over 2,000 pounds butter in two consecutive years and the sixth one has 1,862.88 pounds in two years.

Not the least interesting fact is the announcement of Mr. Snodgrass that the services of Prince Aaggie of Berly-

wood will be available to the members of the Ventura Calf Club that he was instrumental in organizing and which is being carried on largely under his direction. It is entirely correct to say that no calf club in America has the advantage of such breeding.

WEATHER REPORT

Stations	San Francisco, Cal., April 22, 1922	Temp.
	Week Season Norm	Max. Min.
Eureka.....	33.59 41.54	51 36
Red Bluff.....	16.09 22.81	82 38
Sacramento.....	13.62 18.57	80 40
San Francisco.....	19.10 20.98	75 45
San Jose.....	14.22 15.80	88 34
Fresno.....	10.22 8.63	84 27
San Luis Obispo.....	22.56 18.91	84 42
Los Angeles.....	18.99 14.92	86 48
San Diego.....	18.23 9.40	80 48

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Smoke Good Hand-Made
Cigars at Mail Order
Prices

Mail Order and Mail Delivery means low price coupled with quality. IN "OUR ADVERTISER" CIGAR we give you a Hand-Made, Long Strip Filler, and Sumatra Wrapper, a combination seldom used except in cigars that sell for ten cents and up.

A Box of 50 for \$2.50, Delivered
Our Mail Order low price conforms to the spirit of the times.

Zinn-Latchford Corporation
American Bank Bldg.,
Los Angeles, Calif.

--and, as for Spuds

—give this picture the once over and read the following letter on the influence of AGRI GYPSUM on winter potatoes in the San Fernando Valley



Scabby potatoes from untreated portion of check plot. Clean potatoes from plot treated with 1,000 pounds per acre of AGRI Gypsum. Crop harvested in winter of 1921 on ranch of H. L. Boyer, Van Nuys. Plot treated with AGRI Gypsum yielded 61 per cent more and produced clean, marketable potatoes.

United States Gypsum Co.,
Los Angeles, Calif.
Gentlemen: We are inclosing two sample lots of potatoes which will illustrate the benefit I have received from the use of Agri Gypsum, at the rate of 1000 lbs. per acre. The total cost being \$8.25 per acre, Gypsum and the labor of spreading.

On the check plot test the yield without the use of Gypsum was 68 sacks per acre, while the plot to which Gypsum was applied gave a yield of 110 sacks per acre.

The quality is well shown in the illustration, potatoes from the Gypsum plot being practically free from scab, while those from the untreated portion were badly affected.

The ground is noticeably free from cut-worm, potato bug and other insects which are often found infesting the land after plowing under a heavy cover crop.

I regard this as a remarkable demonstration of the fertilizing qualities of Agri Gypsum when used on fall potatoes. I shall make a more extensive application on both my spring and fall crops.

Yours very truly,
H. L. BOYER.

ARE YOU INTERESTED? Let us send you free of cost our illustrated booklet, "Profitable Agriculture."

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World's Largest Producers of
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U. S. GYPSUM CO.,
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LOS ANGELES.
Gentlemen: Please send me a free copy of your booklet, "Profitable Agriculture."
My Name.....
Address.....
Crops..... Acres.....

90 EGGS
120 EGGS

AND THE HEN IS JUST PAYING HER "KEEP"
AND THE HEN IS JUST PAYING A PROFIT—

but why
stop with

30 EGGS



AUTHORITIES estimate it takes 90 eggs a year to cover the "keep" of a commercial hen—and 120 eggs to make just a profit. But—there's the rub! How are you going to get the extra eggs—the eggs that make the big bank-book difference between just a *profit* and a *just* profit?

The average hen under natural range conditions will produce only about 75 eggs a year. Yet *proper feeding and care* have developed commercial flocks that average 120 to 150 eggs a year per hen. Some flocks will range even higher.

It's all a matter of feed and care. The feed must be clean, tasty, varied. The elements of an egg are derived from many sources. Therefore, the greater the variety of feed ingredients the better. SURELAY contains a dozen tested ingredients balanced and blended according to the famous Sperry formula. It is made so good, so uniform, so tasty, that every time Mrs. Hen

takes a peck at it she is eating something that goes into the making of an egg.

You know that Nature provides each hen with a certain number of embryonic ova. These are minute yolks which, under ordinary conditions, will take the hen a number of years to produce. But that isn't very profitable. So it is your job as a poultryman to secure the most eggs in the least time—and keep the hen in *good health* all the while.

SURELAY will give every hen in your flock an opportunity to pay not only her board bill but pay *you* a profit. This prime quality feed calls the "egg-making department" to order—makes it produce—and keeps the hen in "fine fettle" all the time.

Ask your dealer for Sperry SURELAY in the yellow-striped bag; and send for "Makes Hens Happy"—a practical guide to more eggs and more money. Simply clip the coupon and mail today.

SURELAY

"A Sperry Product"

STOCK AND POULTRY FEED DEPARTMENT

SPERRY FLOUR CO.

208 WEBER AVENUE · STOCKTON, CALIFORNIA

Please send me, without obligation, your booklet
"Makes Hens Happy."

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UNIVERSITY OF ILLINOIS
MAY 11 1922

CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

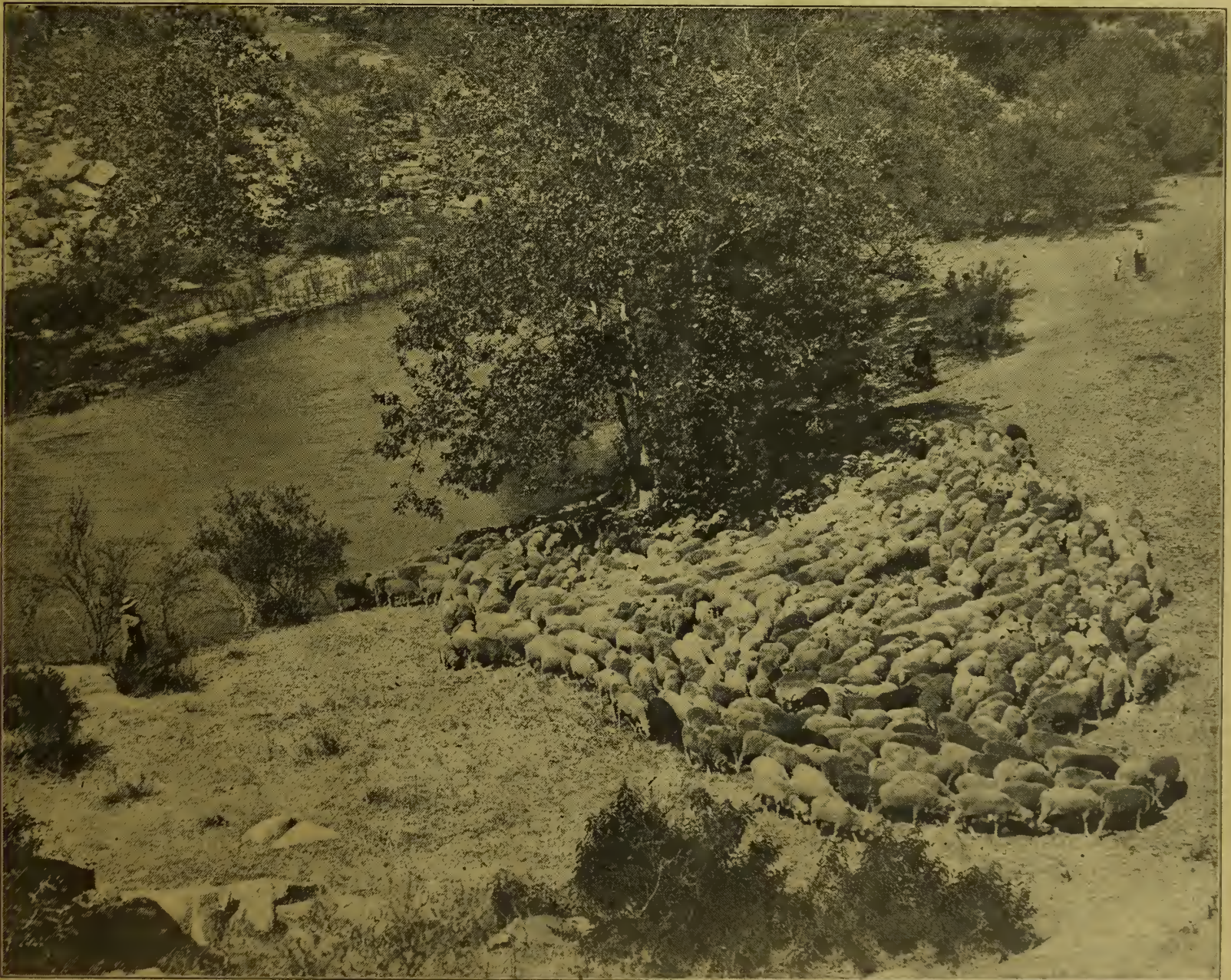
San Francisco

Vol. LVIII

May 6, 1922

No. 18

Noontime Rest in San Diego County

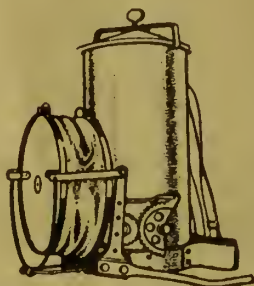


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And Be Safe and Sure



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Trade Mark **TIZIT** Registered Tree Spray

(Basic Arsenate of Lead Base)

The Premier Insecticide and Fungicide for the Control of
Black and Citricola Scale, Thrips, Red Spider and Fungi

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Artificial Frost Protection Is Not Necessary at

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The recent frost makes this the time for investigation. We invite inspection of hillside plantings showing tender one-year-old avocados undamaged by one of the most severe frosts ever experienced in California.

Our section is one of the warmest and best protected from wind of any in Southern California. Let us show you now.

Ideal conditions for avocado, citrus and winter vegetables. Beautiful homesites.

Buy now for spring planting, or we will plant and care for orchards. Special terms to those who improve.

Any acreage desired. Low prices. Reasonable terms. Send for descriptive folder.

Also specialize in Hillgrove Townsite, North Whittier Heights property, and in other choice walnut and citrus properties.

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Write us for quantity prices
before purchasing elsewhere.

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Operators of the World's Largest
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Ventura Kafir Header

Tops Irregular Fields Cleanly,
Quickly and Economically

You can make money raising Kafir and Milo now because the Ventura Kafir Harvester cuts the cost of harvesting far below what it ever was.



The Ventura solves the problem of getting the heads of all the sorghum varieties in irregular fields. By folding the stalks down onto a steel finger table with rollers, the heads are brought evenly, the high ones to the low ones, to the cutter bar. A solid reel delivers them to the canvas carrier. The heads of Kafir Milo and similar grains are topped evenly and delivered into a wagon at the side.

Tests made in various sections of California during 1921 thoroughly demonstrated the efficiency of the Ventura. Results in efficiency and economy in harvesting surpassed all expectations.

Two machines are manufactured—a one row and a 9 foot. Do you want one this year? Orders must be received early and will be delivered in turn. You cannot afford to be without one if you raise Kafir.

The Ventura Manufacturing and Implement Co.

Mfgs. Ventura Bean and Kafir Corn Threshers and Implements
Ventura, Calif.

Dealers will find a lively demand for the Ventura Kafir Header
in counties where Kafir is grown. Write for territory.

California Cultivator

Vol. LVIII, No. 18

Los Angeles, May 6, 1922

One Dollar Yearly

How May We Best Kill Jack Frost?

THE ONLY certain thing about frost injury is the uncertainty. The community suffering greatest injury one year, may prove, to a degree, exempt the next year. Again, it is most uncertain as to whether we will have any frost at all. The wisest of prophets, however, are unable to give us advance information, so the only safety lies in always being ready. Unfortunately the majority of our growers of crops which are affected by winter cold do not realize the possibilities of frost protection. There are this year, however, sufficient examples of orchards and crops saved (aggregating small fortunes in some instances), that only those who are

Thoughts Inspired by the Frost Fighting Convention at Covina

permitted the loss visited upon some sections this year. For instance, one of the richest sections in California, which last year marketed oranges and lemons to the value of \$3,800,000, to the grower, will this year market somewhat less than \$600,000 worth of fruit. This means a net loss of \$3,200,000; first to the fruit growers and equally as great loss to the bankers, the commercial interests, the doctors, the lawyers and others of the same community.

That same \$3,000,000 would have paid for a powerful amount of frost protection equipment which would have saved the crop of the present year and the vitality of the tree and probably three-fourths of next year's crop which is now gone because all trees are not going to come back quick enough to set a full crop, and many of them will not come back in time to set any crop whatever. Therefore, on top of the \$3,000,000 loss there is possibly another \$3,000,000 loss on next year's crop; this, bear in mind, in one section of a very few square miles. It is not necessary to say that this financial loss from the one cold snap will aggregate in that one community \$10,000,000 or \$5,000,000 or any other definite amount, in order to convey the truth that the loss is all too great for any one community to stand, so there are several long thoughts for residents of that community and many others similarly situated in California.

The first one which comes with a special force to the newcomer is, "Shall we quit the game and raise some other crops?" A very few will answer this in the affirmative, but the great majority will answer with a very emphatic "no," have answered it, in fact, by taking preliminary steps to provide an efficient and sufficient remedy. The proof that this remedy is available is abundant. Still there is a very natural desire to escape from some of the costs of that campaign if possible so committees are appointed, conventions are called, and we are discussing questions as to meteorology, cost of steel, windmills, electric fans; B. T. U.'s in oil, coal, briquettes, shavings, tall stacks, low

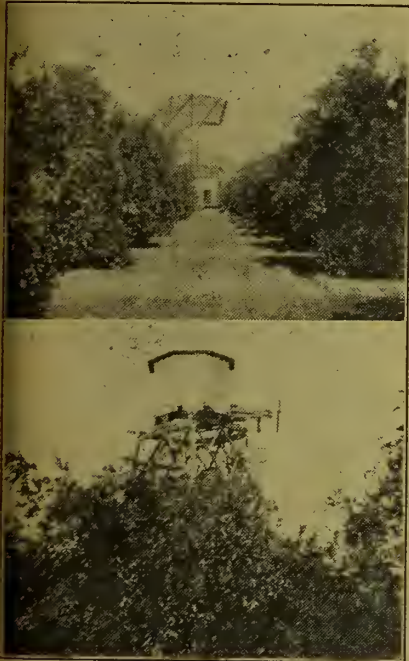
stacks, no stacks, and, in fact, everything that may affect temperature.

Last Saturday was a day especially devoted to a discussion of those topics. The matter was brought up at the meeting of the Claremont Pomological Club while at Covina thousands of automobiles fought for parking space somewhere near the arena in which the "frost fighting convention" was

held. The interest was so great that the pavilion was packed and every entrance filled with others endeavoring to catch some of the words of those who were discussing types of heaters and methods of work and urging all to action before another cold season.

The best part of the whole proceeding was the showing of good nature on the part of citrus growers. They were continually on the alert to catch the impractical suggestions—of

(Continued on Page 490.)

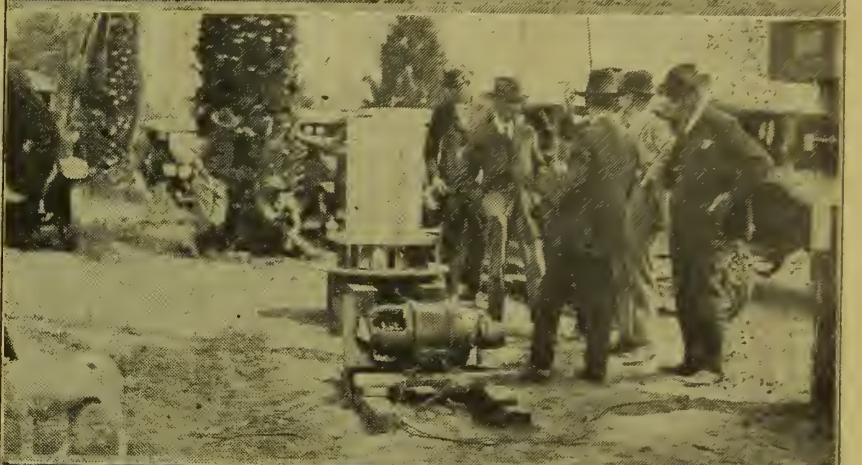


Agitate and Mix the Air

Two appliances at Ontario which have given practical demonstration in cold weather.

prevented by lack of capital should take chances with the weather.

This year, however, proved the most severe trial ever put up to frost fighting equipment. This because of the fearful suddenness with which temperatures dropped. Some sections reported temperatures dropping from around 30 to under 20 degrees within a very few minutes. This put a severe test on equipment and more on labor organization. The everlasting hope that we may be exempt, at least this one more year, is responsible for a degree of the inefficiency which has



Frost Fighters Discussing Jack Frost and His Extinction

Upper picture shows several thousand people massed around the barbecue. Appliance shown in next picture below is crude model of electric fan to draw air from upper strata. Third from top, low stack heaters producing more or less smudge, high stacks burning clear. Bottom illustration, briquette burners, one in operation,



Shavings and Heavy Fuel Oil Cartridges and Burner

Agricultural News Notes of the Pacific Coast

Northern California

Canners are reported offering \$35 to \$85 a ton for apricots.

The first car of cherries is scheduled to leave Sacramento May 15.

The Sutter-Butte Canal Company will deliver water to 30,000 acres of rice.

The Placer County Farm Bureau Exchange has filed articles of incorporation.

Sugar Loaf, Eldorado County, reports first movement of cattle to higher ranges.

Fair grounds at Anderson are being graded in preparation for Shasta County's fall fair.

Fed by waters from melting snows in the lower altitudes all streams in the Sacramento Valley are rising.

It is not expected that the Pioneer Trail to Lake Tahoe can be opened before June 1 because of snows in Sierra.

Horticultural Commissioner Earle Mills of Butte County is making trip through citrus growing sections of the Southern states.

June 3 will be Peach Day in Sutter County when Stanislaus County peach growers make inspection of Sutter County methods of culture.

Potato specialist Shear of the state department of agriculture is inspecting for certification plantings of potatoes in Humboldt County.

Superintendent Kreutzer of the Durham state land colony has been making tour of northern counties investigating land settlement problems.

The government will expend \$63,000 on improvement of roads and trails in Lassen forest. First work will be done on the Lyonsville-Mill Creek road.

The forest service has been notified by the commander at Mather field that because of lack of funds airplane forest patrol will not be continued this summer.

Yolo County grain men are planning to organize their own grain exchange to sell through the farm bureau instead of pooling with Solano County growers.

A cooperative grain elevator is being built at Lincoln, Placer County, to be used in marketing through the California Farm Bureau Elevator Corporation.

Sacramento canneries are putting up a big pack of spinach. One day last week four canneries packed 340 tons and shipped in crates out of the city 150 tons.

The committee of the California Wool Growers reports the railroads have agreed to give better accommodations for feeding and watering and faster time as a result of conference.

The California Bean Growers' Association has bought four acres of water front at Pittsburg, Contra Costa County, and will start at once building first unit of a warehouse and shipping depot.

Probably the most complete irrigation field laboratory in the West will soon be in operation at the University of California farm at Davis. The laboratory will be equipped to test and demonstrate practically all of the standard irrigation equipment and methods.

Central California

Orange Cove is sending out three cars of Valencias daily.

Rains and high winds have interfered with melon seeding in the Turlock section.

The Tulare County American Legion picnic will be held at Mooney Grove, May 7.

Gilroy, Hollister, Salinas, Monterey and King City will form a Chautauqua circuit this summer.

Fowler farm bureau is considering formation of an irrigation district between Selma and Fresno.

Annual May Day picnic at Los Banos will be largely attended by Merced and Stanislaus County people.

The seven mile stretch of paved road from Snelling to Hopeton bridge in Merced County is open for travel.

A complete farm survey is being made of the Owens Valley in Inyo County under direction of the farm bureaus.

Prospects are for a big year in the Yosemite Valley. Camp Curry opened April 28; there is still ten feet of snow on Glacier Point.

W. E. Hinshaw of Terra Bella has been selected to represent that district at the state olive growers' convention in Fresno this month.

Lindsay, Tulare County, now expects to ship something under 400 carloads of Valencias. This will be not more than 30 or 40 per cent of a crop.

The Stanislaus County farm bureau is sponsoring a plan for a great celebration of the Fourth of July at Modesto that will include all citizens of the county.

The Owens Valley Herald chronicles "More fine stock being shipped into this section this spring than has ever come in here before, most of it for dairy herds."

Snows in the high Sierra are so well packed that it is thought melting will be slow enough to prevent early floods and so keep up stream flow late into the summer.

Some Japanese berry growers are reported to be insistent on using half pint berry boxes prohibited by the state standardization law and threatening to take the matter into the courts.

Forty-five hogs were exhibited at Bishop, Inyo County, by the 23 boys and girls of the pig club. Average weight was 204 pounds, average age six months and ten days, net profit \$5.25 per hog.

Less than half a crop of apricots in San Benito County is estimate of Horticultural Commissioner J. O. McKinney, who, with Farm Adviser Tocher, has just completed general survey of fruit prospects.

Opponents of the Kern River water storage project are said to be approaching signers of petitions favoring the project and "informing" them that if the plan does not go through they will be obligated to bear heavy costs of preliminary work.

Contracts with olive growers of the state are now being mailed out by the organizing committee for the new olive growers association. At the same time meetings are being held in various centers of the state to acquaint the growers with the plans of the organization. Wm. Glass of Fresno is secretary of the committee.

Southern California

Banning Wild Flower Show, May 2 and 3.

Murrietta is becoming a poultry raising center.

Shipments of onions have started from Coachella Valley.

California Avocado Growers will meet at Pasadena, May 12-13.

Garden Grove Mutual Orange Association has been formally organized.

The Automobile Club of Southern California is charting water holes of Death Valley.

Lima bean planting is well under way along the coast, just beginning farther inland.

"More trout in Ventura County streams than for 15 years," says Game Warden Barnett.

The Whittier insectary is prepared to supply on request ladybirds predacious on mealybugs.

The second annual Perris Valley Livestock Day will be held at Sierra Vista Ranch May 12.

Eighteen citrus associations have agreed to aid in financing a soil laboratory for Orange County.

Citrus growers of the Pomona district gathered at Pomona, April 7, to discuss frost protection.

Imperial County supervisors have passed an ordinance limiting truck loads over county highways.

Citrus growers from all Southern California gathered at Covina last Saturday for the frost fighting meet.

One of the features of the Valencia Show at Anaheim, May 23-30, will be the industrial and automobile exhibits.

Coachella Valley growers have adopted U. S. grades for Bermuda onions. 2,400 acres have been planted in the valley.

Massmeetings of grain growers were held throughout Imperial Valley last week to explain operation of farm bureau exchange.

During March 1,114 cars of oranges were passed out of Los Angeles County packing houses by district horticultural inspectors; 968 were Navels.

A 40 acre tract at the southeast corner of E and Mill Streets in San Bernardino has been purchased for permanent home of the National Orange Show.

In spite of the freeze Highlands Exchange reports shipping 59 cars of Navels during March at an average price of \$5.22 per box f. o. b. East Highlands.

Supervisors of Los Angeles County have ordered survey of county to determine extent of eelworm infestation. Four inspectors have been detailed to the work.

The Citrus Belt Milk Goat Association at its last monthly meeting in Pomona decided not to hold a separate goat show but to exhibit at the Pomona fair in September.

An English buyer has been making contracts in San Bernardino County for oranges, dried and fresh deciduous fruits, especially Yucaipa Valley apples, for shipment via Panama Canal to London and Liverpool.

Supervisors of the 13 southern counties have united in effort to effect legislation on uniform weight for trucks. The state supervisorial association which will convene at Eureka in June will also take up the matter.

The Coast and General

Heavy snowstorms in England the last of March did serious damage to the lamb crop.

Idaho's spring lettuce crop will be placed on the market in June and early July.

A total of 43,521 cars of apples was shipped from the four Pacific Northwest states from July 1 to March 1.

Reports of frost damage to fruits in Missouri are now said to be exaggerated. Practically none will be lost from this cause.

The 436,000 acres of winter wheat seeded in Idaho last fall shows a condition of 92 per cent normal; last year at same time, 97 per cent.

In a special act of the New York legislature funds are provided for field experimental work on Long Island for study of soil problems of truck crops.

Threshing of the Argentine wheat crop is practically completed. Present indications are for an output of 154,873,000 bushels of generally good quality.

Headquarters for the newly organized Texas Melon Growers' Exchange will be located at Dallas. The exchange has contracted to deliver 5,000 carloads of melons this summer.

Southern Idaho is happy over receipt of news that the Idaho Central Railroad has begun construction on its line to San Francisco which will shorten the rail distance by 350 miles.

The Stevens County, Washington, potato growers association will this year market cooperatively through the farm bureau, which was very successful in its marketing operations last season.

The Georgia peach crop for the coming season is estimated by the railroads at 6,593 carloads. During the last few days of excessive heat there has been heavy drop of young fruit in all sections.

Tests made by cannery at Roseburg, Oregon, show very satisfactory method of canning broccoli. This will take care of the small and poorly shaped heads which find slow sale on the fresh vegetable market.

Wheat growers and shippers of Nez Perce, Lewis, Idaho and Clearwater Counties of Idaho and Asotin County Washington, organized at Clarkston recently to secure reduced transportation rates on farm products.

A "strawberry special" leaves Van Buren, Arkansas, every day during the season. It takes on berries through Arkansas and Missouri, is received at Kansas City and attached to fast freight for Chicago. The rate to Chicago is one cent per pound.

Dr. E. B. Osborn has resigned his position with the animal husbandry department of the Oregon agricultural college and as assistant state veterinarian will undertake control and cure of sheep scab, which has just broken out in central Oregon, between Bend and Paisley.

A conference of lumbermen, nurserymen and representatives of the state bureau of plant industry, farm bureau and university extension was held at Sandpoint, Idaho, in March to consider the control of white pine blister rust. It is proposed to establish three horticultural inspection stations at Sandpoint, Weiser and Pocatello.

This Month in the Ornamental Garden

Southern California

By Ernest Braunton

WHETHER or not we are to have summer in 1922 appears quite problematic. Up to present date we have no promise; no warm weather has yet been experienced. One local joker has said the present weather is like a Ford machine: just enough spring in it to make one tired. In the Cultivator's garden book it is written, in the work for April: "The warm sunshine at this season is peculiarly severe on young and tender plants, and the need for water to sustain this growth is great." It may do for May this year for in April the hot sunshine did not appear. We must assume that the gardening season this year is at least one month behind the average or normal.

It is feared that hot sunshine may appear suddenly and continue. If so, much injury may be done to bark and foliage, also to vigor of all plant life by reason of the unusual demands upon transpiration. The hot, desiccative air will pull the moisture out of the leaves very rapidly and the soil moisture must be in good supply to meet such demand. When hot weather comes sprinkling the soil surface will not do. The soil must be saturated down to the feeding roots. If water supply is carefully attended to, no harm will result and a splendid development of foliage and flower take place. Trunks and large branches not sufficiently shaded by foliage should be whitewashed on all save the north side; there it is not necessary, though not harmful.

Watch trees, shrubs and lowlier plants for insect pests and mildew. Mildew is hard to combat by the usual means—sulphur—for there has been no temperature high enough to generate the fumes. In England, a land of clouds and mists, yet of magnificent roses, the desperate gardener heats

bricks in the oven or elsewhere, places them under rose bushes and sprinkles sulphur thereon. It is said that sulphuric acid, one part to 1,000 of water, is a good cloudy weather spray for mildew. Where roses mildew badly every year it is far better to throw such plants away and try new varieties or increase the number of those proving immune. Some insects thrive best in cool weather and those we now have with us. Some will hatch only with summer heat. Watch for them.

To again return to watering, some injury may result from injudicious use of water. After foliage has developed under cloudy skies to large and soft growth, water upon it during hot sunshine may seriously injure it. Such treatment often induces mildew. When hot weather comes do watering, especially wetting the general surface, in the evening. The plants have then all the night in which to absorb moisture to meet the next day's ordeal with Old Sol. Mere sprinkling of foliage may be done in the morning before the sun rises. Do not let soil surface bake. Pulverize it after every irrigation. Hyacinths, narcissi and other "Holland" bulbs are past blooming, are making their annual growth, and will soon be ripening. So long as the tops are green new bulb growth is going on. As soon as tops turn yellow the bulbs may be dug, if they are to be dug, and properly stored. If not to be dug, cease watering and allow to dry and rest until autumn's rains awaken them. To store, pack in moist sand and place in a dark, cool spot, preferably a basement or cellar, but not where it is damp. As the sand dries the bulbs will cure and remain dormant until planted. Gardeners still plant such bulbs as amaryllis, canna, dahlia, gladiolus and tuberose. In beds of narcissi and Spanish iris (the former past blooming and the latter just commencing to bloom) the writer has flowering summer annuals which

are watered up to July each year. The bulbs are not in the least harmed and no better flowers of their kind are grown. Each spring, early, while all plants are dormant, the beds are raked off and two or three inches of well rotted stable manure is applied, the previous raking having broken up the soil surface finely. No other cultivation is given, yet for eight years the crop of bulbous flowers has been fine and the increase of bulbs good.

The lawn will need close attention now, especially as to water. Do not have a superficial coat of grass induced by daily light sprinkling. It requires lots of work, constant care, makes one almost a slave to the grass. Water only when water is needed and water so thoroughly that deep rooting is induced. Then if it is neglected for a few days during hot weather the grass will not suffer.

Northern California

By A. R. Gould

SPECIAL attention must be given to watering now as the strong winds leave the soil very dry and young plants are liable to suffer. Lawns will need a fertilizer as dressing, and a good application of guano or dried blood will help considerably. Hydrangeas, roses, heliotropes, fuchsias, etc., all need a fertilizer to help them produce fine flowers.

Vines

Roses, climbing varieties, if given liberal supply of manure and water, will make remarkable growth during the season. It is better to plant two to three year old stock and select the warmest position. Good climbing roses are Silver Moon, Cecil Bruner, American Pillar, Yellow and White Banksia, Ramona or Red Cherokee and Beauty of Glazenwood. Hiawatha and Tausendschoen are also splendid climbers. The mattress vine, Muehlenbeckia,

forms a thick wall. Passion vine comes in pink, scarlet and purple and will in a few years cover a large area. Honeysuckle and English ivy make excellent climbers for most situations. For covering cement or concrete walls ficus repens or the ampelopsis vetchii (Japanese ivy) both have the clinging habit and are very suitable. Clematis, cobeia scandens and wistaria will also prove useful for covering arches and pergolas.

Transplant Summer Flowers

The following should be planted out during this month in their flowering positions: Africa and French marigold, zinnia, aster, ageratum, cosmos, calliopsis, candytuft, godetia, centaurea, dianthus, larkspur, gaillardia, scabiosa, pentstemon, erigeron and lobelia. Transplanting must be done with care in early morning or late afternoon, but the young plants must be shaded from the hot sun during the day until they are established. Always have the soil fairly moist and water immediately after transplanting.

Dahlias

Planting of these should be completed this month, and where tubers were sprouted in boxes last month it will be possible to see how many eyes have started. Large roots may be divided, leaving one or two eyes to each. Examine young sprouts for aphids and spray before planting with weak solution of nicotine.

Chrysanthemums

Subdivision of the clumps may be undertaken now and cuttings placed in sand beds and kept shaded until they show signs of rooting. Seeds may be sown of the single types, and from these many interesting forms may be secured. The seed should be sown in boxes of sand and decayed leaf soil. In preparing new beds or borders for the chrysanthemums trench deeply with well decayed manure and apply a little lime.

This Month in the Vegetable Garden

Northern California

By A. R. Gould

THE rains have been very generous, and with a careful system of soil conservation the crops should be large. There is still time to plant more beans, cucumbers, corn, squash, tomatoes and melons.

Potatoes and Tomatoes

Keep the hoe busy between the rows of potatoes. Sturdy plants should be set four feet apart each way. Shade for the first few days after planting and water until well established. The best varieties are San Jose Canner, Ponderosa and Stone. Tomatoes thrive best on a fairly heavy soil and after the first few weeks need very little water.

Lettuce

Sow Los Angeles and Iceberg. The latter is especially adapted to hot weather. Cultivate frequently.

Beans

Successional sowings should be made this month of Golden Wax, Stringless Green Pod and Davis White Wax, all dwarf. Pole varieties to sow

now are Kentucky Wonder, Horticultural, Golden Cluster and Scarlet Runner.

Turnips

Sow early Snowball and White Egg. Purple Top White Globe is also a good main crop variety to grow. Thin out those previously sown.

Corn

Make successional sowing of Country Gentleman and Golden Bantam, also field corn, Yellow Flint and Golden Dent. Cultivate that sown last month.

Onions

Cultivate and irrigate thoroughly.

Eggplant and Peppers

Set strong plants 18 inches to two feet apart in rich soil, of the variety Black Beauty eggplant, and Chinese Giant and chili pepper.

Squash, Melons, Cucumbers

Thin to one or two strong plants to a mound and keep well watered for a few weeks.

Peas

Pick fully matured pods frequently. Sow now for late summer crop of Little Marvel, Melting Sugar and Alberman.

Celery and Leeks

Seedlings will need transplanting to other boxes during this month. Trenches should also be prepared with manure for later planting.

Berries

Cultivate and irrigate.

Southern Arizona

By M. E. Bemis

THERE is plenty of work for the home gardener during May, although the varieties of things to be planted are noticeably less than in the preceding months. Among those things which may be planted in May are casaba, pumpkin, peanut, squash, cantaloupe and Chilian watermelons. Some of the varieties of corn may also be planted such as the Pima and Papago. Mexican June corn has also been planted to a considerable extent as a garden plant for roasting ears, and climatic adaptations of this variety seem to be such that it may be planted almost any month from March to August.

The casaba is grown more extensively than formerly. Winter pine-

apple matures late and may be kept until well into the winter. When finally ripe, it is delicious in flavor.

Honey Dew has been planted as a general crop quite extensively and is being shipped out of the Salt River Valley in carload lots. This seems to fit in well with the cantaloupe growers and has found a place in eastern markets where it brings ready sales at good prices.

Late crops of watermelons, while perhaps not attaining the delicious flavor of the main crop, are always in demand both for home consumption and for local markets.

Pumpkins and squashes should be grown more extensively. They are easily grown, are valuable both for table use and for stock. The winter squash has never been grown as extensively as its merit would justify.

Last year E. F. Van Kirk of Phoenix had a small patch of winter squashes which matured along in July and August and were put on the market when there was more or less of a dearth of vegetables. These met ready sale at good prices.

Sweet potatoes should be put out and this is a crop which appears to

(Continued on Page 487.)

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2,000	48	8	1½	5	11	975	52.50
2,500	60	8	4	6	11	1,145	60.75
3,000	71	9	1½	6	11	1,270	69.00
3,000	71	8	5	7	11	1,290	69.00
4,000	95	9	10½	7	11	1,555	87.00
4,000	95	9	2½	8	11	1,580	87.00
5,000	119	10	11	7	11	1,745	98.25
5,000	119	10	3½	8	11	1,790	98.25
6,000	143	11	4	8	11	2,010	111.00
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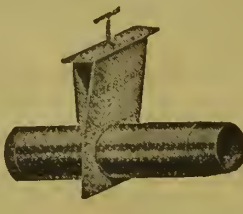
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Rural Californian, Established 1877,
Combined with California Cultivator 1914.
Livestock and Dairy Journal, Established 1901,
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Saturday, May 6, 1922

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

It among the more than 40,000 Cultivator's weekly circulation any fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTE
It needs no Truth in Fabrics Bill to afford proof that our cover consists largely of virgin wool. Not an ounce of shoddy on the page. It is a scene in a county which is not generally considered a wool growers' county. For that reason it is proof of the wonderful diversity of California. Scarcely a county of the state but has at least a few wool growers, and they all add to California's material wealth.

By the way, what has become of the Truth in Fabrics Bill? Our "all wool goods" are still being offered to us, and we are accepting them, often notwithstanding a very large content of shoddy. Wool growers and wool consumers wish to be assured that our woofens are what "they" say they are, and, besides what we pay for. In other words, do we buy virgin wool or shoddy-wool or both? If both, tell us the percentage. So the producers secured the drafting of a bill which would compel common United States honesty. That bill is "having the time of its life" to even exist. It goes into

committee and out again and still never gets very close to passing. For long and weary months it has been bantered back and forth and we are still buying shoddy.

The "powerful and vicious" agricultural bloc hasn't yet been "vicious enough to get by with this most meritorious measure. Can it be that American manufacturers prefer to see under the principle "let the buyer beware?"

We seem to be born to fight. The citrus grower fights frost, heat, bug, fungus; the livestock man has his troubles, and the pear grower not only fights the thrips and a few other bugs but just at the present moment is continuing the ever present conflict with fire blight. Northern papers refer to the effective methods carried on at the James Mills orchards in Glenn County. As usual the blight is cut out carefully burned and the wound treated. Still there is an occasional attack on the trunk which sometimes entirely girdles the tree. In order to correct this there is resort to bridge grafting. Regarding this work:

"The bridge grafting work is elaborate. The treatment consists in first cutting out all the diseased portions of the tree and painting the wounds with oil of tar and salicylic acid. Then, to carry the sap over the place where the bark has thus been removed bridge grafts are put in place.

"Bridge grafting is not new, but this kind of bridge grafting, where scions six feet long are used, is quite novel. In the hands of the experts in the Mills orchard, however, the work has proved successful, and trees are saved at an average expense of 50 cents a year until their health is restored."

The Florida party arranging to come to California now plans to leave Florida on June 8. The excursionists call themselves "For California in 1922 Club." The club is organized with set of officers. The president is Dr. Mark Sample of Haines City; treasurer, W. B. Gray, Tampa; secretary, Edgar A. Wright, editor of the Florida Grower

In apples they used to say that California apples are not the equal of some of those produced in the East. However, there are only one or two states east of the Rocky Mountains which produce as many apples as does California, and California quality is one explanation why those apples are sent back and sold in Eastern apple sections in competition with the home grown stuff at much lower prices. Did anybody ever hear of New York apples coming in carlots to California?

It has been said that the best farm implement is the brain, but there are some awfully rusty implements on some farms.

Now stages must stop at railroad crossings. There have been some fearful accidents in California, and it is probable this is a wise ruling, but why pass it all up to the stages? Some states rule out the grade crossing entirely.

Poultry specialists suggest that "Biddies that turn to roosters should be given the ax." Feed is all too high to feed to the crowing hen. Give 'em the ax.

At a poultry culling school recently held in Ohio the attendants demon-

strated that the moment a hen stops clucking and begins crowing she stops laying. Do not tolerate the fat hen.

VALENCIA SHOW

Anaheim is completing its arrangements for the Valencia exposition which will open May 23. The management promises a magnificent exhibit of California Valencia oranges, in fact of all kinds of citrus fruits. Decorators are now at work and indications are for an "exceedingly rich, costly and beautiful display."

RADIO

Everybody is radiating radio. It's everywhere, in the air, even beyond. We are talking as to antenna cascade amplification, choke coil, detector, electron, ground inductance, loud speaker, resistance, vacuum tube, wave length and even henry. The weird, uncanny even absolute impossibleness of the whole thing appeals. We come to stare, then buy a few

this matter. What really is the matter with the California orange? Is it picked too green, in order that it may make the long journey East without actual disintegration? Or is it some flaw in the transportation facilities, something else to blame on the railroads? Or is it that California sends all her edible oranges through to New York, under the crassly mistaken impression that Ohio and other way stations are less important, less entitled to even-handed justice under the Stars and Stripes, less determined and ready to insist upon their constitutional right to the pursuit of happiness? Perhaps the tag-end of the Florida orange crop will last another week, but if at the expiration of that time we have not received a satisfactory explanation from Hiram Johnson, of the present low estate of the California orange, a humble apology for the past and the present, and a convincing promise of immediate and sweeping reform, we shall unlimber our heaviest guns and prove be-

ECONOMIC—NOT POLITICAL

The purposes of the farm bloc are economic, not political. It is striving for a more sensible program of national development in which agriculture will occupy its rightful position and be accorded the interest it deserves. Its aim is to bring about a better understanding and greater cooperation among all worthy elements of the population, to the end that all may be aided; and it will fight, and fight hard, to accomplish that aim. Farm bloc wants no special favors from the government for the farmer, but insists that the producer must have a fair share of the fruits of his labor if this nation is to prosper. Farm bloc deprecates class legislation and asks only that agriculture be put on a parity with other industries. Market manipulators and gamblers in foodstuffs have grown rich at expense of both producer and consumer.—Hon. Arthur Capper in the Senate of the United States.

spools, screws, wires and thingumbobs and listen in. The world do move. Bought your radio yet?

yond the possibility of cavil or peradventure of a doubt, that the full, damning responsibility rests with the California climate and that therefore there is no hope."

CLAREMONT CLUB MEET

The April meeting of the Claremont Pomological Club was held at the La Verne grammar school April 29, Mr. and Mrs. S. Ratekin being the hosts. The forenoon session was given to an address by C. E. Weatherby on "Current Events in Horticulture." After luncheon in one of the school-rooms, Z. T. Bell gave a description, assisted by a large chart, of his compressed hot air orchard heating system. This consists of a central plant in each ten acres, a heating plant with a 15 horsepower engine and an underground pipe system ranging from 12 inch down to six inch pipes on the outer range. The compressed hot air is delivered at every tree, alternate trees or rows, or as the owner desires. The air is discharged with great velocity at a high temperature, over 400 degrees Fahrenheit. But it cools very quickly and as it is not discharged against the tree no harm can result. A trial plant will be installed in the Pomona Valley in the near future under the direction of a local citrus association. It will be given a fair test and the public will be informed of its value and effectiveness. Ernest Braunton of the Cultivator staff followed with a talk on rose culture. Earl G. Dezell, manager of the California Fruit Growers Exchange gave an outline of what district representatives and individual members could do to further the interests, not only of the exchange members, but of all citrus growers. Judge Perry Wood of Claremont made an impromptu speech while the radio apparatus was being installed, and the meeting ended with a radio concert broadcasted by a Los Angeles department store.

AFFECTING OUR REPUTATION

California orange growers made an honest effort to preserve the reputation of their citrus fruits. After the night of January 19 it was realized that if every grower and shipper who lived in the "frostless belt" were permitted without any effort at standardization to ship their fruit to market a vast quantity of worthless fruit would be sent. Meetings were held, resolutions were passed, and standardization officials of the state department of agriculture, likewise county horticultural commissioners, all united in their effort to standardize. Shippers united and took the matter to the courts and reversed the action of the state and county governments, and there has apparently been some "rough work" done. We note in the Florida Grower the following: "The courts in California decided that the law pertaining to the shipping of frosted fruit, or at least some phases of it, were unconstitutional. No doubt much more frosted fruit has been shipped than would have been permitted had it been upheld. The following, from a Columbus, Ohio, paper, shows what the breaking of the dam has resulted in: "What is the matter with California, that she cannot put any juice into her oranges? This is the tail end of the Florida orange season, and yet two Florida oranges will fill an ordinary tumbler full of juice. It takes from four to seven California oranges, at 60 to 70 cents a dozen to accomplish the same feat, and even then the flavor is not particularly good. Seventy, or even 60 cents a dozen for California oranges is money under false pretenses. We are most serious about



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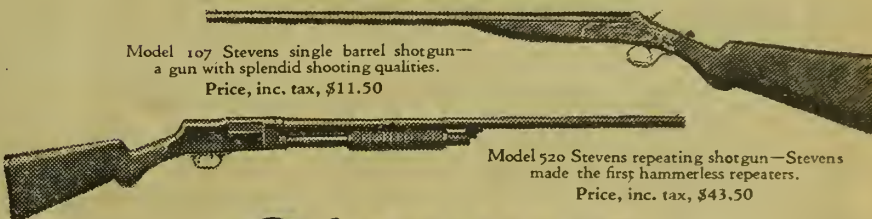
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offers to home seekers opportunities that cannot be secured elsewhere. The thousands of farmers from the United States who have accepted Canada's generous offer to settle on FREE homesteads or buy farm land in her provinces have been well repaid by bountiful crops. There is still available on easy terms Fertile Land at \$15 to \$30 an Acre —land similar to that which through many years has yielded from 20 to 45 bushels of wheat to the acre—oats, barley and flax also in great abundance, while raising horses, cattle, sheep and hogs is equally profitable. Hundreds of farmers in western Canada have raised crops in a single season worth more than the whole cost of their land. With such success comes prosperity, independence, good homes and all the comforts and conveniences which make life worth living. Farm Gardens, Poultry, Dairying are sources of income second only to grain growing and stock raising. Attractive climate, good neighbors, churches, schools, good markets, railroad facilities, rural telephone, etc. For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, Alberta and British Columbia, reduced railway rates, etc., write GILBERT ROCHE 3-5 First St., Sheldon Block, San Francisco, Cal. Authorized Agent, Dept. of Immigration and Colonization, Dominion of Canada 160 ACRE FARMS IN WESTERN CANADA FREE

The Value of Thinning Fruit



WE find in a Tasmanian Fruit Grower of last fall a timely article—for our Antipodes—on thinning of apples. This article was written by a member of the staff of the Oregon agricultural college and now travels north again to meet our spring thinning season:

Thinning apples in the early summer will do more to increase the size and color of the fruit and the total value of the crop than any other operation supplementary to common orchard practices. It is also the most satisfactory as well as profitable way to prevent loss of branches from breakage on trees bearing full crops. Although it will not increase the vigor of the tree it will be a very important factor in maintaining that which the tree already has.

Thinning of the fruit becomes necessary whenever the activity of the tree is too largely consumed in the formation of fruit buds and the production of fruit at the expense of wood growth, a condition brought about by an oversupply of air foods as compared to the soil foods. The young, vigorous tree comes into partial bearing, then into full bearing and finally overbears before it is forced into the

habit of alternate bearing. A tree that overbears is undervigorous and carries a large number of very slow growing fruit spurs that seldom bloom and when they do bloom never set fruit, another large number that bloom and bear and very few that are vigorous, making a good growth, that do not bloom.

Practically all apple trees that are consistent annual bearers have 25 per cent or more of their fruit spurs too vigorous each year to form fruit buds. This will insure enough vigor in the tree as a whole to make a good annual growth, with a good number of new spurs forming fruit buds on the one year old wood. This condition cannot be brought about in overbearing trees by thinning the fruit, no matter how severe the treatment. The trouble is more deeply seated than this year's crop of fruit. It is an unbalanced relationship of the "soil foods" and the "air foods," with the latter greatly predominating. This unbalanced condition may be of short or long standing, but continually growing worse as the natural tendency of the tree is to increase rather than to diminish it.

The effects of thinning may be a big factor in keeping young, vigorous

trees from forming the alternate bearing habit, but it is not enough to get trees with the habit established back into annual bearing. It will help to conserve the vigor already there, but it will not instill new vitality into the tree. The greatest benefit from thinning will be on this year's fruit. It will pay big dividends on the increased size and color of the fruit and continue to pay for years to come on the branches saved from the breaking that so often takes place in heavily loaded trees. Time will be saved in the picking, grading and packing of the crop, equal at least to that required for thinning.

The most economical time to do this thinning is immediately after nature has done her thinning. At this time most of the apples left will mature and one need not hesitate to do all necessary thinning at one time. It is far cheaper to remove all surplus fruit the first time over the trees than it is to make two or more thinnings. In practice all imperfect fruit should be removed. Each cluster should be reduced to not more than one fruit, and then enough others removed until those remaining are at a desirable distance apart. Variety as well as vigor of the tree should be considered in determining the right distance apart to leave the fruit. On vigorous trees the smaller varieties will net most if left six or seven inches apart,

while eight or ten is none too far for the large varieties. These distance should be increased an inch or two whenever the tree shows lack of vigor.

The time required to do this work will vary with the size of the tree as well as set of fruit. Trees capable of bearing three or four boxes of marketable fruit will require about one-half hour—those equal to ten boxes in the neighborhood of one hour and those of 15 to 20 boxes' capacity will require from one and one-half to two hours each. In removing the fruit the hand is much more rapid than thinning shears and should be used with all varieties excepting the very short stemmed ones and those clinging very tenaciously to the spur. Of all orchard practices that tend to increase the size and color of the fruit, thinning is the only one under the complete control of the grower. It is sure to increase the value of the crop with the least drain upon the tree.

SMOKE CANDLES TO PREVENT FROST INJURY

Writing in *Giornale di Agricoltura della Domenica*, I. Zannoni says:

The material left over from the war has been used in the most different manners, and agriculture has not been the last to profit by it. In the English munitions depots there are certain contrivances which were intended to hide the troops at the moment of assault by generating dense clouds of smoke that formed an efficient screen allowing the soldiers to carry out their maneuvers freely.

There were known as smoke generating candles; during the time they burnt, which was six to eight minutes they produced a dense smoke, that extended along the ground and rose to a greater or less height according to the atmospheric conditions. These so-called candles consist of a cylindrical tin box eight centimeters in diameter, and 14 centimeters in height, they weigh $\frac{1}{4}$ kilogram, and are ignited by friction.

When the candle is lighted it burns under considerable pressure, which carries up the smoke to the height of one to two meters, producing a grey gas that is perfectly innocuous, as the author tested by standing in the midst of the smoke for some minutes. He inhaled it without experiencing the smallest inconvenience. There is thus no fear of the presence of poisonous gases that might injure the plants, as might have been expected.

It thus seemed possible that these smoke generating candles could well be used instead of the smoke producing fires lighted by agriculturists in spring, when they fear the effect of white frost upon the crops, especially the most susceptible ones cultivated in kitchen gardens, orchards and vineyards.

The experiments lately carried out by the author at the English camp at Rivalta di Scrivia show that there is every reason to believe that the innocuous gas generated by these smoke producing candles would afford efficient protection to crops when their young buds are threatened with injury by the early morning frosts.

The smoke of the candles forms dense clouds, which can protect the plants for half an hour at least, the exact time depending upon the wind and the hygrometric condition of the air. Therefore, if they were lighted from time to time during the hours when frosts were to be apprehended they would hinder the formation of hoar frost and prevent any fear of injury. The efficacy of smoke in protecting crops from frost has been tested already in many localities, where it has long been the practice to light fires of straw. The smoke generating candles should be placed on that side of the field from which the wind is blowing; they should be put in a single line and from 20 to 30 meters apart. Fresh ones ought to be lighted every half hour or oftener, according to atmospheric conditions. The author proposes to continue his experiments.

The executive committee of the Pine Flat irrigation district has voted to exclude the Mendota district from the project. Date for fixing the boundaries of the project district is set for May 10.

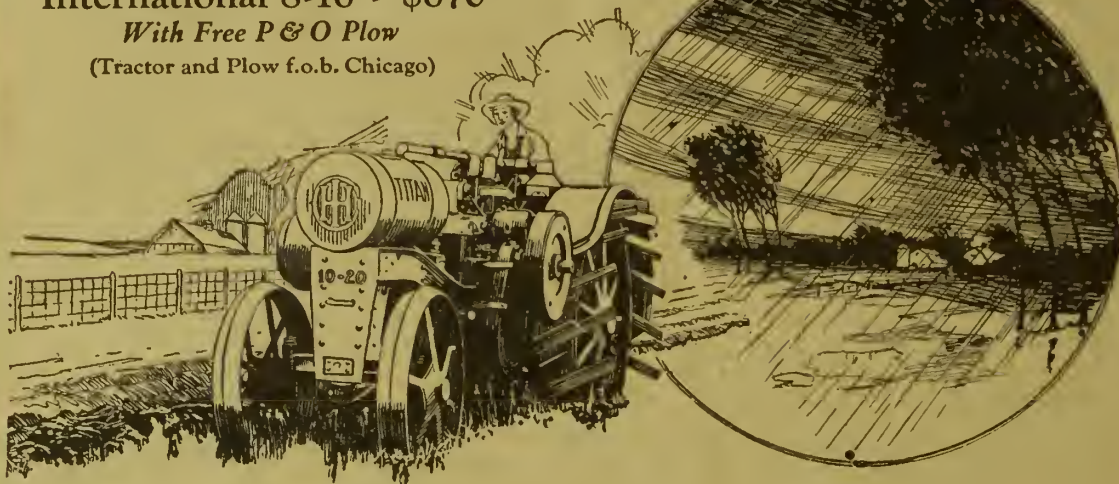
The annual farm bureau conference tour will visit the Southern California egg laying contest at Pomona, May 8.

Titan 10-20 - - - - - \$700

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Our original Free Plow Offer was advertised to close on May 1, as that is ordinarily the end of the heavy tillage season. But after weeks of delay thousands of acres remain untilled, and an unexpected need has developed for Titan and International tractor power.

To keep in line with the unusual season we have instructed the McCormick-Deering Dealer in your locality to extend our Free Plow Offer for 20 days. Until May 20 you can buy a Titan or International tractor at the present low prices, and receive a free plow or tractor disk harrow as outlined in our original Free Plow Offer announced February 3, 1922.

Unseasonable weather has created a real emergency that can best be met with good tractor power. Every hour saved now means dollars at harvest time. See the McCormick-Deering Dealer today.

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GRAIN GROWERS REORGANIZE

The recently organized Grain Growers, Incorporated, through its committee, consisting of President Gustafson, Vice President Mason and Secretary Myers, has issued the following statement:

The newly incorporated U. S. Grain Growers' Sales Company which will handle the grain of the members was given careful consideration by the new board and action taken to establish operating offices in the various terminal markets at the earliest possible date. It is fully expected that this company will be in a position to market grain in several of the large markets within 90 days.

We expect to follow the same policy this year as in the past with respect to our relationships with other organizations. We will continue to sell our own goods and let the other fellow sell his. We are anxious to cooperate and work in harmony with every other farmers' organization, but we are determined that the ideal of the Farmers Marketing Committee of Seventeen for a national program of cooperative grain marketing shall not be defeated. While we will attempt to make use of every existing farmers' terminal marketing organization we will not do so at the expense of sacrificing the original plan of the committee of 17. We are convinced that that plan is fundamentally sound and that it will succeed.

The prospects for success were never brighter than at this present time. Several dark clouds which have threatened the organization during the past year were blown away during the convention. We are meeting the new year cheerfully and optimistically and with full confidence that the American grain grower will see realized his dream of a more efficient and equitable system of grain marketing. Now that our course is definitely charted, we feel that we are in a better position to ask for the support of all grain growers.

The board of directors and officers of the U. S. Grain Growers take this opportunity to express their sincere gratitude and to thank all farmers and farmers' organizations who have consistently and loyally supported this work during the past year. We trust that our efforts will merit confidence and continued support during the coming year. With the support of grain growers, the U. S. Growers, Inc., will develop a system of marketing that will be of lasting benefit to American agriculture.

CONTROL OF CUTWORMS

By A. J. Basinger, California Department of Agriculture

"Cutworms" is a general term applied to the larvae of a family of moths known as Noctuidae. The adults are inconspicuously colored, brownish or grayish moths having the forewings usually mottled and the hind wings of a lighter, uniform color. They are about one inch long, with a wing expanse of two inches.

The larvae, or caterpillars, are also grayish or brownish and often somewhat mottled or striped. They are plump, feel rather greasy to the touch and have the habit of curling into a close spiral when disturbed. A full grown larva is nearly one and one-half inches long.

The life history in a general way is similar for all the species. The winter is either passed as a partly grown larva or pupa. The adults emerge in April and May, and being night fliers are seldom seen. The eggs are laid on the stems of small plants, grass or limbs of trees, the young caterpillars feeding on the nearest succulent food at hand. When full grown they go into the soil one or two inches to pupate and the next brood of adults emerges in two or three weeks. There are several broods in the course of the summer.

Vegetables, grass, grain, vineyards and orchards are attacked and often seriously damaged. A species hibernating in the larval stage sometimes infests vineyards early in the spring. During the daytime the worms hide away under the loose bark on the vines or crawl into the soil, and at night come out to feed on the buds, destroying them before they have grown into shoots.

The most widely practiced control consists in the use of poison bait made up the same as for grasshoppers after

the following formula: White arsenic, 1 pound; molasses (cheap blackstrap), 2 quarts; lemons or oranges, 6 fruits; water (about) 4 gallons; bran, 25 pounds. Stir thoroughly arsenic and water, grind lemons in a meat grinder and add to this liquid, then slowly pour the mixed solution over the bran and stir thoroughly until an even mixture is secured.

Scatter the poison bran mash freely over the infested plants. In vineyards

where the larvae do not leave the vines during the day but hide under the bark a little of the poisoned bait may be placed in the crotch of the vine.

When the foliage of vines, fruit trees and vegetable crops is attacked, arsenical sprays may often be used to advantage. For this use arsenate of lead (paste), 5 pounds; water, 100 gallons, or arsenate of lead (powdered), 2½ pounds; water, 100 gallons.

Where only a few trees or vines are concerned they may be protected by banding with tanglefoot or a belt of cotton. A cotton band about six inches wide is placed around the tree or vine and tied with the string around the lower edge. The band is then folded down over the string.

Cantaloupes are expected to be ready for carload shipment from the Paio Verde Valley by June 25.

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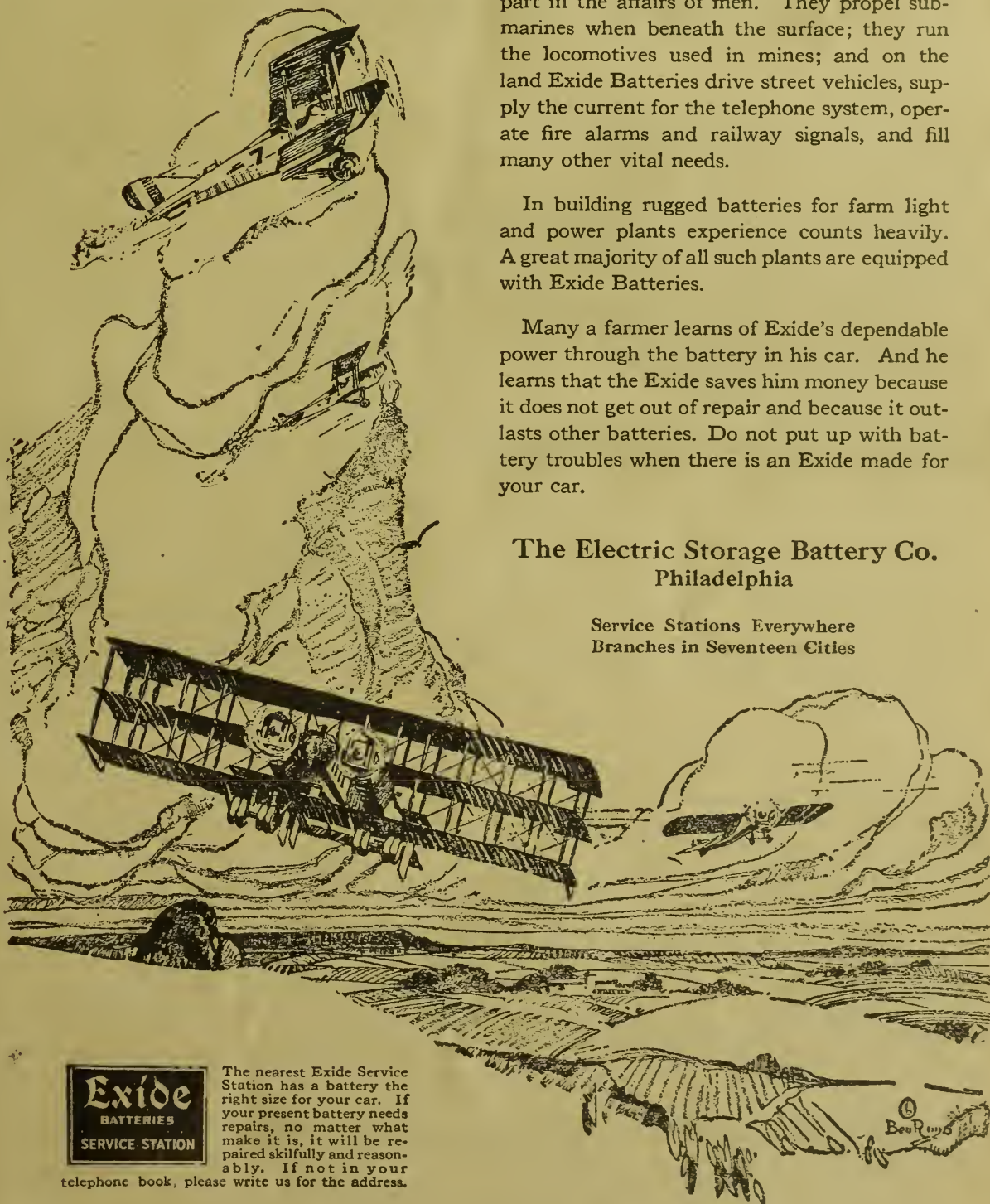
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Citrus Diseases

By Ernest Branton

THE Los Angeles County farm advisor has been holding a series of ten field demonstrations on citrus tree diseases and their treatment. Gum diseases, scaly bark, etc., have had their scrapings, parings and paintings, and badly injured roots have had the injured parts sidetracked or ignored by inarching with seedling trees, three or more, according to size of tree treated.

These meetings were for the most part, conducted by V. F. Blanchard and K. O. Ryerson of Mr. Hodgson's staff. The citrus talks were given by Mr. Blanchard, who stated the demonstrations and treatments were along the lines laid down by Dr. Fawcett of the Riverside citrus experiment station. Two root diseases are very prevalent, and in some sections the oak root fungus (*Armillaria mellea*) is the worst. This is an edible mushroom or toadstool, but is the bane of the orchardist. Aside from the citrus, it attacks nearly all deciduous fruit trees, and in the forest, oaks, chestnuts, plums, cedars, etc. In the vineyards it lays waste the grapevines and has been known to feed upon potato crops.

The first manifestation in the orchard is a sickly yellow appearance of the foliage and the dying of certain branches. When in the last stages trees often bear very heavy crops though not of high quality. If the soil is cleared from the base and main roots it will be found that the bark is rotten and can easily be peeled off, and sometimes the white fungus may be seen lying between bark and wood. Just below, the affected roots will show the rhizomorphs, or strands like small shoe laces, running over the surface. Sometimes they follow roots clear to the end and then attach themselves to other roots with which they come in contact and so reverse the point of attack. The trouble may then be said to be resident in the soil and in plowing the orchard one is apt to help distribute the disease or parasite.

The treatment urged is digging out the tree and roots so far as is possible, and sterilizing the soil. This is done by digging holes 18 inches deep, 18 inches apart, and pouring in one and a half ounces of carbon bisulphide. Trees badly affected are doomed; nothing can save them. When one or

more trees are affected it often stems the spread to dig a trench three feet deep around the affected area, throwing the soil always on the inside. In addition to this some growers put in a sheet of tarred building paper three feet wide and replace the soil. The trench should be dug again every six months, the sole purpose being to cut off extension of the parasitic mycelium.

Foot rot is not a serious trouble except in the older orchards where lemon or sweet orange stock has been used. The remedy is to open roots and trunk base to air, cut and scrape affected area and paint with Bordeaux paste. In crown rot the bark cracks and an amber gum exudes. Cut out the affected portions and apply Bordeaux paste. Moist soil about trunk favors the disease, and the most susceptible point is the union between bud and stock. Shellbark of old lemon trees is another serious trouble and works much like scaly bark. The method of treatment is the same as for scaly bark but more accentuated and thorough.

On April 27, at the Dennison ranch, Duarte, a tree was examined that was inarched by Farm Advisor Hodgson of Los Angeles County a year ago after it had been completely girdled by a gopher. The work was done with three seedling trees of three-eighths caliper. The operation was entirely

successful. The tree is now in fine health and full of promise.

WHAT WILL THE 1922 HARVEST BE?

REPORTS which have come in from various sections of California have been most helpful to fruit growers in giving advance hints of production conditions. It is plain that the frost has materially reduced the apricot crop. It is also plain that brown rot is working havoc in some sections. But even yet it is impossible to give reasonably close estimates as to tonnage.

Frost injury in the vineyard will materially lessen the raisin output, but this reduction will not be so serious as last year. Quoting from the reports received during the past few days:

Aratus Everett, Ventura County

In Moorpark and Simi valleys the apricot trees that were thrifty and came into full bloom about 10th inst. dropped from big bumper outlook for crop to a 15 per cent estimate from frost damage of five or six consecutive days, the morning of 11th inst. of 27 degrees temperature finishing the frost damage. Walnuts were damaged in some localities. Apples, pears and prunes were yet dormant and escaped serious damage. Apricots and walnuts are the only commercial tree products that we rely on here. Apricot trees that were backward in blooming may have 50 per cent crop. High on hilly localities were only damaged slightly.

E. W. Dutton, Horticultural Commissioner, Mendocino County

Apples, 100 per cent; cherries, 100 per cent; peaches, 50 per cent, frosted; pears, 100 per cent; prunes, 100 per cent; grapes, 100 per cent. April 16. We are going through a very cold spell, our blooming is very late. Our fruits survive this period will have biggest crop in history.

H. H. Sherrard, Horticultural Commissioner, Tuolumne County

Almonds, good. Apples, good. Apricots, good. Cherries, good. Peaches, good. Pears, good. Prunes, good. Grapes, good.

D. F. Norton, Horticultural Commissioner, Nevada County

Almonds, not grown commercially. Apples, buds not commenced to swell yet; big crop of buds. Apricots, not grown. Cherries, too early for estimate. Peaches, large crop buds just turning pink. Pears, immense crop of buds just breaking. Prunes, plenty of buds not open yet. Grapes, too early for estimate.

George Threlkel, Mountain Fruit Company, Placer County

Almonds, full crop. Apples, full crop. Apricots, half crop. Cherries, full crop. Peaches, full crop. Pears, full crop. Plums, full crop, except some early varieties like the Satsuma, Wickson and Hermosa. Based on present conditions, all fruits have set remarkably full, but as the season will be at least two weeks later than usual, it is yet too early to make definite predictions.

G. H. Flournoy, Horticultural Commissioner, Tehama County

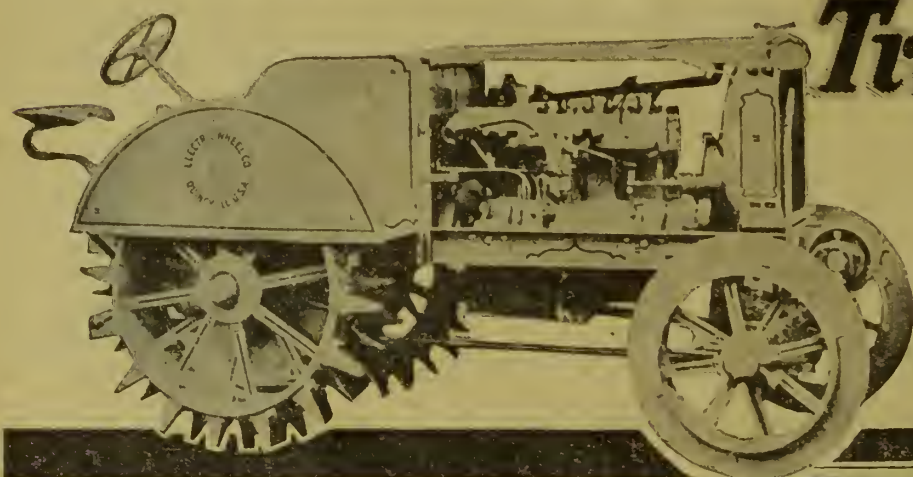
Conservative estimates modify early reports of frost damage. What percentage of fruit has been killed, it is impossible at the present writing to estimate, owing to so many conflicting reports. The amount of damage to citrus trees is not nearly as great as was supposed, and trees that have not been severely cut back too early in the season are now putting out new growth from most of the limbs, in many instances to their very ends. Lemon trees were hurt worse than any others but, like the orange trees, those that had not been cut back are showing considerable new growth.

E. B. Beeton, Beaumont, Riverside County:

In my former report I referred to April frosts, continued low temperature and lack of sunshine which had somewhat of a serious influence on the early development of deciduous fruits. The following conclusions may be of interest:

Almonds, 60 per cent of normal. Apples will undoubtedly be a light

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crop, but what they lack in quantity will be made up in quality. Cherries blossoming heavily, but Royal Ann is not setting well. We will pass them along with this prediction that they will qualify for 90 per cent normal. Bartlett pears are looking well, clusters of blossoms large and even. Early Keifers set are dropping badly. However, as a reward of merit we will give the pear family credit for 90 per cent of normal. Apricots, 40 per cent. Peaches, 50 per cent. Prunes, 70 per cent. Grapes, 80 per cent.

Berries? Well, I had strawberries with cream today from my garden patch.

Oxnard Courier, Ventura County

When frosts are prevalent in April they are usually not very severe, that is, the temperature in the principal walnut sections seldom drops below 28 degrees. When the temperature in a clean cultured grove drops to 32 degrees it will usually drop to 28 or 29 degrees in an adjoining grove which is still carrying a growing cover crop.

Subsequently the lesson to be learned from this season's spring frost is that cover crops, even if immature, should be turned under before the trees emerge from their dormant condition. Growers in every district should give careful consideration to this suggestion, for although certain of us may have been fortunate enough to have escaped any frost damage this season, the spring frosts are usually freakish and they may be severest next time in the sections that escaped this season.

A very typical and convincing illustration of the effects of frost on a clean cultured grove as against one carrying a green cover crop was observed in one district where two groves adjoining with but road between, showed in the instance of the grove still carrying the cover crop an admitted damage by the owner of fully 50 per cent, and a possible damage of even more than that, while the other grove was about an inch more where the cover crop had been turned under ten days or two weeks previous showed no damage at all, and a quite thorough examination failed to devel-

op a single frozen nut or frozen leaf, both leaves and nuts being badly frozen in the grove still carrying a heavy cover crop.

Winters Dried Fruit Company, Winters

We have reached the time of the season when we feel that we can make report of crop conditions without further deductions. We passed through an unusually cold winter; rainfall to date 18 inches, the bulk of this falling since the first of the year. All trees bloomed heavily and early indications were for extraordinary crops. Setting, however, of apricots and almonds reduced the prospects to about 75 per cent on apricots and 60 per cent on almonds. Cold snap with killing frost commencing April 13 and continuing for three or four days damaged apricots and some almonds, some sections suffering more than others. The season is about ten days late. Give below estimate, 100 per cent normal:

Almonds, Hatch varieties, 50 per cent; other varieties, 40 per cent. Apricots, 60 per cent. Peaches, 90 per cent. (About 500 tons green acreage in last few years considerably reduced on account of sunburn and old trees.) Pears, 100 per cent. Prunes, 75 per cent. Grapes, figs, shipping fruit prospect looks favorable for normal yield.

Sydney J. Stokes, Horticultural Commissioner, Lake County

Pears, 100 per cent. Prunes, 90 per cent. Peaches, apricots, cherries, 50 per cent. Almonds, 70 per cent. Grapevines almost a month late in starting out and not affected by recent frosts. Orchards in very fine condition generally, with exceptionally heavy blossom. As peaches, apricots, cherries, etc., are very lightly planted, their partial loss amounts to very little, the main crop, consisting of pears and prunes, looks very encouraging.

GARDEN ACTIVITIES FOR MAY IN SOUTHERN ARIZONA

(Continued from Page 481.)

be growing in popularity among truck farmers. The yams seem to be more popular, yield splendidly and the qual-

ity is fine. Growers last year who were in position to place their potato crop in storehouses where they could be cured properly, realized good prices.

A late crop of cantaloupes might be planted for the home garden.

The gardener is reaping the benefits of early work in the harvesting of many crops in May, such as beets, carrots, lettuce, garden peas, etc. The ground used for these should not be allowed to grow up with unsightly weeds which absorb much water, do no good, and in maturing seeds cause endless trouble.

If it is felt that it is desirable to keep something growing on the land, cow peas may be planted any time during the summer, and this is a crop which adds nitrogen to the soil and in turning over will add humus which is so requisite to our Southwestern soils. A crop of cow peas might, in some cases, be worth all it costs to grow the peas alone, either as a vegetable, or harvested for seed or grain. The most valuable use, however, for cow peas for the garden is for turning under as a green crop for fertilizer. Where no crop is grown preparation can be made now for the fall crop by spreading manure, plowing under and keeping down weed growth.

IRRIGATION OF POTATOES

Irrigation of potatoes has been carried out for the past 12 years at the Oregon experiment station under conditions where rainfall for the growing season, April 30 to October 1, is 5½ inches, and the average evaporation about 24 inches for the period. The silt loam on which these experiments were conducted has a maximum capillary water content of about 34 per cent, an optimum moisture content of about 24 per cent and a wilting point of about 14 per cent. The minimum moisture content under field conditions is 10 or 11 per cent.

The most economical returns were secured with light frequent irrigations, which provide a uniform moisture content, for example, 1 inch every 10 days has given good results and is practicable, and much preferable to one heavy irrigation. The best results were obtained when the depth applied per season was 6 inches in wet seasons and 2 or 3 inches in dry seasons, while the maximum yields were produced with 3 or 4 inches in wet and 6 inches in dry seasons. Application of 9 inches depth decreased the yield.

Applying water in furrows 10 to 18 rods long has proved a suitable length of run for the silt loam. It was found disastrous during the experiments to neglect cultivation after irrigation. Water requirements can be greatly reduced in irrigation farming by keeping up a good rotation, including legume crops; by using good varieties; by maintaining a good fertility and tilth, and by irrigating at the right time in the proper amount.

Proper irrigation does not injure the palatability or marketability of potatoes and after 12 years there was little appreciable effect upon soil acidity or the content of available plant food. From the various determinations made, it appears that the moisture content is not appreciably increased by irrigation, except when applied in excess and then the potatoes had a less firm skin and were less solid. Proper irrigation decreased the percentage of culls.

In central Oregon experiments potassium sulphate increased the yield per acre from 24½ bushels on untreated to 39 bushels on treated land.

In eastern Oregon irrigation of 5 to 9 inches depth per acre has given the best results in several of the potato producing sections, and frequently best returns have been obtained with 6 to 8 inches total depth, applied in 2 or 3 doses.

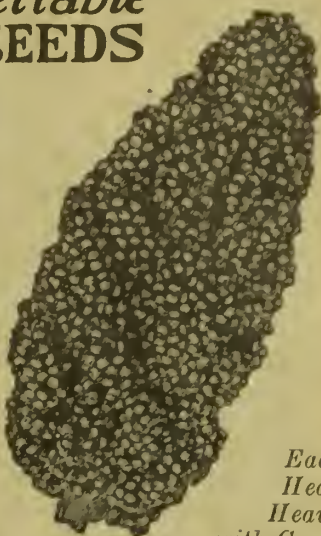
PLANTSMAN TO EUROPE

On May 25, Jacob Dieterich, for 30 years a nurseryman in Los Angeles, will start on a tour of European plant nurseries, to be gone several months. Mr. Dieterich, who came from Germany when a boy, will spend the greater part of his vacation in his native country.

The second annual Pacific Slope Dairy Products Show will be held at

Fresno in connection with the district fair, September 23-30.

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Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Property Overassessed

There are many property owners in this vicinity who have been badly overassessed. We have exhausted all means with the local authorities and wish to know if the matter may be placed before the superior court. If so, in what manner? And what would be the result?—Subscriber, Santa Rosa.

Unless there is some action on the part of the board of equalization which is deemed either fraud or greatly in excess of its jurisdiction no action would lie in the superior court. The proper assessment of property must be determined somewhere, and the law has given this final determination to the board of equalization. Of course it is possible that under certain rare circumstances some proceeding in the superior court might be available, but you should see some local attorney as to that matter.

Easement for Road

I purchased land from a neighbor's wife on contract. It was her separate property. The contract contains a clause to the effect that a strip of

land along the south side of tract is reserved for road purposes. Can this land be deeded to my neighbor? Has he any right to fence it in, remove fruit trees or pick fruit? Can he refuse me the right to use a bridge crossing this land?—Subscriber, Paradise.

Usually such reservations simply create an easement in the land, that is to say, the fee title of the land is conveyed but the right to use the surface of the land for road purposes is reserved. No one else, therefore, could acquire any interest in this land or to anything growing thereon, but would have solely the right to pass over it. Such action as stated on the part of your neighbor could be restrained or he could be held liable in an action for trespass. It may be, of course, that on reading the whole contract it might be found that the reservation could be so construed that the land described therein would not pass, in which event the conditions would be reversed and you would have the right of ingress and egress but would have no interest in the land.

Drainage Ditch Filled

A ranch was subdivided and sold. Originally drainage ditches ran along natural channels through this ranch. The land which I purchased formerly drained through a ditch on land which is now owned by a neighbor. He has filled up this old drainage ditch and refuses to permit drainage through it.

At the time of purchase the ditch was represented as being one into which my land would naturally drain. The subdivider reserved the right to enter and construct drainage ditches. What can be done?—Subscriber, Los Banos.

It would seem that if you can establish the fact that this ditch was formerly used for a drainage ditch while the lands were all in the ownership of one party and this ditch was in existence at the time when the lands were conveyed to you and to your neighbor and that this drainage ditch is necessary and has always been used for the drainage of your lands that you could require the neighbor and possibly the subdivider to maintain this drainage ditch in the form and manner in which it had at all times been employed. There are several cases along that line.

Personal Community Property

If all property is community property has either the husband or wife the legal right to give away or otherwise dispose of any of the household furniture, furnishings or utensils without the consent or against the wishes of the other?—Subscriber, Ripon.

The husband has the management and control of the community personal property with like absolute power of disposition other than testamentary as he has of his separate estate, provided however, that he cannot make a gift of such community personal property

or dispose of the same without a valuable consideration or sell, convey or encumber the furniture, furnishings or fittings of the home or the clothing or wearing apparel of the wife or minor children without the written consent of the wife. Under the foregoing section of the code of course the wife could not dispose of property without the consent of the husband.

Support of Mother

A father has never contributed to the support of his daughter but made his mother support her. Now he refuses to care for his mother and says that his daughter is equally responsible. The daughter has no property and is married. There is another child by the father's second marriage. Is not this son responsible? The father has some property. What can the mother do to obtain support? He refuses to take her into his home.—Subscriber, Chino.

It is the duty of the father and mother and the children of any poor person who is unable to maintain himself by work to maintain such person to the extent of their ability. This is the rule of the code and, as is seen expressly places the obligation upon the person called the father in the foregoing case, but not upon the grandchildren. The mother will unquestionably be entitled to bring action in the superior court to force the father, that is to say, her son, to support her, and as he has property the court would unquestionably give judgment sequestering sufficient of his property to enforce payment of the judgment.

Loan to Ex-Service Man

If an ex-service man has already purchased a farm, upon which he has a mortgage, could he procure a loan to pay off the mortgage from the state, that is, if the people favor the issuance of bonds in the November election?—Subscriber, Point Reyes.

It is probable that such an arrangement could be made although the law deals with purchase and sale of real estate. It would seem that the applicant in this case could sell the property which he owns to the state welfare board and repurchase it from the board upon the contract as provided in the act. That matter, however, would have to be taken up with the welfare board after the result of the November election is known.

Queries Answered

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

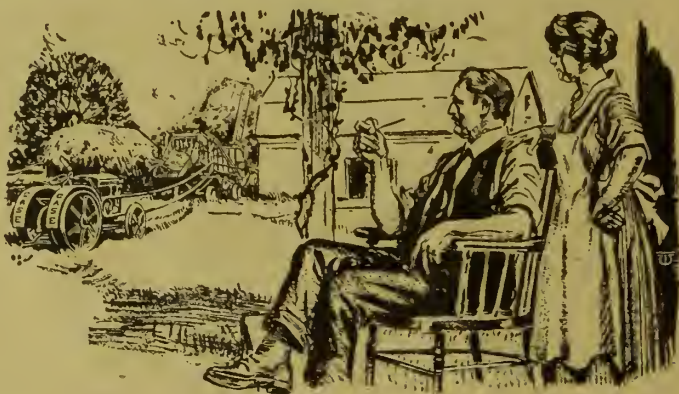
Grafting Plum

Referring to Lodi subscriber's query regarding grafting scion or bud upon a Wickson plum tree ten years old and in full bearing for pollenization purposes, I will say he would find such procedure a losing operation for the reason that the sap of the cut off limb would naturally be quickly absorbed by the remaining limbs and at best the growth of scion would be weakly unsatisfactory and not answering the purpose for which it had been inserted. Far better that he do as you suggest, viz., plant a Climax tree, even though in place of a Wickson to be removed.—F. R. Weidenmueller, Whitier.

Fresh Manure Direct to Alfalfa Field

I have 30 acres of alfalfa and 25 dairy cows. Will you kindly tell me whether it would hurt the alfalfa to spread the green manure on it as I haul it from the corral and milking

SATISFACTION



BEFORE your grain can be marketed, it must be threshed, and nothing brings greater satisfaction than a threshing job well done. Good, clean, fast threshing, day after day, without loss or delay, and at low cost, requires certain important qualities in a machine. All these qualities are found in Case threshers. This is proved by their eighty year record in the hands of farmers and threshermen everywhere. Today, Case machines thresh more of the world's grain than any other make, because they excel in these qualities.

They Save The Grain—From the feeder to the windstacker all parts work as a unit in threshing and saving all the grain.

They Thresh All Grains and Seeds—There is not a seed or grain grown that cannot be threshed, cleaned and saved with a Case Thresher. Everything necessary to handle any kind of grain can be furnished.

They Clean Thoroughly—The moment the grain leaves the cylinder Case separators begin the work of cleaning, and continue it until the grain is delivered in prime condition for marketing.

They Are Easy to Operate and Adjust—Changing a Case from one grain to another usually requires not more than three simple adjust-

ments which can be made without stopping the machine.

They Are Durable—The average life of a Case Thresher is easily 20 years. Most of the first steel threshers we sold in 1904 are still in use and good for many more years. Our present machines are even more durable.

Because of these and other, good qualities, Case Threshers give universal satisfaction to threshermen and farmers alike.

There are seven sizes of Case Threshers, 20x28, 22x36, 26x46, 28x50, 32x54, 36x58 and 40x62.

Interesting new booklets on the advantages and money making possibilities of Case Threshers are now ready. Write for your copy.



J. I. CASE THRESHING MACHINE COMPANY

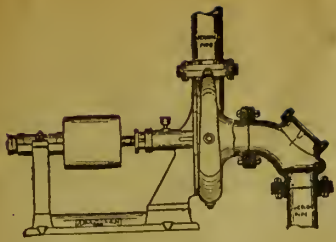
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ANCHOR BRAND SUB-
LIMED VELVET FLOW-
ERS OF SULPHUR, also
EAGLE BRAND and
FLEUR DE SOUFRE, packed
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FLUFFIEST and PUREST
sulphurs that money can
buy.

The fine light SNOW-
FLAKE-LIKE particles float
to every surface and crevice
of the plant.

Do not adulterate these sulphurs with
any inert material such as lime or Kaolin,
etc. Coating the sulphur particles with
an inert material PREVENTS the FUM-
ING ACTION caused by the sun's rays.
Send for Circulars 6, 8 and 10 about our
"Toro" Brand Agricultural Compound and
booklet, "The Truth About Sublimed Sul-
phur," also price list.

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High Grade
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Do more kinds of work
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Have Friction Pulley
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In spare time make wells for your
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years. No risk—no experience needed.

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Earth augers, rock drills and
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or horse power. Write for
easy terms and free catalog.
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When Writing Advertisers Please Mention Cultivator.

barn, or would it be beneficial?—Sub-
scriber.

We surely would apply the manure
as suggested. Of course there is a
limitation in application, but well dis-
tributed there could be no harm, and
irrigation would tend to distribute
and make available without any loss to
the fertility. If it is strawy it might
be well to rake over before the alfalfa
starts to grow. Of course there is one
objection in that fresh manure carries
a percentage of weed seed which thor-
oughly rotted manure does not but
where the hay comes from one's own
place this matter is under control.
Some writers maintain that fresh
manure has a greater content of or-
ganisms which are effective in causing
desirable chemical changes of organic
matter in the soil. Especially with the
heavier soil the fresh manure is the
more efficient. On the other hand, on
light sandy soil a very heavy applica-
tion of manure during hot and dry
season may ferment and cause in-
jury.

Vine Cutter

Can you give us the name and ad-
dress of manufacturers of a portable
"vineyard vine cutter"?—Subscriber.

As far as we know there is no sat-
isfactory machine for cutting or shred-
ding vine prunings. The power re-
quired to operate such a machine is
so great that it ordinarily puts it out
of the portable class. The cost of han-
dling and hauling the prunings is so
great that they cannot well be taken
to a stationary machine since their
actual fertilizer value is not great
enough to pay a return on this cost.—
F. K. H.

Grapes on Alkali land

I would like some information on
grapes. I have 40 acres and it is not
good for much of anything else due
to content of alkali. Will Muscats
thrive in such location and are they
hard to get started?—Subscriber,
Huntington Beach.

It would not be wise to plant grapes
of any variety on land so alkaline that
it will not produce other crops prof-
itably.—F. K. H.

Percentage of Loss in Dairy Cows

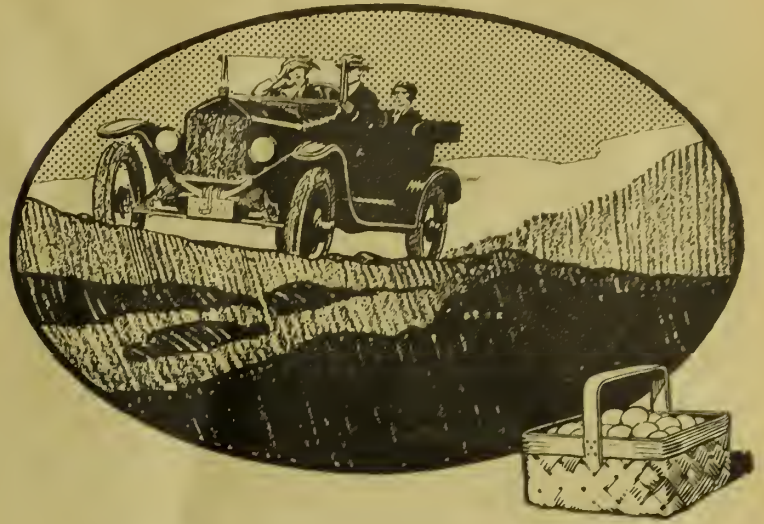
A subscriber wishes to know as to
percentage of annual loss in dairy
herds. We will be glad to hear from
subscribers who have had years of
experience in dairying. Meantime, the
question was referred to George E.
Platt of the Los Angeles Creamery
Company. Mr. Platt writes:

"One can only give an estimate as
the variation is so great, both in years
and the care of cows given by various
dairymen, that it is almost impossible
to give even an approximate average
of the loss. With the writer it has
run as high as 41 per cent and as low
as 9 per cent, the high year being
caused by an attack of anthrax and
the low year being an unusually suc-
cessful year after several bad ones,
when in all probability we had cleaned
out or lost nearly all those with weak
tendencies and having left only those
with strong vitality. In our judgment,
the average herd will, if kept up to a
high state of productiveness, lose
about 20 per cent yearly.

Avocado in Solano County

Could the avocado be grown outside
successfully for family use in Solano
County, or is it a tropical fruit only?
Please describe its makeup. If I have
the correct information its outside re-
sembles a melon, inside filled with one
hard seed nearly as large as a base-
ball. Meat inside is like a coconut.
The fruit I remember was in Cuba
and it was sure delicious.—Subscriber,
Fairfield.

No, the avocado is proving to us



The worst roads won't break your eggs if you have Hasslers!

YOU can take a basket of eggs over
the roughest roads in your Hassler
equipped Ford or Dodge Brothers car
and be sure, if you take care, that the
usual breakage will be greatly reduced.

Hasslers smooth out the roads for you.
They stop bad jolts at the axle. They act
instantly to check the rebound when your
springs start to toss you from your seat.
They prevent sideways and accidents.

With Hasslers your car stays tight longer.
You have less rattles, less trouble. Your
repair and upkeep expenses are reduced.
The blows on your tires are not so heavy
and you get more mileage. The saving
often pays for Hasslers in a single year.

Hassler service is made possible by the
unique design, the splendid material and
the accurate workmanship. Be sure to get
Hasslers if you want Hassler results.

You can test Hasslers ten days at our
risk. Ask your dealer.



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At what age should you take needless risks with your health?

Is that a queer question?

Then many people are doing a queer thing—and often it turns out to be a serious thing.

The Federal Bureau of Education says in its rules for the health of school children that children should not drink coffee or tea. This rule is based on the well-known fact that the drug element in coffee and tea whips up the nerves, and that serious ills often follow.

If it's a good rule for children to keep away from the harm of nerve-stimulation, isn't it a good rule for everybody?

Think it over.

Granted that your body may *stand* more, can your judgment afford to *risk* more? Any doctor can tell you what coffee and tea often do to the health of adults as well as children.

There's no sacrifice in being safe. Postum is a delightful, satisfying mealtime beverage, wholesome and pleasant alike for adults and children. Postum has no age limits!

Your grocer has both forms of Postum: Instant Postum (in tins) made instantly in the cup by the addition of boiling water. Postum Cereal (in packages of larger bulk, for those who prefer to make the drink while the meal is being prepared) made by boiling for fully 20 minutes.

Postum for Health

"There's a Reason"

Made by Postum Cereal Co., Inc., Battle Creek, Mich.

this year that it has a very strong dislike to freezes or even ordinary frosts. But few orchards in most protected sections of Southern California escaped any serious damage from this season's cold. It is barely possible that in Solano County one might build a frame around the tree and give a limited protection and produce a tree which might live to fruiting age. If a trial is made, however, be sure and get the Mexican type and not the West Indian, as the former is less susceptible to cold. In appearance the avocado is round, egg or pear shaped, smooth or rough skinned, green, brown or purple in color. Seed is in center of fruit, flesh lying between seed and skin.

Tourist Nuisance

I live on a ranch some distance from public thoroughfare but am pestered with sightseeing auto drivers who have no regard for our privacy or property. I have a private drive signboard at the bottom of my driveway, but they pay no attention to it. Isn't there some way to prosecute for trespassing as well as property damage?—Subscriber, Glendora.

California always has a warm welcome for the tourists visiting the state. This welcome has been so general that a few of the tourists presume that it is due them under all circumstances and to any extent. We think, however, they are not so much to blame as are some real estate agents who drive them about in the effort to make sales, and in order to create a cordial feeling often give away that which is not theirs. The time was when an orange orchard might be invaded by a load of tourists and literally dozens of valuable fruits carried away. This loss during the season sometimes aggregated boxes or even loads. Growers united in a protective league and caused some arrests and posted many notices of "No trespassing!" This in part corrected the evil. But where our rights are violated our only recourse is to ask officers of the law to protect our property.

Green "Ladybugs"

My chrysanthemums last year were very much bothered with green ladybugs while blooming. I gave the plants plenty of water. They did not bother the plants, just the flowers. Would like to hear of some help, for I am afraid they will spoil them again this year.—Subscriber, San Juan Bautista.

As to green ladybugs there "aint none." Ladybugs or ladybirds are nearly always beneficial and a friend of man and of woman. One of our warmest friends is the little orange colored "Ladybird-ladybird-fly-away-home" type of insect. Presumably, the insect referred to by our subscriber, while green, will be found to possess 12 black spots geometrically arranged over its back. It is called the western 12 spotted beetle, or, to be entirely correct, *Diabrotica soror*. This little pest will vary in length from an eighth to a quarter of an inch and causes serious loss in the garden. Some of the more resistant plants may be sprayed with arsenate of lead, but on cucumbers and some other plants care must be taken not to burn the foliage. Mix the arsenate of lead in water at the rate of six pounds to 100 gallons of water.

Thornless Blackberries

Kindly tell me what is the best way of growing Burbank Thornless blackberries. Mine were planted in March, 1921 and have made a good growth. Would like to know if it is necessary to prune and how it ought to be done. Recently people have told me that Burbanks do not bear until three

years old. If so, what can I do, if anything, that they may bear sooner?—Subscriber, Tulare.

Burbank Thornless will bear the second year if pruned heavily, otherwise not until the third year. In this respect it is decidedly inferior to the Cory. It is best to grow on a wire trellis and cut all old canes off at roots and last season's canes to four feet long. The laterals on these should be shortened to one foot. Each year repeat this pruning, leaving only last year's canes, as these bear the berries. The Burbank bears well only with severe pruning, and no other factor will so directly contribute to an early crop.

KILL JACK FROST

(Continued from Page 479.)

which there were many. We believe that as a rule the feeling prevailed that if frost fighting is to be done it will probably have to be with equipment very similar to that which has succeeded most completely during the past ten years. But as that equipment has required large investment of capital and at the same time has not been as efficient as desired there was continual asking for that which will be better. But when investigators made a showing by the use of charts and drawings of equipment which would cost a thousand or more dollars per acre to install the growers would come back with some remark similar to that of one who asked "If you should install this plant would you want all of my place in payment for it or would you be content with only a part of the ranch?" Such remarks were frequent and the speakers soon learned they must take more or less heckling.

At an equal cost of installation and operation—and, of course, with equal efficiency, there is strong preference for "smudgeless equipment." The loss and the discomfort from the pall of smoke which covers everything when a whole community gets into action with orchard heaters is not to be ignored. At the same time merchants and home makers realize that an industry of such great value as that of the citrus must be preserved. Hence the Covina convention was attended not only by orange growers but by people of all professions and callings. The banker and others realize as never before that the problem is one which concerns them as much as it does their neighbor, the orange grower. There is as yet but little talk of willingness to cooperate, but we believe when the time does come for action that other interests will aid in the campaign. Any small community confronted with the possibility of a \$3,000,000 fire loss would not commit so suicidal an act as to go quietly on without providing some means of effectively fighting fire and in addition would carry practically \$3,000,000 of insurance on all those risks. Yet our infinitely more valuable citrus properties are left unprotected and unsecured, with the commercial interests saying, "Let the grower protect himself."

On the grounds in front of the assembly hall were a large number of heaters of almost every conceivable type. Most of them were oil burners. There was the old lard pail type with the partial cover. There were the usual forms which have had use for half a dozen or even a dozen years. There were many modifications. There were cartridges of shavings and mill refuse saturated with heavy oil. There were briquettes and coal with different types of heaters for handling them. There was only one air agitator or suction fan appliance. This operated on the principle of an electric fan arranged in the bottom of a smoke stack with downward suction, the idea being to draw down the upper strata of air and distribute horizontally at the ground surface.

The afternoon session was given to discussion and study of engineers' designs or charts of the Cobb temperature regulator, the Whitlock frost control, the Ross frost prevention, the Fugit frost control, McKenzie control, the Algero control and the Bell control described by Mr. Bell of San Bernardino. The forenoon was given over to the discussion of "Practical Results with Heaters" by C. A. Griffith

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—to and from Eastern and Pacific Coast Points

Suppose you were moving to Chicago, New York or Kansas City and your goods occupied but a portion of a freight car—by loading the balance of the car with other people's goods destined for the same locality the car is designated "thru freight," and is not side-tracked to unload part of its cargo at some way station.

This means—

**QUICK TRANSPORTATION at
REDUCED RATES**

A saving of from ten to thirty per cent. is effected, according to the size of the shipment,—because, handling is minimized and you get the benefit of a consolidated carload rate.

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Motor Troubles Ended

New Invention Creates Wonderful Spark—Doubles Power, Makes Winter Starting Easy—Stops Oil Pumping—Eliminates Carbon—Saves Gas—Free Trial Offer.

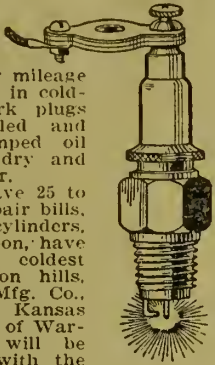
Any car owner who is bothered with a motor which pumps oil, foul spark plugs, wastes gas or carbonizes badly can stop these troubles by using a remarkable device called Warren Transformers, perfected by W. H. Warren, a Kansas City motor expert.

In two minutes a boy can attach Warren Transformers. Then you will be amazed to see your car go whizzing up hills on high where you formerly had to shift gears. You will also notice a big increase in your mileage and instant starting in coldest weather. Spark plugs that formerly fouled and cylinders that pumped oil will be clean and dry and fire with full power.

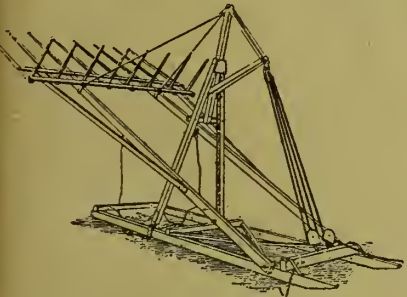
If you want to save 25 to 50% on fuel and repair bills, be rid of missing cylinders, dirty plugs and carbon, have a quick start in coldest weather and pep on hills, write the Warren Mfg. Co., 203 Gray Building, Kansas City, Mo., and a set of Warren Transformers will be sent immediately, with the understanding that they do not cost you a cent if not entirely satisfactory.

So confident is the Warren Mfg. Co. that Warren Transformers will more than delight you that they offer to send a \$4 set for only \$2. This is a special introductory offer, good for only a few days, and readers should take advantage of it immediately.

Send No Money with your order—just your name and address, name of car and number of cylinders. Warren Transformers will be sent immediately. When they arrive merely pay the postman \$2 and postage. Use them 10 days. If not satisfactory return and your money will be refunded. Write today. End your motor troubles. This offer fully guaranteed.



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Get the Latest and Most Modern Hay Stacker THE TRIUMPH and the Triumph Buck Rake

We also manufacture Western Star Horsepower Baler and Western Special Power Baler. If you cannot call at our salesroom, send for a "Man-o'-Warr."

WARR IMPLEMENT CO. 110 1/2 North Los Angeles St. Los Angeles

Two Chances at Gopher

Enclosed find check for one dozen Double Catch Gopher Traps. Have used every advertised gopher trap but have thrown them all in the scrap pile but the Double Catch. — F. B. McKay, Standish, Calif., 3-31-22.



Young Gopher

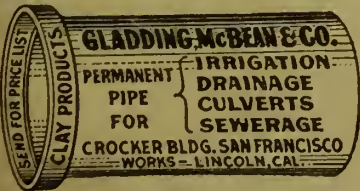


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Bee Hives and Supplies

Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

The A. I. ROOT COMPANY, Dept. B. 1824 E. 15th St., Los Angeles, Cal. PACKERS OF AIRLINE HONEY



Arizona receives nearly \$100,000 as her share of deferred grazing fees in national forest reserves.

of Azusa; "Thermometers in the Orchard" by Dr. Ford A. Carpenter; "Orchard Heaters" by E. W. Dunn.

After the address of welcome by Mr. Rinehart of Covina, Chairman Crawford proceeded to pull off the program in a snappy way which gave opportunity to bring out a great fund of information in a short time. We hope to give more detail as to the addresses made at this convention in later issues of the Cultivator. We will give next week a greater part of Dr. Carpenter's discussion on thermometers. Dr. Carpenter has made extended investigation as to their dependability or lack of dependability.

COMMERCIAL FERTILIZERS

The state department of agriculture is issuing Special Publication No. 18, "Commercial Fertilizers." It is written by Geo. P. Gray and Geo. E. Colby. It is principally made up of list of fertilizer manufacturers who are selling in California, with analysis of their fertilizers as made in the laboratories of the department at Sacramento.

The duties of the state officials charged with the administration of the fertilizer laws are:

To issue certificates of registration to manufacturers and dealers who have complied with the law by filing sworn statement of the composition and sources of the fertilizers they wish to sell.

To inspect and take samples of any lot, parcel or package of fertilizer or material or mixture of materials used for manurial purposes.

To analyze these fertilizers as found in the open market by inspectors and publish the results for the information of the public.

To analyze and report from users' samples of fertilizers.

The function of the fertilizer control is first of all to protect the consumer by requiring the manufacturer to live up to his own set standards of guarantees. To protect the legitimate licensed manufacturers and dealers against those who try to sell fertilizers outside the law. To promote harmony in all phases of fertilizer dealings among consumers, manufacturers and those charged with the control work.

During the year 1920-21 42 firms and others have registered under the fertilizer law.

IMPLEMENT ASSOCIATION FORMED

At a meeting held at the Bellevue Hotel, San Francisco, on Monday of this week the Tractor and Implement Club was organized with the following officers and directors: H. V. Carter, H. V. Carter Co., president; B. M. Davis, Oliver Chilled Plow Co., vice-president; W. V. Freeman, president Pacific Implement Co., secretary. The following were elected as board of directors: W. M. Criswell, International Harvester Co.; Geo. Brackett, Yuba Products Co.; Professor L. J. Fletcher, University of California; Thos. R. Browne, Cushman Motor Works, Stockton.

Manufacturers and dealers in farm implements and tractors are eligible to membership and are earnestly invited to join the club. Meetings will be held on the second Tuesday of each month and matters pertaining to farm machinery equipment will be considered. It is the object of the club to cooperate with users of farm machinery to the end that more and better service may be secured by owners.

IMMUNITY FROM FROST

An inspection of the J. H. Walker avocado orchards on Las Palmas Avenue, Hollywood, disclosed but four trees injured by frost, and these four are West Indian species. None of the Guatemalan type suffered damage, even the Sharpless had not a leaf "scorched." On the other hand, orchards of the same varieties higher up against the foothills in localities considered far more immune to frost injury were visibly damaged in foliage and young wood. The explanation is that the Walker orchard is in a very windy belt, a strong breeze blowing nearly all the time, night and day. This but proves the contention of many careful observers that air currents are a vital factor in protection against injury by frost.



FROM A KODAK NEGATIVE

Take a KODAK with you

Dad showing Billie and Bess a trick of the trade makes a picture you want of the fishing excursion.

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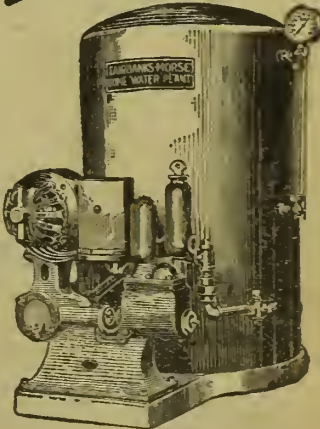
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When Writing Advertisers Please Mention the Cultivator.

Household Department

REQUESTED POEMS

MANY requests have come to the household department to reprint old poems. Here are a number; some we could not find.

In the Days of Forty-Nine

Will you please publish in your paper the poem, "In the Days of Forty-nine," with the author's name?—Subscriber, Visalia.

FORTY-NINE

By Joaquin Miller

We have worked our claims,
We have spent our gold,
Our barks are a-strand on the bars;
We are battered and old,
Yet at night we behold
Outcroppings of gold in the stars.

When the rabbits play,
Where the quail all day
Pipe on the chaparral hill;
A few more days,
And the last of us lays
His pick aside and all is still.

We are wreck and stray,
We are cast away,
Poor battered old hulks and spars;
But we hope and pray
On the judgment day,
We shall strike it up in the stars.

Though battered and old,
Our hearts are bold;
Yet oft do we repine
For the days of old,
For the days of gold,
For the days of 'Forty-nine.

Twenty Years Ago

Can you give me any information whereby I can find the words or music to the old time song, "Twenty Years Ago"?—Subscriber, Marysville.

TWENTY YEARS AGO

By Francis Huston

I've wandered to the village, Tom, I've
sat beneath the tree,
Upon the schoolhouse playground, that
sheltered you and me;
But none were left to greet me, Tom; and
few were left to know,
Who played with us upon the green, some
twenty years ago.

The grass is just as green, Tom; bare-
footed boys at play
Were sporting, just as we did then, with
spirits just as gay.
But the "master" sleeps upon the hill,
which, coated o'er with snow,
Afforded us a sliding place, some twenty
years ago.

The old schoolhouse is altered now; the
benches are replaced
By new ones, very like the same our pen-
knives once defaced;
But the same old bricks are in the wall,
the bell swings to and fro;
Its music's just the same, dear Tom,
'twas twenty years ago.

The boys were playing some old game,
beneath that same old tree;
I have forgot the name just now—
you've played the same with me—
On that same spot; 'twas played with
knives, by throwing so and so;
The loser had a task to do,—there twenty
years ago.

The river's running just as still; the wil-
lows on its side
Are larger than they were, Tom; the
stream appears less wide;
But the grapevine swing is ruined now,
where once we played the beau,
And swung our sweethearts,—pretty girls,
—just twenty years ago.

The spring that bubbled 'neath the hill,
close by the spreading beech,
Is very low,—'twas then so high that we
could hardly reach;
And, kneeling down to get a drink, dear
Tom, I started so,
To see how sadly I am changed, since
twenty years ago.

Near by that spring, upon an elm, you
know I cut your name,
Your sweetheart's just beneath it, Tom,
and you did mine the same;
Some heartless wretch has peeled the
bark, 'twas dying sure but slow,
Just as she died, whose name you cut,
some twenty years ago.

My lids have long been dry, Tom, but
tears came to my eyes;
I thought of her I loved so well, those
early broken ties;
I visited the old church yard, and took
some flowers to strow
Upon the graves of those we loved, some
twenty years ago.

Some are in the churchyard laid, some
sleep beneath the sea;
But few are left of our old class, except-
ing you and me;
And when our time shall come, Tom, and
we are called to go,
I hope they'll lay us where we played,
just twenty years ago.

"I Have a Covenant With Death"

Will the Cultivator send in a poem beginning "I have a covenant with

death"? I do not know the author.—Subscriber, Fowler.

We wonder if the following is the poem wanted:

I HAVE A RENDEZVOUS WITH DEATH

By Alan Seeger

I have a rendezvous with Death
At some disputed barricade,
When Spring comes back with rustling
shade
And apple blossoms fill the air—
I have a rendezvous with Death
When Spring brings back blue days and
fair.

It maybe he shall take my hand
And lead me into his dark land
And close my eyes and quench my
breath—
It may be I shall pass him still.
I have a rendezvous with Death
On some scarred slope of battered hill.
When Spring comes round again this
year
And the first meadow flowers appear.

God knows't were better to be deep
Pillowed in silk and scented down,
Where love throbs out in blissful sleep,
Pulse nigh to pulse, and breath to breath,
Where hushed awakenings are dear—
But I've a rendezvous with Death
At midnight in some flaming town,
When Spring trips north again this year,
And I to my pledged word am true,
I shall not fall that rendezvous.

'When Pa Begins to Shave'

When I was a little girl I used to
recite "When Pa Begins to Shave." I
would like very much to get it again
and am asking this of you as I notice
you are very kind in searching for-
gotten literature for your patrons. We
have been readers of the Cultivator
for many years and will be very much
obliged to you if you can give us this.
—Subscriber, Fresno.

WHEN PA BEGINS TO SHAVE

By Harry Douglas Robins

When Sunday mornin' comes around
My pa hangs up his strop,
An' takes his razor out an' makes
It go c'flop! c'flop!
An' then he gits his mug an' brush
An' yells to me, "Behave!"
I tell y'u things is mighty still—
When pa begins to shave.

Then pa, he stirs his brush around
An' makes th' soapsuds fly;
An' sometimes, when he stirs too hard,
He gits some in his eye.
I tell y'u, but it's funny then
To see pa stamp and rave;
But y'u mustn't git ketched laffin—
When pa begins t' shave.

The hired hand, he dassent talk,
An' even ma's afeared,
An' y'u can hear th' razor click
A-cuttin' through pa's beard!
An' then my Uncle Bill, he laffs
An' says, "Gosh! John, you're brave!"
An' pa, he swears, an' ma jist smiles—
When pa begins t' shave.

When pa gits done a-shavin' of
His face, he turns around,
And Uncle Bill, he says, "Why, John,
Y'ur chin looks like plowed ground!"
An' then he laffs—jest laffs an' laffs,
But I got t' behave,
'Cos things 's apt to happen quick—
When pa begins to shave.

Parody on Maud Muller

Could you kindly publish a "Parody
on Maud Muller" that starts like this?
"Maud Muller on a summer's day
Mounted her wheel and rode away."
And oblige.—Subscriber, Orland.

MAUD MULLER A-WHEEL

By S. E. Kiser

Maud Muller, on a summer's day,
Mounted her wheel and rode away.

Beneath her blue cap glowed a wealth
Of large red freckles and first rate health.

Single she rode, and her merry glee
Frightened the sparrow from his tree.

But when she was several miles from
town

Upon a hill slope, coasting down,

The sweet song died, and a vague unrest
And a sort of terror filled her breast—

A fear that she hardly dared to own;
For what if her wheel should strike a
stone!

The Judge scorched swiftly down the
road—
Just then she heard his tire explode!

He carried his wheel into the shade
Of the apple tree to wait the maid.

And he asked her if she would kindly
loan
Her pump to him, as he'd lost his own.

She left her wheel with a sprightly jump
And in less than a jiffy produced the
pump.

And she blushed as she gave it, looking
down
At her feet, once hid by a trailing gown.

Ingersoll Watches



The Utmost in Value

MORE than merely low price sets Ingersoll apart from every other watch. There are other low-priced watches. Ingersoll watches are reliable, sturdy, honestly good-looking, as well as sold for so little money. Your dealer will show you the complete line.

Announcement

By an arrangement completed on March 31st, the Ingersoll assets were purchased by the Waterbury Clock Company. Thus Ingersolls are now marketed directly by the manufacturers, who have made Ingersolls from the beginning.

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New York Chicago San Francisco

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plication. Phone 1746
Third and Bush Sts., Santa Ana

Then said the Judge as he pumped away,
"Tis very fine weather we're having
today."

He spoke of the grass and flowers and
trees,
Of twenty-mile rides and centuries;

And Maud forgot that no trailing gown
Was over her bloomers hanging down.

But the tire was fixed, alack-a-day!
The Judge remounted and rode away.

Maud Muller looked, and sighed, "Ah
me!
That I the Judge's bride might be!

"My father should have a brand new
wheel
Of the costliest make and the finest
steel.

"And I'd give one to ma of the same de-
sign
So that she'd cease to borrow mine."

The Judge looked back as he climbed the
hill
And saw Maud Muller standing still.

"A prettier face and a form more fair
I've seldom gazed at, I declare!

"Would she were mine and I today
Could make her put those bloomers
away!"

But he thought of his sisters, proud and
cold,
And shuddered to think how they would
scold

If he should, one of these afternoons,
Come home with a bride in pantaloons!

He married a wife of the richest dower,
Who had never succumbed to the bloom-
ers' power;

Yet oft, while watching the smoke
wreath curl,
He thought of that freckled bloomer girl;

Of the way she stood there pigeon-toed,
While he was pumping beside the road.

She married a man who clerked in a
store,
And many children played round her
door.

And then her bloomers brought her joy!
She cut them down for her oldest boy.

But still of the Judge she often thought,
And sighed o'er the loss her bloomers
wrought.

Or wondered if wearing them was a sin,
And then confessed: "It might have
been."

Alas for the Judge! Alas for the Maid!
Dreams were their only stock in trade.

For of all wise words of tongue or pen,
The wisest are these: "Leave pants to
men."

Ah, well! For us all hope still remains,
For the bloomer girl and the man of
brains.

And, in the hereafter, bloomers may
Be not allowed to block the way.

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

While I am on the subject of diet I
wish to give a recipe for Boston Brown
bread, as children are very fond of it,
and it is very nourishing.

Boston Brown Bread

One cup corn meal, one cup whole
wheat flour, one cup Graham or bran,
three-fourths tablespoon soda, one and
one-half teaspoons salt, three-fourths
cup sorghum or molasses, two cups
buttermilk or sour milk. Mix well
and put into buttered baking powder
tins and steam two hours or longer.
Raisins may be added to part of this
mixture providing the child is over
two years of age and masticates his
food well. Two simple and nourishing
desserts are prune whip and apple
snow.

Prune Whip

One cup prune pulp (prunes cooked
and rubbed through a coarse sieve),
whites of two eggs, one teaspoon sugar.
Beat the whites stiff and add prune
pulp gradually. Serve with cream.

Apple Snow is made the same way,
using one cup apple sauce instead of
prune pulp, and serve with a boiled
custard.

Boiled Custard

Two cups scalded milk, yolks of
three eggs, one tablespoon sugar,
pinch salt, one-half teaspoon va-
nilla. Beat egg slightly, add sugar
and salt, stir constantly while adding
hot milk. Cook in double boiler, con-
tinue stirring until mixture thickens
and a coating is formed on the spoon;
chill and flavor. When eggs are
scarce use yolks of two eggs and one-
half tablespoon corn starch.

Plan Baby's Care

Please tell me how I can make the
care of my baby easier! I seem to



Work---Food Time

Men now need foods that *energize!*

NOW'S the season when men need *energy* to withstand the hard work
of the long farm day. And *work-foods*—foods that provide this energy
—should be the rule at all farm tables. For food is the body's *fuel*.
Work burns it up and it must be renewed in full each day.

Raisin pie is the great American energy-dessert.



A great morning fruit dish
is stewed raisins served with
cream. Rich in energy and
iron. A fine laxative effect.

Raisin Pie

2 cups Sun-Maid Raisins,
1½ cups boiling water, ½
cup sugar, 2 tablespoonfuls
cornstarch, 2 tablespoonfuls
lemon juice, 1 tablespoonful
grated lemon rind, juice of 1
orange, 1 tablespoonful
grated orange rind, 1 cup
chopped walnuts.

Cook raisins in boiling
water for 5 minutes, pour
into it sugar and cornstarch
which have been mixed.
Cook until thick, remove
from the fire and add other
ingredients. Bake between
two crusts. Walnuts may be
omitted if desired.

All measurements for this
recipe are level.



Blue Package (seeded) best
for pie and bread.

Raisins furnish 1,560 calories (a unit of food
value measurement) of energizing nutriment per
pound—more energy than eggs, milk, potatoes
and most meats supply.

So a luscious raisin pie is ideal at this time.
Also rich in food-iron—good for the blood.

Digestible because the raisin's pure fruit-sugar
is in practically predigested form.

Men feel the refreshment from it almost
immediately after eating. They'll thank you for
a pie like this.

Try making one according to recipe printed
here, using your own delicious crust. The juice
forms a luscious sauce. It makes a perfect pie.

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Raisins, produced from Cali-
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maculate, wholesome and al-
ways good.

Raisins are 30 per cent
cheaper than formerly—see
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foods.

Seeded, blue package (*seeds*
removed), best for pie and
bread; Seedless, red package
(*grown without seeds*), best
for stewing; Clusters (*on the*
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dessert.

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make such hard work of everything.—Neighbor.

Have you your things conveniently arranged? In the bathroom let me suggest a rack over the tub so that the baby's tub may be placed on that

and save stooping. Even after the children are older and bathe in the large tub they can stand on this to be dried and dressed. One can buy tables to dress a small baby on, but I have a chest of drawers just the right height

and width. In one corner I have my toothpicks, cotton, oil, powder and vaseline, and in the drawers below are the diapers, shirts, stockings, dresses, etc. I have a paper bag hanging near in which I throw all pieces of used cotton gauze, etc., and this is burned every day and a clean bag put in its place. This is more sanitary than a waste paper basket and much easier to dispose of.

In this way a baby can be bathed and dressed in less than 20 minutes, and you haven't moved more than three or four feet from the tub to the chest of drawers. Have everything ready before you get the baby.

HOUSEHOLD QUERIES

Vegetable Turkey

I wonder if any of The Cultivator subscribers are in possession of a recipe for vegetable turkey. Many years ago I attended a Thanksgiving dinner and the turkey consisted of a squash stuffed and dressed and roasted with different vegetables, fruits and nuts. I remember that there were bananas and carrots, but I cannot recollect just what other vegetables and fruits were used. Please give full directions just how to proceed and how long to roast.—Subscriber, Arcata.

Here are directions for mock turkey which may be of use to subscriber. We do not know of a recipe including fruits: Four cups breadcrumbs, four cups chopped walnuts, four cups boiled rice, 12 hard boiled eggs, chopped, six raw eggs, two tablespoons grated onion, salt, pepper and grated nutmeg to taste.

Put breadcrumbs in saucepan with four cups water and cook a few minutes. Add hard boiled eggs. Take saucepan from fire and add nut meats and rice. Mix well, add raw eggs, slightly beaten and seasonings.

Form this into shape of turkey, reserving portions for legs and wings. Take two tablespoons of mixture in your hands and press into shape of leg. Put piece of dry macaroni into it for bone and fasten to turkey. Do other side same way. Form remaining portions into small pieces looking like wings. Brush over with melted butter or fat and bake slowly one and one-half hours. Serve with cranberry sauce. If carrots are liked we would suggest substituting two cups of finely chopped cooked carrots for two cups of rice. Bananas are delicious served with roasts of any kind. Skin, remove strings, lay whole in roasting pan about roast, baste when basting roast, like potatoes. Put bananas in 30 minutes before roast is done, one at least for each person served.

Variety of Salads

I would appreciate any recipes for salads of any kind. I have boarders so like to have salads. I have the recipes for salad dressings.—Subscriber.

Substantial Salads: Cooked Baby Lima or Red Kidney beans, minced onion, dash paprika, teaspoon mayonnaise.

Diced, cooked potato, minced parsley and green onion, teaspoon mayonnaise.

Cottage cheese, mashed with sour cream or mayonnaise, minced green onion, dash paprika on top mayonnaise or French dressing.

Head lettuce cut as for slaw, sliced hard boiled eggs, olives, teaspoon mayonnaise on top, dash paprika.

Mold thoroughly cooked rice. Sprinkle over grated sharp cheese, garnish with two or three strips cooked pimiento, teaspoon mayonnaise on top, dash paprika.

Cottage cheese mixed with cream and chopped green onions, cooked string beans on each side, teaspoon mayonnaise or French.

Pieces cooked cauliflower marinated in French dressing. Sprinkle grated sharp cheese over top, dash paprika, teaspoon mayonnaise.

Diced cooked carrots, peas, minced onion, olives, teaspoon mayonnaise.

Half ripe banana, chopped nuts, teaspoon mayonnaise.

Diced banana, apple, orange or grape fruit, teaspoon mayonnaise.

Sliced tomato, lettuce, hard boiled egg, minced onion, mayonnaise.

Leftover spinach (put through sieve), asparagus, potato, cauliflower,

pickles, olives, meats or fish of any kind may be put through fine cutter of food chopper and blended with mayonnaise. Place in neat mound on lettuce leaves or sliced or whole tomato, garnish with strip or two pimiento, an olive, add teaspoon mayonnaise and dash paprika.

Green Salads: Sliced fresh cucumbers, thoroughly mixed with sour cream dressing.

Lettuce cut fine as for slaw with strips canned or fresh pimiento, olive. Lettuce, tomatoes, cucumber onions.

White or red cabbage, cut very fine as for slaw, sour cream dressing.

Chinese cabbage, cut fine, olive mayonnaise.

Whole tomato, hollowed stem and filled with mayonnaise or chopped celery, apple, green onion blended with mayonnaise.

Fruit Salads: Oranges or grapefruit or combination, peeled, all white skin removed, broken into sections, skin removed from sections. Serve with French dressing.

Oranges, apples, bananas, with French, olives.

Slice pineapple. Grate over sharp cheese, add teaspoon mayonnaise.

One-half canned pear, white grapes or plumped seedless raisins, slice pineapple, maraschino cherry.

Canned fruit salad now comes in several brands. To it may be added fresh oranges, apples, bananas, grapefruit, etc.

Plumped seedless raisins will be found a delicious addition to many fruit salads.

Combinations pleasing to the taste are almost endless. The main point in salad making is to use only crisp, fresh material, cut everything cleanly, using sharp knives, put on garnishing and dressings daintily. No salad should look messy.

Collection Cowboy Songs

Would like to know where I can buy one of those books containing cowboy songs published by Sturges & Walton.—Subscriber, Hanford.

The publishers' address is Sturges & Walton, 33 East 27th Street, New York.

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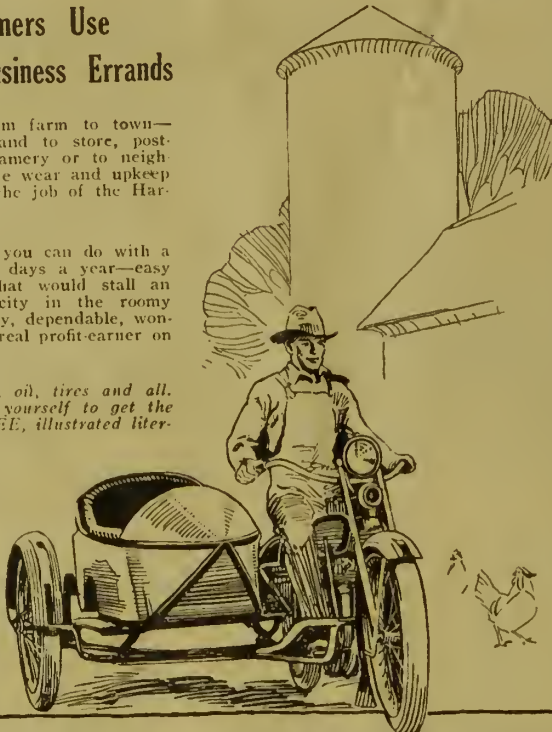
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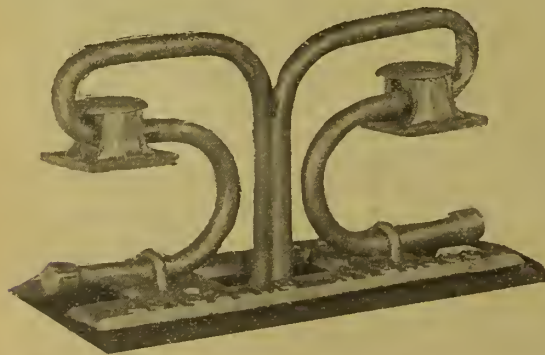
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Write for complete illustrated circular and state what you want to heat.

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KRESKY'S SILENT BLUE WONDER BURNERS

Fit any cook stove, use kerosene; no stopping up, no cleaning; cheaper, cleaner and safer than wood; cool in summer, comfortable in winter. Satisfaction guaranteed. Live salesmen wanted. Great seller.

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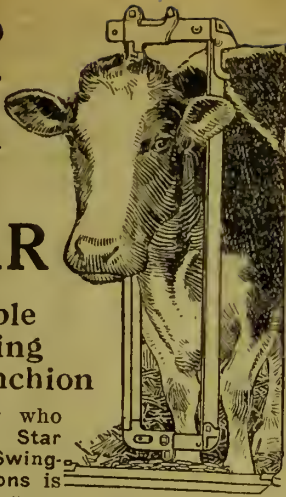
STAR

Adjustable
Swinging
Stanchion

The farmer who can't using Star Adjustable Swinging Stanchions is missing more than a saving of time, labor and economy of room—he is leaving out a feature indispensable to the really modern barn.

The Star Stanchion is instantly adjustable to fit the neck of a bull or a cow, or a young heifer or calf. For this reason it is not necessary to purchase special equipment for young stock.

You will send for our wonderful new catalog you will see how really indispensable the Star Stanchion is—and so you will learn some interesting things about barn equipment.



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Of all livestock diseases, anthrax is one of the most fatal. For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS (Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

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A serum to be used when animals show symptoms of anthrax.

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
May 11, E. R. Stalder, Nuevo.
May 23-24, J. S. Gibson Estate, Williams.
June 1 and 2, Burr Farm, Los Angeles.
Shorthorns
May 25, Caledonia Farms, West Sacramento.
Guernseys
May 17-18, Edgemoor Farm, Hynes.
Jerseys
May 9, Geo. H. Thomas & Son, Arlington Station; sale at Hynes.
Sheep
June 15, Annual Ram Sale, California Woolgrowers Association, Davis.

Earl J. Sturgis, manager of the Fred Hartsook ranch at Lankershim, is greatly tickled over a new addition to his big Holstein family. This is a bull calf out of Miss Aralia De Kol Mead, the first daughter of Sir Aaggie De Kol Mead to freshen on the Hartsook ranch. This heifer was bred by Morris and was sold in the National sale at St. Paul in 1920 to W. G. Davidson of the Brentwood Farms, from whom she was later purchased by Mr. Hartsook. She was bred to the young bull, King Korndyke Pontiac Acme, who is at the head of the Baldwin herd. If his dam makes 600 pounds butter in a year his 15 nearest dams will average over 1,000 pounds. The new arrival is of splendid type and with the exceptional production behind him should prove to be a valuable asset to the herd.

Eleven California Jersey herds were represented in the 50 pound list for January. Dr. H. G. Gross of Humboldt County had the high cow from this state with Marian of Butler Valley that produced 77 pounds of butterfat from 1358 pounds of milk.

William Briggs and Son of Dixon have sold the two year old Hereford bull Pilot to Thomas Ockenden of Academy. Pilot won the junior bull class at the 1920 state fair. He was sired by Beau Blanchard 76th, grand champion at the same show. The University of California has been using this bull for several months.

According to a news story under date of April 20 a group of Chicago capitalists selected 70 head of milk goats in Southern California for a total price of near \$250,000. If such be true our California goat breeders have got the oil business backed off the boards for quick and easy money.

The second annual picnic of the Riverside County farm bureau will be held at the Sierra Vista Ranch, Perris, on May 12. The Sierra Vista Ranch is owned by the famous author, Peter B. Kyne, and is managed by Bert H. Wilkinson. It is the home of the great Duroc boar, Royal I Am, undefeated grand champion boar in all 1921 California shows, and many of his excellent progeny. A small high class herd of pure bred Holsteins is also maintained.

The University of California has recently installed A. L. Lovejoy as superintendent of the Eldorado County range experiment. Lovejoy has had wide experience in the forest service of several western states.

Professor Gordon H. True has compiled a chart contrasting the winnings of the various agricultural colleges that have competed in the Clay, Robinson & Company college specials at the Chicago International since 1916, the first year that California exhibited. At the past six shows 15 of the leading colleges of agriculture have exhibited one or more years in the classes mentioned. California, showing four years, won a total of \$1600; Iowa, showing six years, won \$1125; Purdue, showing six years, won \$1010. The other colleges won less than \$500. Out of a possible 40 firsts in the four years that California exhibited our college won 19 firsts. Out of eight possible championships in beef cattle and sheep classes, for the four years that California exhibited we won five. Such a showing is not approached by any institution in America.

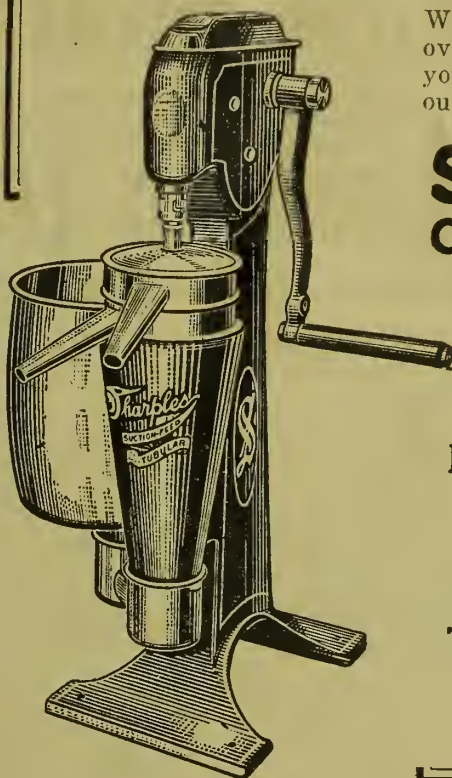
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SAME HIGH QUALITY

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Any one can operate a SHARPLES because it skims clean at any speed. Knee low supply tank saves heavy lifting yet suction feed supplies the correct quantity of milk at all speeds. There are no dises to clean with a Sharples only the patented tubular bowl. Friction ball bearings make easy turning while oil tight gear case requires oil only once a month.

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One of the most select herds in America. Only Scotch females of the best families headed by **COLLYNIE PRINCE LAVENDER** our imported bull that was grand champion at San Francisco.

SHIRE HORSES

A number of good sound young stallions and mares, well bred and priced right. For prices and particulars address

E. LOVELL, Mgr.
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Senior Champion at 1921 California State Fair heads our selected herd of

SHORTHORNS

and we can offer some rare bargains in Scotch and Scotch topped cows and helpers, some with calves at foot, and rebred to the above bull. Most of the helpers are by Double Callant, a grandson of Avondale. Write us for prices and particulars.

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Every Cow Has an A.R.O. Record

FOR SALE—A few Bull Calves from 3 to 10 months old.

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13 choice yearling heifers, sired by a son of an International Champion, well grown and just the sort for starting a profitable herd. Also 10 yearling bulls. Come and see them; the price is right.

H. H. Gable Esparto, Cal.

When Writing Advertisers Please Mention the Cultivator.

Reaping

By A. L. Spellmeyer

UNANIMOUSLY, persistently, everywhere we are assured that the coy maid, Prosperity, is tripping blithely towards business of this U. S. A. The agrarian after supping some two years upon a diet of loss is fairly quivering with eagerness to greet her. Rumor states that Miss Prosperity is just a week or a month or six months distant, but never has the greatest pessimist estimated her distance at over six months, even though three times six months have passed.

But this we know, and without doubt, things will be better soon—or much worse. The economic system of the nation has had a shock, and most men are confused with uncertainty,

but there are some steady workers who are reaping. Henry Ford for one seems to find the going suits him, and he either knows his path or throws a colossal bluff and has luck as his first assistant. Henry started a tractor war, bought a railroad, fought Wall Street, established a paper that would have been suppressed a few years ago, and was not satisfied, but took on an auto war with higher priced cars, added the International Jew discussion, and finally ends up with the Muscle Shoals project and a general attack on the present money system of the world. Whether Henry is great or not, seems to puzzle the only great man we know we have, Thomas Edison, and Edison is Ford's camping crony.

Some 30 speculative brokerage firms

adorn Wall Street as complete derelicts, and the wobbly ones, still hoping to survive, hardly dare acknowledge they know their erstwhile pals. These men, together with various confidence men of large ideas, endeavored to reap and graduate into financial captains, but failed and became reapers of wrath instead.

Retailers of a nation have reaped for several years, but the toils are now enfolding them. The attraction of profit through a comparatively small investment has brought into the retailing of food a multitude of new shops, a division of volume, a competition of chain stores which cripple the small store with limited purchasing power, and finally a competition of chain stores with chain stores, both backed by a bonding and stock system of finance. The retailer is reaping what he sowed, and it seems to know no end. Though times are undoubtedly bettering the retail plight is not showing bright hopes, and the very bankers who coddled the retail accounts in these new ventures now assert it patriotic and helpful to as-

sist retail prices downward and farm product prices upward.

This condition is not a prophecy but a statement of existing fact. Today your wife can buy a dress for \$1 that had a \$40 mark on it a year ago; a fur coat for \$200 that had a \$500 price on it, and you can buy a pair of good shoes once more for eight dollars or a good shirt for two. It is a fact that the old dollar's buying power is back again with a vengeance on everything except plumbing and house building and rents, but these are also en route to the lower level.

No longer are you forced to a hearty meal of spuds and soup bones and bread pudding, for you can luxuriate in meat that is both tender and juicy at small cost. In a hundred shops today you can buy a noble steak, the regular old two inch aristocrat, with nice firm fat in the right places, and this noble three pounder will probably cost you a dollar. Knowing the ropes, I can get it for 90 cents in dozen shops. And once more with 1 cent lard and cheap eggs the long unknown real pound cake can be on the family table.

The average carcass meat price have advanced four cents in Los Angeles in a month, and this advance has been partly passed on to the live stock men, and has not all stuck to the packers' fingers. Yet in passing we may note that the meat packer is doing better than he was, for a while in the profit line. The consumer has not paid more, as the total meat advance has been absorbed by retailer. Last month the packers' list showed 30 cent loins, yet sirloin steak so at 30 cents in a hundred shops. The lamb list was 25 and hinds 32, yet some fine baby lamb legs could be had for 30 cents. It is no wonder the packers did not desire to enter the retail field. With a few small moves they have changed the retail situation, exactly when they desired change it, and not before. Building time has started, building time allay the farmer discontent and feed him up a little to a quiet, until ready for another blood letting at some auspicious future moment. The war things have been going the finances slightly uneasy, have passed the word to the meat packers and food controllers to ease up or the rules of play the game may be changed.

These things exist, not as a permanent fact or as a permanent state, but today these things exist, viz.: Ten cent hogs and 50 cent corn in spots, eight cent steers and good 30 cent steers, cheaper clothing and shoes, and better chance for a 1922 farm profit than last year. Instead of the old being 50 to one against a cost of production price they are yet only about five to one and may be even up with 90 days if affairs still progress. Even the range cattlemen, with good year certain, have a chance to get 75 to 100 per cent of their production cost instead of the 30 to 50 per cent prevalent for the past two years. Broken cow and sheep men, ex kings and barons of great ranges, like the hounds are commencing to sample the wind for a taint of activity and chance to come back.

A recent government investigation showed that retailing of meat today costs 5.86 cents per pound as compared to 3.19 in pre-war period. The "curtailed consumption" and less volume and less export propaganda, generally promulgated as the reason for low prices have been forebodingly shown to be bunk, with export greater than the pre-war period, and abattoir slaughter greater than the pre-war period. Neither export nor meat kill equals the war period total but they exceed the pre-war total. From a scale of two per cent and pre-war for producers, 14 per cent above the packers and 42 per cent above for retailers, a rough guess would put today's prevalent prices of range cattle at \$30 for two year old steers or cows (the ancient standard was a two year steer or cow at equivalent price), or a pre-war price; fat cows and steers 20 per cent over pre-war prices, the average packers' return 10 per cent over pre-war and retail meat about 35 per cent over pre-war. I distinctly state the above is guesswork, the beef price is temporary as yet, altogether impossible to check, but truly noble plan of distribution seen in progress, whether it be to effect temporary diversion or to actually give a little impetus and relief to our livestock circles. Our farming citizens are not now, after hearing



horse profits



No. 2 of a Series

Published Monthly in the Interests of Better Horses and Better Harness

Louis Lichtenberger, Editor

BACK TO THE HORSE IS FARMER'S EDICT

Investigation Proves Economy of Horse Over Other Forms of Power on Farm---Dept. of Agri. Report

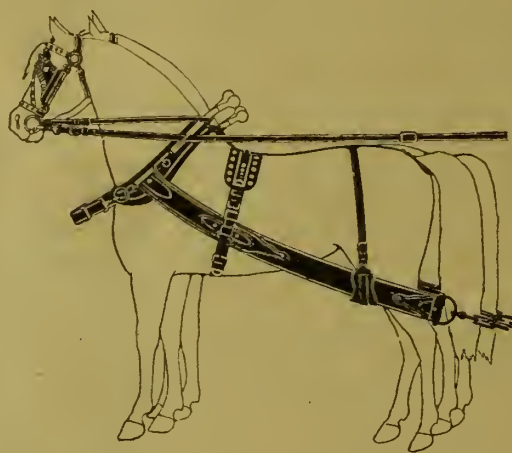
The farmer's truest friend—his horse—has served him faithfully for long years, while experimentation with mechanical machines to supplant the horse has proved that the horse is, and always has been, the cheapest, most flexible power supply on the American farm. In a recent survey made by the U. S. Department of Agriculture on 286 machine-equipped farms, a record of all the work done during the year, both with machine power and horse power, was obtained from each farmer. It was found that the draw-bar work furnished by the horses totalled 70% and the cost of feeding each horse was only 45c per day. This survey was made at a time when feed prices were high. The low initial cost of horses, their steady market value, their low cost of upkeep, their ability to serve the farmer economically, are only a few of the reasons why the farmer is so thoroughly "sold" on horses.

New Book Gives Many Amazing Horse Facts Copy FREE

Our research department has gathered from authoritative sources interesting facts about horses, their cost, upkeep, replacement value, etc. The book also gives valuable statistics of interest to every California farmer. It illustrates the different types of horses and also shows different kinds of harness sets in popular use throughout California. We will gladly mail you a copy upon request.

465,826 HORSES, MULES on California Farms

There is an average of 4 1/2 heads of horses and mules on every California farm, with a total valuation of approximately \$43,000,000. The total number of work animals in use in America is approximately 26,000,000, and the number is steadily growing.



Your Horses Are Worthy of Good Harness

California farm horses should be equipped with the finest harness obtainable. In this State the number of horse working days is about twice that of other states, and therefore the harness is subjected to double service. Superior Brand Harness, produced by Lichtenberger-Ferguson Company, embodies the necessary reserve strength and inherent durability to give longest wear. Years of first-hand observation and testing have enabled us to produce harness that meets every need of the western horse owner. There is a dealer in your locality handling Superior Harness. Write for his name.



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Lichtenberger-Ferguson Company

Los Angeles Street at Third Los Angeles
MAKERS OF FINE HARNESS SINCE 1900



SEMI - DISPERSAL SALE
50 REGISTERED
JERSEYS
HYNES, CALIF.
at Rhoades & Rhoades Sale Pavillon
Tuesday, May 9, at 10 a.m.

Here is the opportunity registered Jersey buyers have been hoping for for months past—to find available for purchase a high class lot of Jersey females.

This sale includes every cow and bred heifer in the well known herd of GEO. W. THOMAS & SONS, Arlington, Calif., also the two herd sires. Mr. Thomas and his sons are retaining only their unbred heifers and heifer calves as foundation for their future herd.

THIS IS A HERD OF SPLENDID INDIVIDUALS, IN EXCELLENT PHYSICAL CONDITION, THE ENTIRE HERD IN MILK AVERAGING 38 LBS. BUTTER FAT PER MONTH AT THE PRESENT TIME.

The entire herd was recently tested by a Deputy State Veterinarian, and not a single animal responded to the test. Every animal guaranteed to be a breeder and sold subject to tuberculin test by the buyer.

TERMS OF SALE: Responsible parties may arrange for credit on basis of one-third cash, balance in three, six and nine months before sale with California Breeders Sales and Pedigree Company.

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N.B.—Old Style Powder and Pill Vaccines still made
for those who prefer them.

the many vain promises like that of war finance relief, etc., and government kindness, quite ready to take anything for granted, and all of us are prone to examine very closely anything that appears like relief in order to ascertain if there is possibly a concealed tarantula in the bunch of bananas.

Possibly the darkest cloud that keeps the damsel, Miss Prosperity, from our midst, is the taxation burden, and in this connection it is interesting to surmise the species of wampus cat our estimable politicians are creating. It is a fact that most of the progressive political usage that now is prevalent (which usage spelled the end of the private political boss) was born from rural communities that were oppressed by something.

Study the enlightened and public spirited utterances of the platforms of both parties, and the majority of its doctrine was first formulated in some hamlet in Kansas or Oregon or somewhere else, by some populists, progressives or some other new ismists in the political line. Undoubtedly something will be reaped for the insistent burden of political gangsters of this nation keeps adding in taxes and useless expenditures. If the Washington clique had spent billions upon transcontinental paved highways and great land and water improvements which would have created a definite future asset and given employment to idle millions there would have been little or no criticism, but the billions have been spent and are being spent and for nothing in which the average citizen can see any good.

Because it seems that these hard times are passing without any violent upheaval it is the more significant that there is within the minds of the thinking and leading agrarians and other citizens a definite intention to make repetition of the hardships suffered during the past few years impossible. Just how this is to be done they do not yet know, but here and there men are quietly talking and writing about certain phases and facts, and it is these men who will be in action later. Many of the pre-war stalwarts who holed up during the war, did what they could but admitted the younger men probably knew better how to do it, are coming out of their seclusion. I see the same disposition in cattle and other associations, in farm bureaus, etc., some of the actors are gathering information and steam, and these are not always the present limelight leaders. The utterances of a national light in cattle circles was fully described by one of these thinking rebels, as "flapdoodle with a large fine sounding ring" in a recent letter to me. I know many of these rebels who infest livestock circles, and they are growing in number, north and south, here and there. Some day there will be an agitation in cow circles with a group action that will cause those who think they are "leading" and are sure they are "controlling," a great surprise. What's true in cattle applies to many lines of farm produce growing and many producing associations.

"By their fruit, ye shall know them," and California has put forth some very fine cooperative producer examples. As the Hebrews expected a Messiah, so does the farming world expect California to produce a regular, practical working relief plan of marketing and safeguarding farm and livestock production.

The next decade will be an interesting period, probably a money making period for many folks, and certainly a less difficult period for the California farmer than these last two years have been.

SOUTHERN LOS ANGELES COUNTY
COW TESTING ASSOCIATION

March test: John Van Ruiten, 3.96 per cent, 50.7 butter fat; J. Verberg, 3.87, 50.2; Fred De Vries, 4.5, 49.2; Wilber Bros., 3.6, 48.6; S. W. Bockema, Gains, 5.35, 45.4; Smith Bros., 3.9, 44.1; Trail Bros., 3.7, 43.9; Geo. Webb, 4.1, 48.2; Paul Taylor, 4.1, 47.0; J. W. 4.2, 43.3; C. V. Harris, 3.67, 42.8; W. Zajtstra, 4.15, 40.3; J. H. Leahy, 4.36, 38.9; M. Howie, 4.98, 38.8; Paul Lussman & Co., 4.1, 36.1; R. L. Palmer, 3.77, 35.2; H. J. Wiesel, 4.85, 28.2. First and second highest cows in association in pounds butter fat for month owned by John Van Ruiten, 85.7, 82.7. Highest average test of herd, J. W. Gains, 5.35.



*"It is as Wasteful
to Milk by Hand
as to cut Grain
with a Scythe"*

The Empire Milker saves labor, produces cleaner milk and increases yield from each cow

ONE of the great farm authorities recently stated that it is as wasteful for the farmer who has six or more cows to milk by hand as it would be for him to cut a field of grain with a scythe.

Most users of the Empire Milking Machine know how true this statement is. These progressive dairymen have studied the question of milk production and have found that with the Empire Milker, they can reduce their labor cost 50%; they can produce Grade A certified milk and keep their bacteria count down to a minimum far below legal requirements; they increase the milk production from each cow, for the Empire has a beneficial effect because of its regular, soothing action.

No dairyman who has six or more cows can justify milking by hand. Every time he milks his herd, he loses profits which belong in his pocket and which the Empire Milker would put there.

The Empire is now selling at the lowest price since it was first placed on the market more than a decade ago. Write today and find out how much you can save by installing the Empire on your farm. Ask for catalog 52M

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A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

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Hampshire Sheep
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HOLSTEIN *Fred Hartsook* CATTLE
RANCH

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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Safe, sure prevention and treatment
stops infection—heals tissues.
No poison, acid or oil. Simple—cheap.
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Smaller Crowds but Better Exhibits at U. C. Farm Picnic

By R. P. Royce



THE fourteenth Annual Picnic was held at the university farm, Davis, Saturday, April 29. It was generally conceded that this year's event was better conceived and staged than in former years but the selection of the date proved unfortunate, as it brought the picnic into competition with several May Day and rodeo celebrations in nearby towns. As a consequence the attendance was smaller

than has been registered in several years.

A successful effort was made to make the many educational exhibits and demonstrations more available to the visitors. In former years these have been scattered about the campus, and unless one was familiar with the location of the different departments considerable confusion was experienced in finding what one was most interested in. This year most of the demonstrations and exhibits were con-

centrated in centrally located tents. In addition to the centralized exhibits all the divisions maintained open house and thus provided additional entertainment.

The livestock exhibits were in a large tent and included representatives of nearly all the leading breeds from the herds and flocks of the animal husbandry division.

Another tent covered an impressive lot of exhibits from all the other divisions. Home gardens, orchard and field crops, an extensive weed exhibit, agricultural machinery, the dairy industry, and veterinary science all came in for attention.

The morning program as usual was given over to the livestock judging and fitting contests participated in by university and farm school students. In addition a judging contest was provided for high school teams. These contests have developed into important events and furnish stimulus and enthusiasm for the boys. During the morning several athletic events, including a baseball game, were staged.

Following the noon hour, during which the visitors spread their lunches under the campus trees, came the parade, always the big feature of the day. This year's parade compared well with parades of former years and differed but little in extent or original features. Throughout the day the crowds were entertained by radio concerts and dancing was provided.

Saturday was the first opportunity agricultural California has had to become acquainted with C. B. Hutchison, the new director of the Davis branch of the college of agriculture, and judging from remarks overheard, the visitors came away with a mighty fine impression. Hutchison fully appreciates the fact that he has a man's size job, but comes to his new work with enthusiasm and a record of past accomplishments that presages success. Certainly he has a united faculty behind him and the good wishes of all.

Since last year an extensive building and improvement program has been started which includes a magnificent creamery building, a modern horticultural building, new water and irrigation provisions, a mile or more of new walks and considerable road improvement.

The winners in the judging and fitting contests follow:

The perpetual trophy donated by the regents was won by the Esparto union high school. The trophy for sheep judging went to Woodland high school; hogs, Esparto; dairy, Antelope Valley; beef cattle, Esparto; horses, Salinas; highest individual stock judge, Ernest Clooney, Esparto; high man in university contest, G. Sheesley. The permanent cup donated by the Sacramento Bee also went to G. Sheesley.

Prizes for best fitted Holstein cows were awarded by the California Holstein Breeders Association. H. C. Smith won first; P. J. Van der Merwe, second, and G. Sheesley, third.

First prize for Ayrshires was won by W. Ford; second and third, H. C. Smith and W. D. Auerbach.

The California Jersey Cattle Club awarded three prizes: J. G. Brown, first; J. E. Coke, second; H. C. Funder, third.

The California Wool Growers Association awarded three prizes for fitting all breeds of sheep. J. Harper, first; W. N. Reusser, second; W. B. Houghton, third.

The Shropshire sheep prize was awarded to J. Harper. The Hampshire sheep prize was donated by men at the university farm who are interested in the development of the breed. It was won by W. B. Houghton.

The gold medal for the best fitter of all breeds of hogs was given by Ralph Dunham, herdsman at the university farm. It was won by F. Clutter.

The prizes for Poland China hogs were won by F. Klutter, who took first, and H. Sylvester and W. N. Ruesser tied for second.

The California Duroc-Jersey Breeders Association awarded three prizes: F. O. Blake, first; R. Pennoch, second; S. H. Freeman, third.

The Western Berkshire Congress gave three prizes: A. W. Boon, first; H. K. Luke, second; F. Klutter, third.

The Beef Cattle Sweepstakes prize (gold medal) was awarded by Alec McDonald, herdsman at the university farm, and was won by D. R. Fletcher.

The California Shorthorn Breeders Association awarded three prizes, L.



BESS CREOLE BELLE 3d, First Prize 1920 Livestock Show, Los Angeles

The Holstein Sale of the Year

BURR FARM DISPERSAL

140 REGISTERED
Holsteins

SELLING AT

Burr Farm, Los Angeles
June 1st and 2nd

This Is the Opportunity of the Entire Season to Buy
Tuberculin Tested Cattle of Excellent Breeding,
Good Type, and With a Large Number of High
Record Cows and Heifers, Both Short
and Long Time Tests

King Korndyke Pontiac 20th, the Famous \$12,000 Son of Miss Valley Mead De Kol Walker, Will Be Sold; Also a Beautiful Group of His Young Daughters and a Considerable Number of Cows and Heifers Bred to Him

The sale list includes a large number of A. R. O. cows and heifers with records up to over 33 lbs. butter in seven days, many with good yearly records.

A large number of daughters of Sir Veeman Korndyke, sire of the world's record heifer Maida Veeman Hengerveld, will be sold, a remarkable group of heifers.

Every animal positively guaranteed to be a breeder; every animal tuberculin tested by a Deputy State Veterinarian and sold subject to retest by the buyer except as announced in the sale ring.

WRITE FOR CATALOG NOW

Auctioneers:
RHOADES & RHOADES
Los Angeles

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Calif.

EDGEMOOR FARM DISPERSAL

Owned by G. L. Strobeck, Santee, Calif.

71—REGISTERED GUERNSEYS—71

Selling at Rhoades & Rhoades Pavilion, HYNES, CALIF.

Wednesday, May 17, at 10 A.M.

In dispersing his herd of registered Guernseys, Mr. Strobeck is affording buyers an opportunity to buy from a herd whose home is one of America's most famous breeding farms, due to honors won both in the greatest shows and in the official production lists of the American Guernsey Cattle Club.

IMPORTED COWS AND THEIR OFFSPRING

The offering includes imported cows of most approved breeding, and daughters of imported cows by sires of equal worth. The offering of such cattle of the Guernsey breed is so rare in California as to make this event one of utmost importance to prospective buyers.

A SPLENDID LOT OF HEIFERS

A considerable percentage of the offering is made up of bred and open heifers, the class of females that is in strongest demand for foundation purposes.

BRED TO OUTSTANDING SIRES

Many of the choice cows and heifers in the sale are in calf either to MASTERPIECE OF EDGE-

MOOR or to DEANIE'S MAROSE OF APPLE-TREE POINT, two of the best known young sires of the breed, both of which command widespread esteem because of their rich breeding and great individual merit.

14 BULLS IN THE OFFERING

The fourteen bulls in this sale are all old enough for service, most of them ready for heavy service, presenting a rare opportunity for selection by breeders and dairymen alike.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers:

Rhoades & Rhoades, Los Angeles

SALE HEADQUARTERS will be at the Angelus Hotel, Fourth and Spring Sts., Los Angeles, from which point transportation will be provided to sale for those who wish it.



He lost enough cream every six months to pay for a DE LAVAL

"I had a cream separator that I had been using and thought was all right. I have five cows and had been selling cream and feeding skim-milk to hogs as fast as separated. A few days ago I sold the hogs and left the skimmed milk in the can. The next day I noticed cream on it. I was so surprised that I skimmed it off by hand, churned it, and made one pound and six ounces of butter.

"It took little figuring to show how much cream I had been feeding my hogs each day. I figured I had paid the price of a No. 15 De Laval every six months."

This letter is typical of many letters we receive.

Perhaps this same thing is happening to you and you don't realize it. If you are using an old or partly worn-out separator, or are skimming by hand, undoubtedly you are wasting enough cream to pay for a De Laval in a short time. The waste of cream occurring every day is criminal — more than enough to pay for the entire output of the De Laval Factory.

Most any kind of cream separator will do fairly good work the first few months, when it is new. But if it is cheaply made, after the first few months your trouble will begin.

And the worst of your experience with such a machine will not be the fact that it wears out quickly or that it runs hard, or that you are piling up repair expenses, but that you are losing a lot of butter-fat.

Why take chances at all when you can get a De Laval which has won hundreds of prizes, thousands of contests, and is used by millions? Experience has proved that it is the best cream separator that money can buy, and in the long run the cheapest.

Order your De Laval now and let it begin saving cream right away. See the local De Laval Agent, or if you don't know him, write to nearest office.

De Laval Pacific Company
61 BEALE STREET
San Francisco, California
Sooner or later you will use a De Laval Cream Separator and Milker

W. Davis taking first; A. E. Lyons, second; R. Mahnsten, third.

The California Hereford Breeders Association awarded three prizes; D. R. Fletcher, first; T. B. Carter, second; P. W. Hunter, third.

The American Shire Horse Association, Springfield, Illinois, awarded three prizes; L. C. Jones, first; C. L. Cairnes, second; A. C. Adams, third.

The Percheron prize was awarded to W. E. Caswell.

ALFALFA MAKES BETTER HAY THAN SILAGE

As a silage crop alfalfa is not altogether a success. In fact, one reason corn is so popular for silage is that it yields a large tonnage at one harvesting, something which can not be said of alfalfa. Alfalfa is somewhat difficult to handle with ordinary silage machinery and is hard to pack properly in the silo. It often becomes moldy and slimy, as do various other legumes when put up in this way. Special care must be taken in packing this silage because of the high percentage of protein in it, which causes it to putrefy instead of ferment when too much air is present.

There are times, however, when alfalfa may be made into silage, for instance, when weather conditions are unfavorable for the curing of hay. Good silage may be made from partially wilted alfalfa if it is cut fine enough and well packed. If it is partly cured before running through the cutter some added water may improve the silage, but experience has shown that a "washy" silage may result if freshly cut alfalfa is put up while wet with rain. Under reasonably favorable conditions alfalfa can be made into hay at less expense than into silage.

Alfalfa and corn mixed make good silage. The corn adds the sugar and starch necessary for the right fermentation. For the same reason the mixing of sorghums or small grains with the alfalfa improves the silage. The addition of crude molasses to alfalfa also increases the chances of producing a good quality of silage. The United States department of agriculture has made some preliminary experiments which indicate that good silage can be made by mixing straw of any of the small grains with alfalfa, if the mixing is done as the material passes through the cutter and water is added to make it pack well.

Although alfalfa is not an ideal silage crop, it makes a nutritious silage when properly handled.

CAMPAIGN AGAINST TUBERCULOSIS

Tuberculosis, the worst enemy of the livestock industry, is now definitely slated for ultimate eradication, the plan of attack having been already laid out and successfully demonstrated by the bureau of animal industry of the United States department of agriculture. The success of the different phases of the plan and figures showing the progress made are given in the annual report of the bureau recently issued. In the beginning of the campaign, which began four years ago, most of the work was devoted to cleaning up and accrediting individual herds, but now that sentiment has been sufficiently aroused definite areas in various states are being freed of the plague, and it is shown that its eradication is as feasible as the cleaning out of the cattle tick in the southern states.

The first public sale of Herefords by H. M. Barngrover, since his removal to Stockton, was held at the San Joaquin County fair grounds April 20. Although 40 bulls and ten females were cataloged but 15 head were sold. The prices ranged around \$100. Lack of condition militated against higher prices and wide appeal.

One hundred and seventy head of Holstein cattle constituting the F. H. Harvey herd were dispersed at public auction at the Harvey ranch near Galt, April 26-27, for an average near \$100.

The annual ram sale sponsored by the California Woolgrowers Association will be held at the university farm, Davis, June 15.

At a meeting recently held at San Francisco the offer of the Fresno

County chamber of commerce to cooperate in the holding of the Second Annual Pacific Slope Dairy Products Show was accepted, and the show will be held in conjunction with the district fair at Fresno, September 23 to 30, 1922. The fair management has agreed to turn over one of the modern show buildings on the grounds for the machinery and products exhibits, and the board of supervisors has agreed to

erect the latest design in sheds for the exhibit cattle. Other Pacific Slope states will be invited to participate in the show.

E. R. STALDER NUEVO, CALIF.

Will Disperse His Entire Herd of
50 Registered Holsteins

At HYNES, CALIF.

(Rhoades & Rhoades Pavilion)

Thursday, May 11
at 10 A.M.

MANY A. R. O. COWS with official records up to over 32 lbs. butter in 7 days.

MANY COWS AND HEIFERS bred to King Pontiac Netherland Segis 3d. This will be the very last opportunity to buy females bred to this great proven sire, now dead

DAUGHTERS AND GRAND-DAUGHTERS of King Segis Pontiac.

COWS AND HEIFERS bred to King Segis Pontiac Aero, the youngest son of King Segis Pontiac. Such noted producers as Locust Terrace Gold Drop, Stanislaus Princess Cleopatra and others will appear in this sale. The calves they carry will be worth what the dams will probably bring.

GUARANTEED BREEDERS
NO TUBERCULIN TEST
CERTIFICATES

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AND PEDIGREE CO.

C. L. Hughes, Sales Manager.
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These free booklets on Farm Sanitation

tell you how to prevent disease among livestock and poultry and describe in detail the many uses of

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Parasiticide and Disinfectant

No. 151—FARM SANITATION. Describes and tells how to prevent diseases common to livestock.

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Write for these booklets.

Animal Industry Department

PARKE, DAVIS & CO.
DETROIT, MICHIGAN

KRESO DIP No. 1 IS SOLD IN ORIGINAL PACKAGES AT ALL DRUG STORES

Sir Prince Aaggie Mead



CONSIDER THE TREMENDOUS PRODUCTION AND DEMONSTRATED ABILITY TO TRANSMIT PRODUCTION ON BOTH SIDES OF HIS PEDIGREE

His sire, King Aaggie Mead, is a son of the 1,000 lb. foundation cow Aaggie Acme of Riverside, who produced the 1,331 lb. world's strictly official record cow, Aaggie Acme of Riverside, who in turn produced California's only 1,000 lb. junior 2 year old, Miss Aaggie Acme Burke.

His dam, Miss Valley Mead De Kol Walker, with two records above 1,000 lbs. butter in one year, and now making a yearly record that promises to exceed her previous best record of 1,113 lbs., is a daughter of the 1,011 lb. 4 year old De Kol of Valley Mead 2d, who in turn is out of the foundation cow, De Kol of Valley Mead.

HE IS BEING GIVEN HEAVY SERVICE IN BOTH OUR HERDS. KEEP ONE OF HIS SONS IN MIND FOR YOUR HERD SIRE.

Fred Hartsook
LANKERSHIM, CALIF.

OWNED JOINTLY BY

and A.W. Morris & Sons Corporation
WOODLAND, CALIF.

Bulk Handling of Grain and the Farm Bureau Elevator Corporation

BULK handling of grain was the very interesting subject of a talk given recently before the Capistrano center of the Orange County farm bureau by, Grant W. Kenney of the California Farm Bureau Elevator Corporation. The subject, being one that very much concerns the growers of the state, as well as of vital importance to the individual himself, brought out a large attendance. Representatives were there from El Toro, Riverside, Hemet, San Jacinto, Perris, Oceanside and Fallbrook.

Motion pictures and slides provided by the U. S. department of agriculture were shown to more thoroughly explain Mr. Kenney's subject. These were especially interesting as they brought out in a clear and concise way how this new method of handling grain may be put into use. In substance, Mr. Kenney said:

"About 18 months ago the new million bushel terminal elevator located on deep water at Oakland was taken over and since that time has been in operation as the Farm Bureau Terminal for the handling and exporting of our grain. As feeders for this plant we have started construction of a state wide system of bulk handling elevators located in grain growing localities and where impossible to install such plants, encourage the installation of portable car loading facilities and farm storage bins.

"Large concrete plants with up-to-date cleaning, mixing and handling machinery were built and operated last year at Montpellier and Patterson in Stanislaus County and San Lucas in

Monterey County, representing a combined expenditure of over \$100,000 subscribed and paid for by the farmers in these localities. In dozens of the grain sections they have adopted farm storage and portable contrivances which answer the same purpose with an outlay of but a very small expense.

"This year we have under construction a large cribbed elevator at Lincoln, Placer County, where an enormous quantity of fine quality wheat is produced, and also in contemplation several other plants in other grain growing localities varying in size and capacity from 25,000 to 60,000 bushels.

"In localities where funds are insufficient to install elevators we are encouraging the growers to install metal farm storage bins and portable loading devices, many of which are constructed to perform practically the same operations as a full sized elevator at much less cost.

"The grain can be harvested in bulk, deposited in these bins and after the first rush to market subsidies may be cleaned, hauled to cars and loaded for shipment, going through practically the same operation that the grain would go through, provided there was a 100,000 bushel plant located at the point.

"These combined car loading and cleaning devices have a handling capacity of from 300 to 1500 bushels per hour and range in price all the way from about \$300 to \$1,500, according to the size and handling capacity, while the farm metal storage bins may be installed for in the neighborhood of 20 to 22 cents per sack or for about

what the grower would save per sack on his first year's operations in handling his grain in bulk.

"Oregon and Washington have been changing to bulk handling during the past three years, and last year practically all of the United Kingdom vessels loaded at those ports were loaded with a percentage of grain in bulk,—many with entire cargoes in bulk.

"Buyers interested in sacks told us last season that ships would have to be coopered especially for carrying bulk grain, that they would have to be burlapped at a prohibitive cost of several thousand dollars per ship, while we find that for the past three years bulk loaded vessels have been plying the Pacific coast from the north laden with bulk grain, for years, loaded with the grain next to the skin of the ship and would have stopped for California grain had we the facilities we now have on San Francisco Bay.

"The largest warehousing concern in one of the prominent grain counties of the state told us last year there would be nobody to buy our grain in bulk, but strange to say, this concern itself was the largest buyer and paid the best price for bulk grain in that county last year.

"In contracting barley with our San Francisco export concerns, foreign buyers request same made on basis of what is called the 'California Barley Contract,' which reads, 'either in sacks or in bulk, sacks to be weighed as barley.' Therefore it is up to the California shipper as to whether he wants to ship his grain in bulk at the same price.

"This year the California Farm Bureau Exchange will be in position to handle your grain direct to foreign buyers, charging but a small overhead for the service to defray expenses, and as the foreigner would just as soon have his shipments in bulk,

this competition is going to have an influence in forcing all grain to a bulk handling basis in consequence of the expense of handling it in sacks.

"At the present time the exchange will act as the growers' selling agent in contracting the growers' grain on basis of from one to three years handling. The grower may pool his grain with others and thereby obtain an average price with those participating in the pool, or he has the privilege of setting his own figure in case the market will permit. The only difference between the way he is now disposing of his grain and the way he would dispose of it should he become a member of the exchange is that he contracts to sell all of his grain, when he does sell it, through the exchange of which he is a member.

"Arrangements have been made with foreign connections so that when this grain is sold the only items deducted from the price are the small charges that the exchange makes for operating and the \$1.00 per ton that is paid the foreign connection making the sales for us abroad, making a combined charge of about \$1.50 or \$2.00 per ton all told, which covers the entire middle charge between the producer and the consumer.

"One of the main things that last year's experience taught us is that with storage on the farm, the grower is in a position to ship either in bulk or in sacks and in any direction that the best prevailing market might be. As the greater number of farm storage bins on the market have a combined sacking arrangement attached to each bin sacking can be done from these storage bins much cheaper than in the field.

"If his grain is stored on the farm and the best market for the grain is north, south or east, it is in much better position than it would be if he had the grain stored at terminal points, on which must be paid the freight from local stations.

"This, because the freight rate from all California points to the East is the same.

"Should the grower wish to borrow money on his grain stored in metal bins on his farm, the banks advise us that this may be accomplished with practically the same ease that it is borrowed on grain in warehouses that are always subject to an enormous fire risk and rat destruction. If the grain is housed in metal bins there is absolutely no risk from fire and rat-tage and the grain is kept in much better shape than in the average warehouse where rats and vermin abound."

CATCH THE GOPHERS

One of the boys in the Cultivator family, A. B. Zinn, Ojai, Ventura County, writes: "I am only a boy but make it my work to catch the gophers. With three traps I caught more than 40 gophers and had but one failure and did not lose a trap. I fastened a two foot piece of bale wire to each trap, then made a ring at the other end and drove a 15 inch stake through the ring about six inches into the ground." Mr. Zinn further suggests that traps be kept in best of condition, bright and clean, and that one should stay by the trap he finds successful.

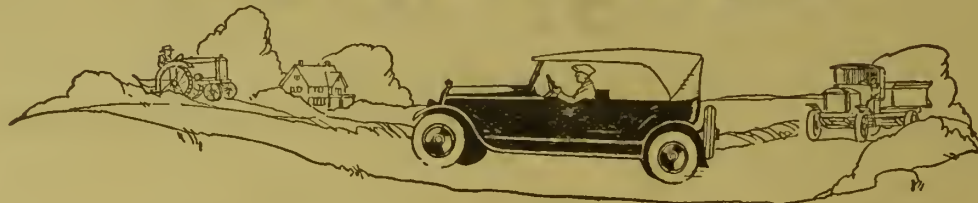
TEHAMA COUNTY FARM BUREAU MEETINGS

Regular meetings for the centers of the Tehama County farm bureau: Johnson-Reeds Creek, May 8; Dairyville, 10; Antelope, 11; Oak Park, 12; El Camino, 15; Red Bank, 17; Bend, 19; Richfield, 22; Stanford, 24; Liberal, 25; Flounoy, 26; Bowman, 27; directors, Red Bluff, 22.

Farm home department meetings: Antelope, May 9; Oak Park, 11; Henleyville, 12; Vina, 16; Richfield, 17; Dairyville, 18; North Capay, 19; Bowman, 23; Squaw Hill, 24; Flounoy, 25; Reeds Creek-Red Bank, 26.

Grain and hay farmers are being requested by the California state board of forestry to protect their fields from fire during the dry season by cutting hay strips and turning a few furrows of ground. Farmers of large tracts are asked to cut these hay strips through their fields so that should a fire start it can be confined to a given area.

McQUAY-NORRIS PISTON RINGS



Increase Power—Save Gas and Oil

Piston rings wear, just as tires do. Worn and leaky rings waste motor power and money. They should be replaced with McQuay-Norris equipment. It will increase power, save gas and oil, and decrease carbon troubles in any make or model of passenger car, truck, tractor or stationary engine. The McQuay-Norris line is complete for every need. Through the addition of



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WAINWRIGHT
PISTONS & PINS

McQuay-Norris Wainwright Pistons and Piston Pins to the McQuay-Norris Piston Ring line, you can now secure for your gas engines complete McQuay-Norris-made Pistons, Piston Pins and Piston Ring equipment.

Send for Free Booklet—a valuable explanation of the relation of piston rings to gas engine operation. Address Dept. AB

McQuay-Norris Manufacturing Co.
St. Louis, U. S. A.

LEAK-ROOF—an exclusive two-piece design, preventing loss of gas and compression. Gives equal pressure at all points on cylinder walls. For all piston grooves except top, which should have Superoyl. Each ring packed in a parchment container. Price per ring—

\$1.25

In Canada, \$1.50



Superoyl—Keeps lubricating oil out of combustion chamber. Collects excess oil on each down stroke of piston and empties on each up stroke, which ordinary grooved rings cannot do. Each ring packed in a parchment container. Price per ring—

\$1.00

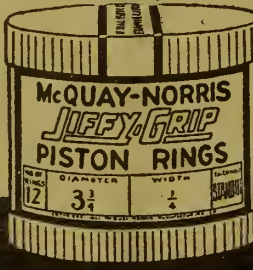
In Canada, \$1.25



JIFFY-GRIP—a one-piece ring. Non-butting joint which can be fitted closer than ordinary step cut—velvet finish—quick seating. "Seats in a jiffy." To keep them clean and free from rust, each ring is packed in an individual glassine envelope. Price per ring—

50c

In Canada, 50c



Snap Rings—of the highest grade. Raised above the average by McQuay-Norris manufacturing methods. Their use insures all the satisfaction possible for you to get from a plain snap ring. They are packed twelve rings to the carton and rolled in waxed paper.

And Snap Rings of the highest grade



Made of Electric Iron

GRAIN SORGHUM HARVESTER

The problem of harvesting kafir and all sorghum grains has been a perplexing one. The uneven lengths at which the grower found the heads made harvesting by hand necessary,

the price at a point where it is included with the profitable crops of the state. A California firm, the Ventura Implement and Manufacturing Company of Ventura, for many years manufac-

the greatest services in sparing farmers disappointments and useless expenditures. — Journal des Debats, France. Shipment of mutton from Arizona starts with May.

A million and a half people visited the forests of California last summer for recreation. Forestry officials point to this fact as a reason why care should be used with fire so that our forests will not lose their attractiveness.



A Successful Grain Sorghum Header
Ventura kafir header operated by tractor power, harvesting three rows.

and this method has always been expensive. It has been so expensive, in fact, that much profit that would ordinarily accrue from a good crop of kafir has been spent for labor to harvest. California has thousands of acres of land that can be profitably utilized in the production of sorghum grains. With a rapid increase in stock and poultry the consumption has kept

Save Your Orchard with Woolner's California Smudge

An entirely new principle for saving orchards from frost at a low cost. Does not need expensive storage facilities, as it is a combination of combustible material treated with crude oil. It is not a liquid. It is put up in bags and can be stored anywhere, ready for use whenever needed by simply dumping same into our especially designed smudge pots. It can be used in any smudge pot on the market, but not to as good advantage. It can be used in old pots even though perforated by rust. It will burn five to eight hours and throw off a good heat, and if desired will produce a smoke screen. Heat or smoke can be regulated as desired.

There is a saving of 50 per cent by using Woolner's California Smudge over any other smudge fuel now on the market. Price is \$1.25 a bag, terms 50 per cent cash with order, balance terms to be agreed on. Special discount for cash. Our especially designed smudge pots are 75c each, complete with pan. Plain pots 40c each. Pan 10c extra. Above prices F. O. B. Los Angeles. We sell by mail only. Have no solicitors and will send samples on request.

Under ordinary conditions it will require about 10 bags to an acre of Woolner's California Smudge, and about 50 pots. If not used one season his smudge can be kept in storage indefinitely, as it does not deteriorate, or evaporate like distillate. One man can handle any moderate sized acreage. Minimum shipment, 10 bags. Kindly arrange for early shipment to avoid delay. — WOOLNER OIL CO., 951 W. Fourth St., Los Angeles, Calif.



Novo Hoists for the Ranch In Stock

Novo "Handy" Hoist
Called "Handy" because they're the simplest thing on the place. COME AND SEE THEM or write for details.
SMITH - BOOTH - USHER CO.
Machinery, Industrial and Contractors' Equipment, Supplies
SAN FRANCISCO LOS ANGELES

turers of California implements, bean threshers and bean tools, has developed a kafir header made in two sizes that did remarkably successful work with kafir and other grains last season. This machine solves the problem of the uneven heads by a series of rollers running above and in front of a cutter bar. The rollers gradually fold the kafir stalks forward and down. Even with the cutter bar the stalks enter a finger table where a solid reel flips them back on a canvas elevator as the sickle clips them off. In the folding process the problem of cutting off the long and short heads at the heads is solved. Once cut off, the heads are elevated in much the same manner as other grain in other harvesters. At the university farm last fall the header gave a splendid demonstration, proving its dependability and practical application to the work.

It was possible to displace a large number of men cutting by hand in demonstrations last year. On Tacker Brothers' Ranch at Brawley the header cut two acres an hour in corn that made 2,500 pounds per acre. It was estimated that kafir could be headed with the header at a cost not to exceed \$1.25 per acre.

THE USE OF PLASTER AS FERTILIZER

New experiments have just been made by Director Zacharawicz of the agricultural service of the department of Vouchuse. The author has made a double observation relative to the employment of gypsum or plaster and the utilization of this fertilizer in associating it with others.

The author cites the happy effects of plaster fertilizer, especially when mixed with other mineral fertilizer, for grapevines. The formula with plaster would be as follows, per acre: Nitrate of soda 190 pounds, sulphate of potassium 165 pounds, superphosphate of chalk (?) 260 pounds, plaster 520 pounds.

On suppressing the plaster the grape crop was seen to diminish 664 pounds per acre the first year and 1881 the second year. The experiment is, therefore, convincing. Here are the conclusions of the author. Plaster is a valuable aid for the nitrification of organic matters; the addition to the soil of the sulphuric acid and the chalk which compose it is a source of fertility for soil which is poor in these elements. We must note, however, that plaster should not be employed alone. It must be mixed either with manure or with mineral fertilizers to avoid the exhaustion of the soil. The formulas for complete fertilizers which have given us the best results in our experimental fields were accompanied, for the fertilization of an acre, with 500 pounds plaster for grapevines, 250 pounds plaster for cereals, 500 pounds plaster for pasture, 350 pounds plaster for vegetables. All these experiments can render

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With the Watkins Specific Mileage Guaranty behind them.

Watkins Products standard for over 50 years.

Judge Farmer

THE American farmer is the best judge of values. His dollars represent bushels of grain, hours of toil. And he has learned to spend them wisely—to secure the best of values when he buys. For over 50 years he has been buying Watkins Products because nowhere else can he get better value for his money.

Watkins tires are built for the American farmer, for

long life and rough roads with hard usage. They deliver the maximum of service at the minimum of cost—the best value in the tire market. And they come to you with the double insurance of "Watkins Quality" and our unusual mileage guaranty.

Ask the Watkins Dealer who calls at your home about these tires; or send for our Tire and Auto Supply booklet.

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Established 1868 The Original
Largest and Best for Over 50 Years



Do You Irrigate?

The "Siphon System" saves water, saves money. The water goes over the ditch bank. Eliminates the need of gates or other obstructions.

Irrigating Siphons

Protected by U. S. Patents
are light, strong, durable. Easily primed. Easily moved. Shipped ready for use. No cost of installation.
A simple, practical, economical invention. New descriptive book of information and prices on request. Read what old customers say. When writing give full address and location for our field man. Ask about Our Trial Offer
IRRIGATING SIPHON CO. WOODLAND, CALIFORNIA P.O. Box 654

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The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4 1/2 cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Baby Chicks: When you buy baby chicks the big thing for you to remember is QUALITY, in both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery ORANGE COUNTY HATCHERY, Santa Ana, California.

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. County farm advisors, county agents, large, small ranchers, city people have for years bought these 180-290 egg Leghorns, Reds, Rocks, Minorcas, Anconas, Wyandottes, Andalusians, Ducks, Turkeys. They lead many egg-laying contests, are growing in popularity yearly. Why? ELECTRIC HATCHED, vigor, growth, winter-laying, profit, guarantee. All feel as this customer writes: "Count me among your boosters." Very low May, June prices. Smallest, largest orders welcomed. May chicks, turks grow quickest into profit. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

White Leghorn

BABY CHICKS

\$10 per 100

May, June, July

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box 6, Compton, California.

Baby Chicks during May and June. Prices reduced. Several open dates. Not too late to raise good pullets. R. I. Reds, Barred Rocks, White Leghorns. Write for circular. Brown Leghorn pullets ready for shipment now. Stubbe Poultry Ranch & Hatchery, Box 67E, Palo Alto, Calif.

Baby Chicks From Mature Heavy Laying Hens—White Leghorns from cockerels with trapnest record mothers, \$13.00 per 100, Barred Rock and Rhode Island Reds, \$17.00 per 100. One-third cash with order. Hawley's Hatchery, Route A, Box 315a, Lodi, California.

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose.

Brown and White Leghorn Baby Chicks; Rhode Island Reds from carefully selected heavy laying stock. Satisfaction guaranteed. Anderson's Hatchery, Modesto.

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

White Leghorn Pullets For Sale—400 pullets over two months old. Heavy laying strain and exceptionally well grown. Sierra Vista Ranch, Perris.

Pearl Guinea—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

BABY CHICKS

Every Day—Ducklings, turkeys, hatching eggs—dogs, cats, birds, rabbits, pullets.

Write for prices.

FANCIERS' EXCHANGE

610 So. Spring St. Los Angeles

BETTER HATCHED CHICKS

W. Leghorns, R. I. Reds. Our well-bred chicks, hatched under ideal conditions, will make producers for you. Free delivery by parcel post. Write for prices. San Diego Co. Hatchery, R. I. San Diego, California.

For Sale—10,000 Baby Chicks every week from California's finest breeding flocks. This season our chicks are hatching exceptionally well, stronger and larger than ever. Leghorns from the famous Craig breeding flock \$12.50 per hundred. Many leading ranches buy these to get new blood. R. I. Reds and Barred Rocks \$15.00 per 100; Light Brahmas 25 cents each. P. Cook Chick Ranch, 1717 Valley Blvd., Alhambra. We ship everywhere.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks, Barred Rocks, Rhode Island Reds, Single Comb White Leghorns. Book your orders now for February and later deliveries from our own stock. E. A. Fischer Poultry Ranch, Rte. 2, Compton, Cal.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. John L. Reed, Route C, Box 36D, San Jose, California.

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. Madera Hatchery, Madera, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

For Sale—Anconas exclusively, Hatching eggs and baby chicks. Exhibition and Utility. Write for prices. Richard Mitchell, 420 Grismos Ave., RR 2, Box 130, Burbank, California.

Black Minorca Baby Chicks hatched every Wednesday from our own Hoganized stock. L. S. Rogers, Cupertino, California.

If You Want Quality Chicks at Bargain Prices, read our advertisement on the market page. THE MISSION HATCHERY, Campbell, Calif.

For Sale—One pen Jersey Black Giants, cockerel and three pullets, August hatch, \$20. One pen July hatch, \$25. E. T. Palmer, 426 East I Street, Ontario.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. Cherry Poultry Yards, R. 1, 504a, San Jose, California.

POULTRY

White Leghorns—Eggs for hatching; 100% fertility guaranteed. Absolutely first class cockerels and pullets ready soon. Finest laying strain. Prices very reasonable. Send for folder "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, California.

TREES

FOR SALE

NAVEL AND VALENCIA

NURSERY STOCK,

NOT FROSTED.

W. B. Ames, 9th Floor, Merritt Bldg., 8th and Broadway. Phone 1156. Los Angeles.

Avocado Trees for Sale—Lyon, Dickey A., Fuerte, Pueblo, Ganter, Linda, Queen, etc. During the recent freeze my nursery escaped without the loss of a single tree. Only the leaves were touched. All my previous orders I can fill and still have many fine trees of the different standard sorts for sale. My trees are selling fast, so come early and secure the best. A. R. Rideout, Rideout Heights, Whittier, Cal. Phone 4971.

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

For Sale—Grafted walnut trees, also cit-rus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketcher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. Phone 75-W-1.

Mexican Avocado Seedlings for Sale: Any number up to ten thousand. Mathers' Avocado Nursery, Pasadena. P. O. Box 685. Phone Colorado 6044.

For Sale: Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 43110. Los Angeles.

For Sale—Royal Apricot and other decid-uous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

CATTLE

For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old males and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. Chas. Hubbard, Owner, Riverdale, California.

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor

Ridgewood Ranch—Registered Herefords Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdman Willits, Mendocino County, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

For Sale—25 young first class graded Holstein cows, bred to excellent pure bred Holstein bull. W. H. Nyswonger, R. C. Box 123, Hanford. Phone 7 F 4.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Bangrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

Registered Herefords—Anxiety IV strain. Breeding stock for sale. Chas. Rule, Duncans Mills, California.

TURKEYS

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 83A, Merced, California.

Mammoth White Holland Turkey Eggs—50c each. Chinese Pheasants, superior stock, eggs \$3.50 setting of fifteen. PAUSE PHEASANTRY, Fair Oaks, California.

Choice White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Robinson, Hemet, California.

Keys Ranch Turkey Eggs—Mammoth Bronze from \$25.00 per hundred to \$1.00 each. They are getting real turkeys. El Monte, California.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California

SEEDS AND PLANTS

SUDAN GRASS SEED

(The Great New Hay Crop)
First introduced in the United States 1909 from Sudan, Africa.
Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings.
Pasturage. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hog there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can. It will do in this climate. This seed grown on our farm and is free from Johnson Grass.
Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.
BOWMAN'S HDWE & IMP. CO.
721 J St. Sacramento, Calif.

Hubam Clover—Mr. Citrus Grower. Subsoil your orchard, add humus and nitrogen and have a green cover crop growing under your trees in June and July by planting Hubam clover now. The fastest and heaviest growing Legume Seed 99% pure by U. C. test. Prices reasonable. O. E. Lambert, Route C, Box 225, Modesto, California.

Sudan Grass Seed. Guaranteed absolutely free from Johnson grass and all noxious weed seeds. 18 cents per pound for less than 10 pounds. 14 cents per pound for 10 to 50 pounds. 11 cents per pound for 50 to 75 pounds. 9 cents per pound for 75 pounds or more. Delivered free. John Silbersack, Route 2, Orland, Calif.

For Sale: Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White), \$1 per 100. Ad 40c per 1,000 for parcel post order. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery. Jordan and Casey, Box 4 Manhattan Beach. Phone 4951 Redond.

Wagner's Giant Winter Rhubarb, 1 year old, per dozen 50 cents; 1 year old, per hundred, \$3.00; 2 year old, per dozen, \$1.00; 2 year old, per hundred, \$7.00. Currier Bulb Co., Santa Cruz, California.

4,000 Red Malaga Cuttings. Thompson Malaga, Emperor, Sultana, rootings and Muscats \$13.00 a 1,000. Seeds and Plant. Write for circular. Box 501, Fowler, California.

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000. E. O. B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

For Sale—Hanana Squash Seed, 50c per lb. T. J. Murray, 7050 Kester Ave. Van Nuys, California.

Sweet Potato Plants—Yellow Jersey V. Imbert, Norwalk, California. Telephone Downey 1186.

Plant Our Six Weeks' Potatoes—Earlier biggest producer known. J. L. Lawson, San Jose, California.

Sour Orange Seed, fresh from Florida. Immediate delivery. Milo Hunt, Whittier, California. Phone 250.

MACHINERY

For Sale—Rebuilt windmills, tank pumps, cylinders. Make galvanize tanks, 300, 600, 1,000, 2,000 gal. Our price will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 1 N. Main; Yds., 316 Yale, L. A.

For Sale—15 H. P. Fairbanks Morse portable gas engine with friction clutch good condition, price \$250.00 F. O. Santa Ana. W. A. Collins, Box 397, Santa Ana, California.

For Sale—2500 feet surface pipe, 3, 4 and 8 in. sizes, 18 1/2 ft. lengths. Save you money. Both new-used. Demmitt Co., 120 N. Main, Los Angeles. Bdw 3650.

For Sale—New Case Thresher, 22x36, for beans and grain, fully equipped. Bargain at \$900.00. F. A. Hackman, Watsonville, Calif.

One 75 H. P. Westinghouse Motor with starter and overload relay. One 15 H. P. Fairbanks Morse motor with starting switch. Drew Carriage Co., Ontario, Cal.

For Sale or Exchange—One Fuel Oil Engine 75 H. P. F. Wakeham, Santa Ana.

For Sale—One Hardie Sprayer never used. W. S. Coffin, Ontario, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex 80 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

For Sale—Duroc Jersey Boars—Constructively bred Durocs that are line breeders Defender Durocs from a long line of blood type ancestors. Clarence Scott Estate, Winters, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

WANTED

Wanted: Men With Spare Time to represent established California companies selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

Wanted—To trade—Jack 2 1/2 years old for stallion. W. A. Mordhorst, Fallbrook, California.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1678 W. 46th St., Los Angeles

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cut of many standard plants. Correspondence invited. The Kruckeberg Press, 23 Court St., Los Angeles.

FARM LAND FOR SALE

Williams Feels Justified in Inviting Home Makers for the Reasons: We have high-class land at moderate prices. Good climatic conditions, under which any kind of fruit will grow. Thompson Seedless and Muscat Raisin Grapes have been a success here for 30 years. Land on 15-year payments, with 3 per cent interest for first three years. Deep, rich soil. Come, investigate! At the Mid-winter Fair at San Francisco we took first award for best oranges grown in the state, and at the last State Fair took first award for best prunes grown in the state. We exhibited largest watermelons ever exhibited at State Fair. The largest lemon orchard in the world is in Colusa County. For information address Williams Chamber of Commerce, Williams, California.

198-ACRE MISSOURI FARM
4 HORSES, 2 COLTS, 12 CATTLE
Hogs, vehicles, implements included; near high school town; 100 acres productive tillage, spring-watered pasture; wood; 50 apple trees, other fruit; comfortable 6-room house, barn, 2 other houses and barns, poultry houses. Other interests compel sacrifice; all \$3200, part cash, easy terms. Details page 103, illus. Catalog 1200 bargains. FREE. STROUT FARM AGENCY, 331 HK New York Life Bldg., Kansas City, Mo.

A NEW DISTRICT FOR YOU
Sutter Basin is a new district with most of the conveniences of an old, established country. The soil, irrigation and transportation facilities are unrivaled. Here is the place for your farm—grapes, fruits, dairying, vegetables—anything you want to grow. Most liberal terms.
SUTTER BASIN COMPANY
304 California Fruit Bldg.
Sacramento, California

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, Oscar Lehner, 3120 Colton Avenue, San Diego, California.

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. E. M. Dyke, Real Estate.

25 Acres Citrus Land, 800 pedigreed navels being put out, plenty water, pumping plant \$7,500. Oscar Lehner, Owner—3120 Colton Avenue, San Diego, California.

For Sale—Ranch, 9 miles from town, on highway; 148 acres, house, barn; \$140 acre. Henry Strobel, owner. Motor Route A, Box 125, Oxnard, California.

For Sale—Bargain 70 acres near Galt. Alfalfa or vineyard land—50 acres planted to grain. Cash \$2,100.00. Baker, 309 Meridian Avenue, South Pasadena.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale: Good grape land, 20 acres \$225 per acre. No. 27 Shawmut, California.

MISCELLANEOUS

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Remstitching and Plotting Attachments; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

ROOFING MATERIAL

Roofing Paper—
Firsts, complete with nails and cement.
1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20.
Lead and Oil Paint.....\$2.20 a gal.
Roof Paint Special.....35c a gal.
Prompt Deliveries on Mail Orders.
ANGELUS ROOFING & PAPER CO.
764-766-768 So. San Pedro Street.
Phone Bdway 5401. Los Angeles, Calif.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT,
Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

NATIONAL MARKETING OF FRUITS

News dispatch from Chicago states that the Federated Fruit Growers, an organization to cooperatively market the country's fruit crop, was formed here April 28. Formation of the National Sales Agency is the result of the work of the producers' national fruit marketing committee appointed by the American Farm Bureau Federation to develop an improved marketing system for the fruit growers.

A temporary board of directors was named by the committee as follows: James Nicol, Michigan, president; S. Edwards, California, vice-president and acting general manager; W. Armstrong, Washington; Sheridan Baker, California; C. E. Durst, Illinois; B. F. Moomaw, Virginia; N. R. Peet, New York, and C. E. Stewart, Florida.

National standardization of fruit grades and a campaign to increase the consumption of all kinds of fruit will be two of the tasks undertaken, it was stated.

FIELD CROP PLANTINGS AT DAVIS

Field plantings at the University Farm, Davis, to provide seed for distribution next season have been made of White Federation wheat, Hard Federation wheat, Burt oats, Four Thousand barley, Tennessee Winter barley, Mariout barley and Yolo. Yolo will also be planted as an indicator crop on ground used for sunflowers and Honey sorghum last season, to determine the residual effect of sunflowers and sorghum upon succeeding crops. If sufficient rain falls in February a planting of Yolo will be made as an unirrigated or fallow crop. Choice Danish Sludstrup Mangel seed and Purple Top Swede seed is being obtained from Canada. In the new plantings of alfalfa, common alfalfa and Hairy Peruvian alfalfa will be compared from a pasture standpoint. A small area will be planted to Harding grass to determine its pasture value and to provide a paddock in which valuable stock may be turned without danger of bloat.

A new series of irrigation experiments will be undertaken investigating the duty of water with hemp, beans (Blackeye), Sudan grass, milo, honey sorghum and root crops. A small tract will be utilized for potatoes under several methods of irrigation. The agronomy irrigation area will be utilized in the further study of root crop production, the selection of Yolo, Milo and Indian corn, cotton, tobacco, miscellaneous trials of newly acquired seed, grass and forage plant testing, and the production of a large variety of crops for illustrative and teaching purposes.

EXPERIMENTS IN CHERRY POLLINATION

Extensive experiments in pollenization of cherries are being carried on in Wasco County, Oregon. Professor C. E. Schuster of Oregon agricultural college, a corps of assistants, County Agent Jackman and Horticultural Bureau Chief Nelson are in charge. It is expected that more than 20,000 individual cherry blossoms will be pollenized artificially from the several varieties of trees now known to be fertile. Records will be kept of each blossom.

It is hoped to bring out definite information regarding which of the new known pollinating varieties are the most fertile, especially upon such varieties as the Bing, Lambert and Royal Anne cherries, which are not only sterile themselves, but intersterile, or incapable of pollenizing other varieties.

THE EUSTIS LIMEQUAT

"Owing to the lack of acidity in Florida lemons and the high price of California lemons I believe the Eustis limequat will prove a good fruit for Floridians to grow for the making of summer drinks." Thus spoke a member of the Florida State Horticultural Society at its last annual meeting. This citrus novelty, a cross (as its name implies) between the lime and the kumquat, is quite hardy, more so than any lime, and is quite resistant to the usual insect pests and diseases common to citrus trees. The flavor of the fruit is that of the lime while the tree is much like the kumquat.

SELF STERILE PLUMS

Growers of plums on a small scale are warned that many varieties, notably the Satumas, are self sterile and will need another variety (Wickson in this case is good) planted nearby for cross pollination. Experiments with 18 varieties of common plums (not Japanese) proved that 11 were self sterile and only three were fully self fruitful, the four others being partially self fruitful.

The baby trees in our forests today must furnish the lumber and other forest products for our children since at the present rate of consumption our existing forests will meet the building program for only about sixty years. Fires must be kept out of the forests and from logged-off areas, however, if these young trees are to become big trees.

A column of smoke rising from a forest fire was measured by an aviator and found to rise 6,500 feet—a case of money going up in smoke.



Dollar for Dollar—

We know of no investment that will yield as high returns with as low first cost and annual upkeep as

Irrigated Vineyards in Southern California.

Growers are now receiving annually from \$250 to \$500 an acre for their crop.

\$450 AN ACRE

Planted, Including Cultural Care and Water For 3 Years

TERMS:
\$100 an acre down.
\$25 an acre a year for three years.
\$100 end fourth year.
\$175 end fifth year.
Interest on unpaid balance at 6 per cent.

If you desire an home in an orange grove or are interested in raising chickens, write for our "Hen and Orange" Booklet.

Our Vineyard Home Sites

are located in the heart of one of the largest proven grape districts, only 48 miles from Los Angeles.

Paved boulevards. Border trees fully grown. 21 electric trains daily. Motor busses every half hour. City conveniences.

Fontana Farms Company

406 Pacific Finance Bldg., Los Angeles, California

Fontana Farms Co., Los Angeles, California
Please send us your circular No. 3 on Grape Culture in Southern California.

Name.....
Address.....

You Can Use Universal Brand Sprays With Confidence

Universal Brand Sprays are specially made to save citrus groves from Red Spider, Citricola and Black Scale. Everywhere trees have been sprayed with Universal Brand products these destructive pests have been promptly controlled.

Here is the spray you should use now. It will clean your groves, and stimulate the trees so the fruit will mature earlier.

B. T. S.....15 lbs.	per 200 gal. tank.	B. T. S.....12 lbs.
TRIUMPH.....1 1/2 to 2 1/2 gals.		TRIUMPH.....1 gal.
K-SEEN GLUE.....1 lb.		K-SEEN GLUE.....1 lb.

(for citricola and black scale) (patented formulas)

The economy of Universal Brand Sprays is not realized only in the crops that are saved and bettered, but also in the purchase price. Our prices have always been consistently low.

Be sure to call on Mr. Herbert, our assistant entomologist, if you have a special problem regarding your grove. He can be found at our Los Angeles office.

Insecticide Department

BALFOUR, GUTHRIE & COMPANY

Paul R. Jones, Entomologist

Los Angeles H. W. HELLMAN BLDG. San Francisco BALFOUR BUILDING



Powerful Daggers of Steel

IT WILL PAY YOU TO SCRAP YOUR OLD HARROW AND BUY THIS

Every Farmer wants this harrow when he knows what it will do. No levers; no parts to get out of fix. Teeth can't fall out. These teeth slice through plowed fields like a knife. Pulls vertically and slanted back.

WILL OUTLAST THREE OF ANY OTHER TYPE

Write for circular California Plow Co. 140 Polhemus St. SAN JOSE, CALIF.

SPECIAL PRICE to introduce We pay the freight to any Main Line R.R. Point in California. WORTH DOUBLE \$39.75

2 sections—8 feet—60 teeth

When Writing Advertisers Please Mention the Cultivator.

Wipe Out Every Rat and Gopher

Amazing New Discovery Quickly Kills Them All. Not a Poison.

Rats, Mice, Gophers—in fact, all Rodents can now be wiped out easily and quickly. Imperial Virus will do it. This new discovery is a fluid, true Virus. Entirely harmless to humans, poultry, stock, pets, etc.



Infects Rodents only. Greedily eaten on bait. Sets up burning fever. The pests communicate it to others, and all die outside, hunting air and water. Imperial Virus is put up in sealed bottles, thus insuring full strength and potency. Only safe, sanitary method to overcome these pests. Protect your Poultry, especially Baby Chicks and Egg Hatches.

YOU CAN GET YOURS FREE

Here's how! Send \$1.00 today (currency, M. O. checks, etc.) and we will give you by return mail, postpaid, two regular, full sized (double strength) \$1.00 bottles of Imperial Virus. Use one to rid your place of these pests, and sell the other to a neighbor, thus getting yours free. Special inducements to represent us.

If more convenient, send no money, just your name and address to Imperial Laboratories, Dept. 435, 2110 Grand Ave., Kansas City, Mo. Pay postman \$1.00 and few cents' postage when two bottles arrive. Guaranteed to do the work to your entire satisfaction within 30 days or your \$1.00 will be cheerfully refunded.

Poultry Stock

Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

CURTISS POULTRY FARM

Phone 78-J-4

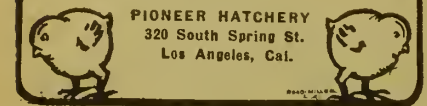
1st and Grand Ave. East San Gabriel, Calif.

Baby Chicks

Strong, sturdy Baby Chicks that mature early. Chicks from the best laying strain. These are the money-makers when winter egg prices soar. Our experience hatching millions of chicks covers 16 successful years. Ship to anyone within 72 hours of Los Angeles. A full count of live chicks guaranteed at destination. Get your order in now—we are booking future orders. Incubators, brooders, feeds and supplies.

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PIONEER HATCHERY
320 South Spring St.
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Baby Chicks

We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. All popular breeds: Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc. Also our famous Oregon-Corvalls White Leghorns. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner Ducklings, Mammoth Bronze baby turkeys. All kinds of pullets supplied—anytime. Incubators and brooders. Careful attention to every order, large or small. Send today for prices.

REDWING HATCHERY

2030 East Florence Avenue
Los Angeles, California

Sicilian Buttercups

EGGS—CHICKS—STOCK

No other fowl combines so many desirable characteristics. Adapted to farm-yard or back-yard.

Descriptive circular and price list on request.

A. L. CAVANAGH
Sawtelle, California

Try the Coulson

System of Feeding

Our free book "Chickens from Shell to Market" gives full particulars.

Coulson Co., Petaluma, Cal.

LEE'S LICE KILLER

Kills lice, mites, bed bugs, etc., affecting poultry. Spray or paint on roosts, etc. Gets body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or handling. Saves lot of unpleasant work. At most towns, at stores handling Lee Poultry Supplies. Write for information and FREE book.

GEO. H. LEE CO., Dept. F-30. OMAHA, NEBR.

Geese and Goslings

By Jean A. Koethen

FIVE varieties of geese are bred on the farms of England and America: Embden, Toulouse, White Chinese, African and Canada. In addition to these there are the more rare Egyptian, Sebastopol, Spur-winged, Hutchins' Snow and White Fronted, some of which are never seen in America, and none of which are of interest to any but a fancier.

Among the domesticated geese the Embden is easily the leader. Originating in the town of Embden, in the province of Westphalia, "geese from Embden" soon became an expression synonymous with the finest quality, and they are bred the world over. They are beautiful birds, pure white, large and heavy, the gander frequently attaining a weight of 30 pounds, and especially well adapted because of their rapid growth to market requirements. Their feathers,

form, graceful carriage, long slender neck, large orange knob and soft, dove-like purity of plumage, it does not require a great stretch of imagination to see the most beautiful bird extant. Hardiness, activity and vigor are traits peculiar to the breed. By carefully managed tests made upon my own farm, the Chinas have the highest number of eggs to their credit. They are prompt to mate and the gander will mate with more geese and the eggs will be more fertile than in the case of any other breed.

"The wild or Canada goose is bred pure in a domestic state perhaps more extensively than brown or white Chinas," says Mr. Flagg in Rhode Island experiment station report; "in fact, these three breeds are in demand as ornamental waterfowl for parks and private grounds. The Canada gander is also used for mating with the African or Toulouse goose

POULTRYMAN'S CALENDAR—MAY, THE TURKEY MONTH

May is a good month for turkeys if the sun shines. If it is foggy the little birds must be very carefully protected. If they are in brooders keep them in except for a little run outside now and then. Confinement is hard on poults, but dampness is their deadly enemy. If they are hovered by hens confine the hen in a coop so small that she cannot move about much, and if necessary darken it so that she will give her whole mind to keeping her charges warm. Then they can run in and out as they please but will always have a warm place to come to. Chilling and overfeeding are the main causes of the great mortality among baby turkeys. Keep them warm and dry and do not overfeed. "Keep them hungry" is the rule, and it is not an easy one to follow. There are many good rations, but none so good that it can be fed ad libitum.

being pure white, are more valuable than those of other geese, and the German owners pick them regularly at least twice a year. Picking live geese is far less common on this side of the Atlantic, and less common in the West than in the South.

The Toulouse is next in size to the Embden and more commonly bred in California. It is bluish gray above and white underneath and is believed to be the lineal descendant of the "gray lag," the "old gray goose" of the nursery rhyme. French in its origin, this variety is thus described in a "Treatise on the Breeding and Fattening of Poultry," translated from the French in 1810: "It is in upper Languedoc especially that geese breed well and are as large as swans; their distinctive mark is in having under the belly a lump of fat which hangs on the ground the moment these birds walk. The fat is not very prominent till the month of October; it increases as the bird gets plump, and is called in the language of the country 'panouille.' The Toulouse produces more eggs than the Embden but hardly equals it as a market fowl."

One of their admirers thus described African geese: "African geese are as large as most Embden and Toulouse geese and are more prolific and profitable. They lay the largest eggs of all varieties and as many of them as the best Toulouse. Goslings from old Africans are the strongest and hardest of all, and after the first two days one is rarely lost except by accident. They grow faster and larger up to the time they should be marketed. Africans have large size and great strength without the sluggishness of other varieties and are very docile compared with Chinese geese. The ganders are active and sure breeders and mate promptly with any geese. They can be mated with five times as many geese as can a Toulouse gander and twice as many as an Embden gander. The females are good sitters and mothers and therefore do not lay as steadily as the Toulouse. It takes a few days to break them up and get them to laying again. A drawback with this breed is its dark bill and skin and the fact that it is harder to pick than the Embden and Toulouse."

There are two varieties of Chinese geese, the Chinese or Swan goose, which is colored, and the White Chinese, of which a Massachusetts breeder says: "It is only necessary to see the White China goose to become its ardent admirer, for, with its fine

for the breeding of the mongrel or 'wild mongrel' as it is sometimes called, which has the reputation of being only second to canvasback duck when prepared for the table." The Canada goose is also known as the Honker goose, Common Wild goose and Bay goose and breeds as far north as Hudson Bay, Labrador and Behring Straits.

Hatching

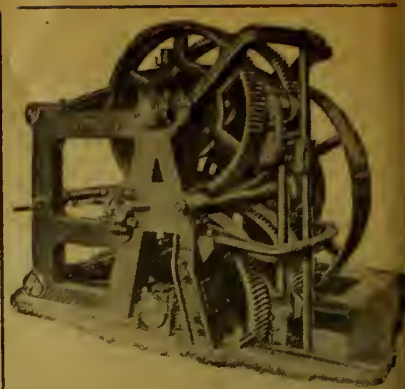
Goose eggs take 30 or 32 days to hatch. They should be brought into the house as soon as laid and kept in a room the temperature of which is between 45 and 60 degrees, and turned every day. A chicken hen will comfortably cover four goose eggs if she is large; if she is small three eggs are enough. She should be watched when the eggs begin to pip for she is not always willing to mother these queer looking children.

When a goose sits under natural conditions she leaves the nest every day and goes into the water for a short swim. Goose eggs incubated under hens should be sprinkled daily with tepid water to take the place of the moisture the goose would bring on her feathers. If this is not done the shells and their inner membranes become so dry it is difficult for the gosling to pick its way out.

Feeding the Goslings

The goslings should be left quiet in the nest for 24 hours. If the hen is restless it may be necessary to put them in a warm basket covered with a blanket or old wool sweater. When the hen has been fed and made comfortable on clean litter in a warm coop the goslings are returned to her. If she refuses to care for them they may be brooded in a box with a jug of hot water for warmth. Goslings do not require heat long, but they must have some at the first.

Goslings, like ducklings, require moist food at first, but unlike ducklings they soon pass on to something better suited to their taste. Bread crumbs moistened with milk, bread crumbs and rolled oats or rolled oats and bran, made just crumbly moist with sweet milk, are all good for the first meal. Theodore Jager, former secretary of the Waterfowl Club of America, recommends for the first eight days nothing but stale bread, crumbled fine. After eight days it is mixed with a very little corn meal and bran and moistened slightly. Another good starting feed, he says, is a mixture of equal parts corn meal, mid



THE POMONA

Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

Pomona Manufacturing Co.
POMONA, CAL.

Manufacturers of the

POMONA Irrigation Gates and Valves

New 1½ H.P. CUSHMAN

For Light Jobs

A little wonder—regular Cushman quality. Different, better, fewer moving parts. A real no-trouble engine for pumping, etc. Investigate.

4. H. P.



1½ H.P.

For all power jobs up to 5 H.P. Improved Throttling Governor insures very steady running and less gasoline used.

Saves a Team on the Binder

Besides doing all regular jobs, this 4 H.P. may be mounted on rear of binder to save a team, and in a wet season to save the crop. We supply attachments. This engine is a necessity on every farm. Ask for book on Light Weight Engines. If interested in Electric Lighting Plants, write for free book.

CUSHMAN MOTOR WORKS
804 N. 21st Street. Lincoln, Nebr.

Auto Owners WANTED!

To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim-Cut and enables us to sell our tires under a

10,000 MILE GUARANTEE

We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners.

Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

Hydro-United Tire Co.
Dept. 105 Chicago, San Francisco, Pottstown, Pa.

Big Engine Sale At 1914 PRICES

New Model Engines: Sold direct from factory. Better built OTTAWA Engines—34 H.P. \$45.87 50 Day Trial. Guaranteed. Write for FREE Book and 5, 6, 7, 10, 12. Sale Office, Ottawa Mfg. Co., 3214 E. King St., Ottawa, Kan. Lowest Prices.

Kid Hens and Chicks of Lice and Mites

Few Drops of Wonderful New Remedy in Drinking Water Does It—No Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from attack of all blood-sucking parasites, as these pests positively will not live on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, with these pests eliminated, hens lay better and the stock grows faster. It is positively guaranteed to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 586, 600 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you a big full sized (double strength) \$2.00 package of Imperial White Diarrhoea Remedy, standard, time-tested remedy. Pay the postman \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.



SAVE ON TEETH LOWERED PRICES

Place Orders Now for Future Delivery

Steel laid teeth for all makes of harvester, thresher and bean machinery.

If your dealer does not carry our teeth order direct from us.

Information on Request

John Christian Mfg. Co.

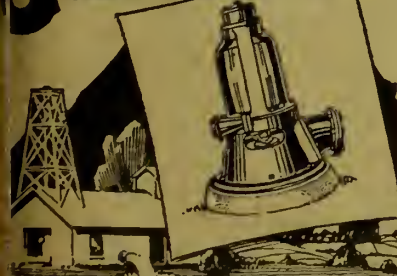
1194 LICK AVE. SAN JOSE, CAL.

MYERS HONOR-BILT DOOR HANGERS

Known everywhere as the standard in quality. Exclusive patented Adjustable and Stay-on hinges mean better wear, service and satisfaction. Twelve styles—type for every need. Give weather-proof doors that always push or pull easily. Your dealer who handles the famous Myers line of Pumps and Hay Tools also has Myers Door Hangers. See him today. Let him point out the striking Myers Improvements or write us for catalog.

PUMPS FOR EVERY PURPOSE

JOHNSTON TURBINE CENTRIFUGAL PUMPS



Installations can be made in wells 8 inch or larger. Produce 100 to 4,000 gallons per minute. Ask for Folder No. 4. Johnston Pump Co., 407 E. 3rd, Los Angeles

dlings and bran, with a little grit added, heated well in the oven. After the goslings are ten days or two weeks old a mash of equal parts bran, middlings and corn meal, moistened with water, should be their regular meal three times a day. They are fed four times a day till the fourteenth day.

It is rather an anomaly that the young of waterfowl are more easily injured by water than chicks, but it is so. Water should be given in fountains so arranged that their down and feet cannot get wet, and no water is given to swim in till they are fully feathered. Goslings do well without any water to swim in, but a tub in which they may swim a little is a great comfort, at least while they are young.

Greenbacks From Grass

The goose differs from other domestic poultry in that it is a true grazer. It requires no animal food, but where the grazing is good, gets its living mainly in that way. It is probably because California has so little natural grass that goose culture has never thrived here. The natural habitat of the goose is a shady pasture with a little stream running through it, where natural green grows the summer through. Lacking such an environment it consumes vast quantities of ground grain, literally eating its head off. This, at least, was my own experience. A fine flock of young Embdens which I hatched one spring attained such a size and such an appetite by July that I was forced to let them go at a loss. Where it has natural and sufficient grazing the goose should be immensely profitable.

Marketing Geese

In his article on geese in Mr. Weir's Poultry Book, Mr. Jager says: "When and how must geese be marketed? Goslings when eight to ten weeks old should weigh from 12 to 15 pounds if they have been treated to the best of fattening food. Treat them as Rankin does his ducks when he wants to surprise the people of Boston, and you have hit the nail on the head. It does not pay to raise and hold them for the holidays. Sell them when your birds are ready.

"To kill them, hang up each bird separately with a weight attached to its bill by a little wire hook. Draw a sharp knife diagonally across the roof of the mouth, starting way back in the mouth, thereby severing the main artery, causing a clean bleeding and rapid death. Steam, dry or scald pick, as preferred, and remove the down by rubbing a little powdered resin over it. Steam the fowl again and the remaining down will come off. Lay the birds back down on boards to shape up, or in warm weather plunge them and leave them three or four hours in spring or ice water."

Steamed potatoes, mixed with buckwheat or ground oats, are recommended as one of the best fattening feeds for geese. Breeding geese should have some hard grain in addition to grass and a daily meal of moist mash.

Poultry Queries

Conducted by Jean A. Koethen

Trapnest Bulletin

Can you send me a bulletin on trapnest construction?—Subscriber, Anaheim.

If you will write the College of Agriculture, University of California, Berkeley, they may perhaps be able to send you such a bulletin. I have no more.

Sex of Chicks

Will you kindly let me know the best signs for detecting the sex of White Leghorn chicks between the ages of six and eight weeks?—Subscriber, Burbank.

The comb begins to develop in many cockerels by the end of the second week and is almost always conspicuous before the birds are a month old. Pullets do not develop comb till they are nearly ready to lay. The wings, on the other hand, develop earlier in pullets. Look over your chicks and those you see with noticeable combs but no wings are cockerels, while

those with wings but no combs are pullets. Cockerels also are taller, standing up high on their legs, while pullets are longer in back and shorter in leg.

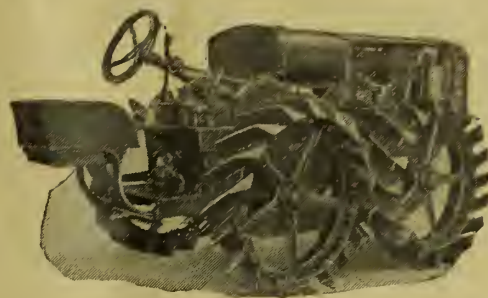
Chicks Won't Roost

My Rhode Island Red chicks two months old insist on crowding into

(Continued on Page 507.)

KROYER BUILT

A WIZARD For Hard Work



WIZARD 4-PULL TRACTOR

Performing the hardest tasks continuously, season after season—that's what makes this remarkable tractor a real WIZARD.

Endurance Added to Enormous Traction

The wonderful tractive power of the Wizard is due to the revolutionary, rigid, four-wheel drive principle, which gives it traction equal to or greater than the track tractor with surprisingly low upkeep cost.

After delivering its normal drawbar pull, the Wizard has 35% reserve power and strength. It is automatically lubricated throughout—no oil or grease cups. All moving parts, except wheels and fan are completely enclosed. The Wizard will serve you faithfully for many years.

For price, specifications and other details, send this advertisement to us with your name and address.

Kroyer Motors Company

Los Angeles Harbor, San Pedro, Cal.

QUALITY

WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

Western Pipe & Steel Co.

1758 N. Spring St., Los Angeles

424 Market St., San Francisco

Fresno, Bakersfield, Taft

Poultrymen Attention!

USE

HAUSER'S

HIGH PROTEIN

MEAT SCRAPS

Mail Orders Promptly Filled

HAUSER PACKING COMPANY

LOS ANGELES

Los Angeles Markets

Los Angeles, May 3, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 37 cents.

Prices extras past week:

April 27 28 29 May 1 2

36 36 36 36 37

CHEESE

Brokers' prices:

California flats, 21@23.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 27; case count, 25; pullets, 24.

Prices extras past week:

April 27 28 29 May 1 2

28 28 28 27 27

POULTRY

Price to producers: Hens, 23; colored, 30; broilers, 26@32; roasters, 38; old roosters, 14; fryers, 40; ducks, old, 30; ducklings, Pekin, 3 1/2 up, 30; others, 30; geese, 30; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 12@16; old, 8.

LIVESTOCK

Los Angeles, May 2.—Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 10.75; 175 to 225 lbs., 11.00.

Cattle (on foot gross weight): Steers, good, 8.00; medium, 7.00; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 9.00; 150 to 175 lbs., 10.75.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 2, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market firm. Lugs, 80@90. Stocktons: Burbanks, per cwt., best mostly 2.15@2.30; poorer, 1.75@1.80. Idahos: Russets, 2.15@2.30. New stock, best, locals, 1.90@2.10 per lug.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 70@75. Arkansas: Nancy Halls, 4 1/2@5 per lb.; per bu., mostly 1.85@2.00.

Onions: Demand light, market weak. Australians: Browns, mostly .9 per lb. New stock: Fair quality. Coachella Valley, White, crte, 2.25@2.50. Yellow, 2.00@2.25. Tex. cr. Crystal Wax, 2.25@2.50. Garlic: 7@8 per lb.; fancy, 10@12.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, May 2, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, fancy, small, 50@75; best, 1.00@1.25 doz.

Asparagus: Per lb.: Local, best, 13@14; Northern, best, 9@11; poorer, 8@9.

Beans: Florida and Cal. String, best, 20@25; poorer, 15 lb.

Bunched Vegetables: Per doz. bunches: Turnips, 40@50; carrots, 65; beets, 45@50; radishes and spinach, 20; parsley, 15.

Cabbage: Market steady. Per field cr., mostly 2.50@2.75; poorer as low as 1.75@2.00.

Cauliflower: Quality fair. Per field cr., best, mostly 3.00; poorer low as 1.50.

Celery: Movement moderate, market steady. Wide range in quality and prices: quality, generally ordinary. Locals, 4.00@6.00, according to quality. San Diego, mostly 7.50@8.00; few high as 10.00; Northern, small, 6.50.

Eggplant: Mex., 15 lb.; Florida, 25.

Lettuce: Market very weak. Locals: 75@1.00; ordinary, 50 per field crate.

Peas: San Pedro, best, mostly 7 1/2@8; poorer, 4@6.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 10@12; Bells, mostly 30 per lb. Mexicans: Bells, 25 per lb.

Rhubarb: Local, best, strawberry packed box, 1.00@1.10; Crimson, 1.00; poorer low as 75; Northern, strawberry, 1.25 per box.

Squash: 4 basket crates Summer squash, 1.60@1.75.

Tomatoes: Market firm. Mexicans, per repacked lug, 2.50@3.00; original lugs, best, 2.00@2.50; small, 1.75; loose, per lb., best, 10@12; poorer and overripe, low as 4 lb.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Loquats: Best, 15@20 lb.; No. 2, 10@12.

Strawberries: No. 1, mostly 4.00@4.50; No. 2, 3.00@3.50 per crate.

CITRUS FRUITS

Grapefruit: Market steady. Californias: Northern, packed box, 3.50@3.75; market pack, 3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@3.00; poorer, 2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, market pack, 5.50@6.00, according to size and quality; culls, 1.00 per field box; few best, 1.50; Valencia, special brands, 7.25@7.50.

Tangerines: Market firm, 8@10 lb.

HONEY

Continued heavy rains have practically assured a heavy crop of honey, although there is some uncertainty as to how large the orange blossom yield will be. Sage outlook is especially promising. Both Northern and Southern California report colonies in normal condition. Supplies of best white honey reported as very limited, but supplies of lower grades said to be still fairly abundant. Movement very light during recent weeks. Demand limited and market largely nominal. Few sales in carload lots reported at 11 cents for white sage and white orange and 8 1/2 cents for light amber, f. o. b. California cents.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00

Barley 18.00@22.00

Old alfalfa practically cleaned up.

Prices quoted f. o. b. L. A. to producers are:

Rabbit Alfalfa 20.00@22.00

No. 1 Alfalfa 15.00@17.00

Standard Alfalfa 12.00@14.00

GRAIN

Prices L. A. Grain Exchange, April 25, 1.31 1/4.

Barley: 1.31 1/4.

San Francisco Markets

San Francisco, May 2, 1922.

BUTTER

Extras 36

Prime Firsts 35 1/2

Prices Extras last week:

April 27 28 29 May 1 2

36 1/2 37 36 36

CHEESE

Dairy Exchange quotations:

California Young America, fancy, 24

California Flats, fancy, 21

California Flats, 19 1/2

Oregon Trips, 23

Oregon Young America, 24

EGGS

Dairy Exchange Quotations:

California Extras 27

Extra Pullets 25

Undersized 20

Prices Extras last week:

April 27 28 29 May 1 2

28 28 28 27 27

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers, 1 to 1 1/4 lbs., 31@33; 1 1/4 to 1 3/4 lbs., 38@40; 1 3/4 to 2 lbs., 40@42 lb.

Fryers: 2 1/2 to 3 lbs., 42@46 lb.; do, colored, 50@55 lb.

Young Roasters: 3 1/2 to 4 lbs., 40@42 lb.; over 4 lbs., 36@44 lb.; do, colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.

Colored Old Roosters: 18@28 lb.

Leghorn Old Roosters: 15@18 lb.

Leghorn Hens: 2 1/2 to 3 lbs., 22@24 lb.; 3 lbs. and over, 25@27 lb.

Large Colored Hens: 32@33 lb.

Ducks: Young, 24@26 lb.

Geese: Young, 25@28 lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 18@23 lb.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7 1/2@8; second quality, 6 1/4@6 3/4; cows and heifers, No. 1, 5 1/2@6 1/2; second quality, 4 1/2@5 1/4; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 8@9 lb.; ewes, 6@7.

Lambs: 11 1/2@12 1/2.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11 1/2 per lb.; do, 200 to 250 lbs., 10 1/2 per lb.; do, 250 to 300 lbs., 9 1/2 per lb.; light sows, 9 1/2 per lb.; heavy, 8 1/2 per lb.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 1, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 5.00@7.00 per cr.; fancy, 8.00; poorer, 3.50@4.00.

Asparagus: 4@5 per lb.; white, 5@6 per lb.; graded, 7@9 per lb.

Beans: Imperial, 17 1/2@23 per lb.

Bunched Vegetables: Carrots, 50@55 per doz.; turnips, 45@55 per doz.; beets, 50@60 per doz.; parsley, 15@20; radishes, 30 doz. bunches.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 2.75@3.00 sack.

Cauliflower: 75@1.00 doz.

Celery: Crate 2.00@4.00.

Chicory: 2.25@2.50 crate.

Cucumbers: Hothouse, fancy, 1.50@2.00 per doz.; small, 3.00@3.50 per crate; English, 2.50@2.75.

Eggplant: Florida and Mexican, 15@25 lb.

Endive: 20@25 lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Delano, 1.50 cr.; Los Angeles, 1.25@1.75 crate; local, 75@1.00.

Mushrooms: 50@75.

Olives: 5@7 per lb.

Onions: Australian cold storage browns, 9.00; green onions, 1.75@2.00 box. New crop, white, 2.25@2.50; yellow, 2.00@2.25 crate.

Parsnips: 1.75 per sack.

Peas: Pismo, 6@7 lb.; small, 3@5 lb.

Potatoes: Rivers, fancy, 1.85@2.15; Oregon Burbanks, 2.00@2.15; Idaho Netted Gems, 2.00@2.35; off grades lower; Salinas, 2.25@2.75 ewt.; new, 3@8 lb.

Peppers: Florida and New Mexico, Bella 20@35; Chilis, 5@10.

Pumpkins: 75@1.00 per 90 lb sack.

Rhubarb: 3@5 lb.

Squash: Summer, 1.25@1.75.

Spinach: 1@3.

Sweet Potatoes: 3.90 ewt.; Arkansas and New Mexico yams, 1.50@1.75 per 50 lb. crate.

Tomatoes: Mexican, repacked, 2.50@

2.75 per L. A. lug; off grades, 1.50@2.50.

Turnips: 1.75@2.00 per sack.

FRESH FRUIT

Bananas: Best Eastern and Hawaiian, 7@8 lb.

Cherries: 10.00 per 5 lb. box.

Loquats: 15@17 1/2 lb.

Olives: Ripe dry, 8@10 lb.

Pears: Choice, 4.50@5.50.

Pineapples: 5.00@6.00 per doz.

Strawberries: Southern, 1.75@2.25 cr.; Watsonville and Salinas, 2.00@2.25; locals, 90@1.15.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack, 3.50@4.00; Arizona, 4.25@4.50 box.

Lemons: Special pack, 5.00@5.75 box; Choice, 4.00@4.50 box; Lemonettes, 2.00@3.25.

Oranges: Special pack, 100-150s, fancy, 6.00@6.50; 176-216s, 6.75@7.00; choice, 5.25@6.25; culls, 1.75@3.50; Valencia, fancy, 6.50@6.95; choice, 6.25.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

In 50s

Choice 13 1/4

Extra choice 13 1/2

Fancy 15 1/2

Apricots

Slabs 18 1/4

Standard 18 1/2

Choice 22 1/2

Extra choice 23

Fancy 23 1/2

Extra fancy 28

Moorparks, fancy 28

Moorparks, extra fancy 31 1/2

Figs

California Peach and Fig Growers' prices:

White—

Standard (in 50s) .07 1/4

Choice (in 50s) .08 1/4

Fancy (in 50s) .11

Bricks, 12 No. 10s .11

Bricks, 24 No. 8s .18

Bricks, 50 No. 6s .28

Bricks, 70 No. 4s .29

Layers, 10 lb., 4 row .16

Layers, 10 lb., 5 row .14

Callimyrna—

Bricks, 24 No. 8s .205

Peaches

California Peach and Fig Growers' prices:

Slabs (in 25s) .10

Standard (in 25s) .10 1/2

Practically peeled, Standard (in 25s) .11 1/2

Cartons, 30 11 oz., per case .31

Cartons, 60 11 oz., per case .60

Cartons, 24 lb., per case .65

Cartons, 10 5 lb., per case .66

Pears

Standard 12@13

Choice 15@16

Extra choice 17@17 1/2

Fancy 19@19 1/2

Prunes

120s up (in 50s, per lb.) .05 1/4

California Prune and Apricot Growers' prices:

Size Basis Price Per lb. In 25 lb. Boxes

30-40s .10 @ 10 1/4 13 1/4 @ 14

40-50s .8 1/2 @ 8 1/4 11 1/4 @ 12

50-60s .7 @ 7 1/4 9 1/4 @ 10

60-70s .6 1/2 @ 6 1/4 8 1/4 @ 9

70-80s .6 @ 6 1/4 7 3/4 @ 8

80-90s .6 @ 6 1/4 6 3/4 @ 7

90-100s .6 @ 6 1/4 6 3/4 @ 7

100-120s (in 50s, per lb.) .6

Raisins

California Associated Raisin Company's prices:

Seeded—

Sun-Maid, 16 oz. .14 1/4

Bakers (in 25s) .13

Loose Muscatels—

4 crown (in 25s) .15

3 crown (in 25s) .13 1/4

2 crown (in 25s) .12 1/4

1 crown, re-cleaned (in 25s) .13 1/4

Seedless—

Thompsons, 16 oz. —

Thompsons, bulk (in 25s) —

Thompson, bakers (in 25s) —

Sultanas, bulk (in 25s) .13 1/4

Bleached Thompsons—

Choice, sulphur (in 25s) —

Fancy, sulphur (in 25s) .19

Extra fancy, sulphur (in 25s) .22

Soda dipped (in 25s) —

Oil dipped (in 25s) .15 1/4

Bleached Sultanas—

Soda dipped (in 25s) —

Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points. —

Black grapes (in 25s) .16 1/4

Layers—All grades withdrawn.

RICE

Rice Association prices:

No. 1 Paddy, 2.80.

BEANS

Large Whites 6.35

Small Whites 6.50

Pinks 6.25

Mexican Reds 5.00

Red Kidney 8.25

Cranberries 8.50

Bayos 6.25

Blackeyes 6.25

Henderson Bush Limas 9.50

HAY AND FEEDSTUFF

A. W. Scott Co. reports under date April 29:

Receipts past week, 1,078 tons, 897 previous week. Prices have ruled fairly steady. Export shipment has picked up and coastwise shipping is moving in greater quantities. Interior trading a little heavier, seeming to be benefited by road and construction work starting as the rains seem to have blown over. Southern demand continues good and general trading over the state has been active. Alfalfa continues in light movement. Many sections are cutting the first crop and the coming week will see several baling machines at work. Nevada hay is moving toward the South with still a little coming into the local market. Export shipment light.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges switching, cartage, commission and handling expenses must be added according to conditions).

Ton

Wheat Hay, No. 1 17.00@19

Wheat Hay, fair grade 14.00@17

Tame Oat Hay 15.00@19

Wild Oat Hay 11.00@13

Alfalfa Hay 15.00@18

Stock Hay 9.00@11

Straw Nomini

Barley, ground 32.00@34

Barley, rolled 30.00@31

Oats, rolled feed 38.00@40

Bran, 35.00@38.00; Millrun 36.00@39

Middlings 46.00@48

Linseed Meal 49.00@52

Coconut Meal 28.00@30

Alfalfa Meal 22.00@24

Cottonseed Meal 50.00@55

Sugar Beet Pulp 29.00@31

Molasses, tanks, 17.00; bbls. 25

Milo 38.00@40

Corn Meal and Cr. Corn 35.00@37

Serach Feed 42.00@44

GRAIN

Barley: Feed, 1.35@1.40; shipping, 1.40@1.50.

Wheat: Mill, 2.30@2.35; Feed, 2.30@2.35.

Red Feed Oats: 1.75@1.80.

Corn: California yellow, 1.40@1.44 eastern yellow, No. 2, 1.44@1.46; No. 1.25@1.27; kafir in bulk, 1.67 1/2@1.70; kafir eastern, 1.70@1.72 1/2; kafir, No. 2, in bulk 1.70@1.73; white Egyptian, 2.15@2.20; California red milo, 1.95@2.00; do., bulk, 1.80@1.85; eastern red, 1.82 1/2@1.85.

Citrus Markets

Los Angeles, May 3, 1922

Valencias are becoming more popular though they started with decidedly discouraging return. Navels will soon be cleaned up, and the limited number seedlings, Mikes and others makes the but a slight factor from this time on. It is thought there may be not over 13,000 or 14,000 ears of Valencias to go.

The lemon market is decidedly easy.

Shipments

Shipment of citrus fruits to date since November 1, 1921. Southern California Oranges, 15,490 cars; lemons, 3,987; total 19,477. To same date last season: Oranges, 19,755; lemons, 4,052; total, 23,807. From Central California to date this season: Oranges, 4,835; lemons, 1,051; total 4,940. To same date last season: Oranges, 4,948; lemons, 1,341; total, 5,089. From Northern California to date this season: Oranges, 372; lemons, 8; total 380. To same date last season: Orange 305; lemons, 5; total, 310.

AT THE AUCTIONS

April 27

New York: 23 or., 2 lem. Nav. 3.95@7.85, Val. 4.50@4.80, Seeds, 3.55@4.2 Sweets, 3.60@4.25, St. Mikes. halves 2.0 Bloods halves 2.20, lem. 3.70@6.05.

Boston: 10 or., 3 lem. Nav. 3.25@7.5 Val. 4.45@5.35, lem. 2.30@4.10.

May 2

New York: 20 or., 3 lem. Nav. 4.50@7.15, Val. 2.85@7.45, Sweets, 4.50@5.60, S Mikes 4.00@4.05, Seeds 2.90@4.55, Blood 5.15, Tange. halves 2.05, lem. 3.20@4.90.

Boston: 14 or., 1 lem. Nav. 4.00@7.7 Val. 2.50@6.25, Sweets 3.90@4.05, St. Mike 3.90@3.95, Seeds 3.40@3.45, Sweets 3.85 4.65, Bloods 4.00@4.90, lem. 3.90@5.20.

Philadelphia: 5 or., 1 lem. Nav. 6.8 Val 2.50@6.25, Sweets 3.85@4.65, St. Mike 3.90@3.95, Seeds 3.40@3.45, Bloods 4.00 4.90, lem. 4.00@4.30.

POULTRY QUERIES

(Continued from Page 505.)

corners instead of trying to roost, and several are smothered every night. How can I persuade them to roost, and what is the best way to make roost for them? I have lost a large number by smothering. When they were in the hover house, after heat was taken from them, they crowded in corners just as they do now. Do chicks learn to roost better if hen are with them?—Subscriber, Hemet.

Most poultrymen put some sort of a roosting platform of lath or other very narrow lumber in their brooder houses so that the chicks may become accustomed to them from the beginning. Then as soon as they are moved into a house with regular roosts they learn in one night where to go. Now that yours have gotten into this bad habit of piling up on top of one another it will not be so easy, but this is the way I should go about it: Get a number of clean boxes, apple boxes or lugs, a sufficient number so that you will not need to crowd the chicks. You can tell when you see the chicks in them how many each one will hold and give each chick room to lie down comfortably. Put a little straw in each box and range them under the roosts. When night comes get the chicks into these boxes and cover (allowing cracks for ventilation) with burlap sacks. The chicks will soon learn to go to bed in these boxes, and when they have learned that so that you do not need to cover to keep them in, they will soon begin going on the roosts. If getting them into boxes is too much trouble put a good lot of

straw under the roosts and lay an old blanket or some other cover over them. The chicks evidently began this piling up because they were cold and perhaps it has made them tender. You could have nailed something over the corners, as many poultrymen do, so that there will be no corners to crowd in, but it is rather late for that. Your chicks are old enough now to roost on the ordinary laying house roosts, which are from one to two inches in width. I have never noticed that chicks learn to roost any more quickly when they are with hens. In fact, my hens always leave their chicks before the chicks are ready to roost, and the chicks have to sleep in a box.

Fattening Cockerels

What is the best method of fattening cockerels for market, and what feed is required? — Subscriber, Burbank.

The best method is crate fattening, in which the birds are confined in crates, six or eight to a crate, so that they have hardly room to move, and fed a moist mash for two weeks. Very few poultrymen, however, take the trouble to crate feed. They confine the birds in coops with small runs where they will be able to get some exercise, but not too much, and feed them mainly moist mash from the time they are put in the coop till they are ready for market. There is no better fattening ration than that used at Cornell experiment station, which consists of 50 pounds corn meal, 20 pounds middlings and ten pounds ground oats, mixed to a batter fresh for each feeding with buttermilk or skim milk. If milk is not available, 20 pounds beef scrap is added to the ground grain and the mixture moistened with water. This is fed three times a day.

Melilotus

Are Melilotus Alba and Indica of any use as green feed for chicks?—Subscriber, Burbank.

Melilotus of either kind is excellent, but alfilaria is better for chicks. Any succulent green is good, such as the wild radish, mustard, milkweed, malva, bur clover, in fact, the clovers, of which melilotus is one, are among the very best of greens for all ages of chickens.

Soft Shelled Eggs

Why do my hens lay so many soft shelled eggs? They have mash in the morning, cracked corn and barley at night and are on the range during the day. They do a lot of scratching on horse manure. Could that harm them?—Subscriber, Irvington.

Hens have scratched in horse manure from time immemorial without injury. You do not mention oyster shell as part of their ration. Probably the reason they lay soft shelled

eggs is that they have not lime for shells. If you keep shell before them I think you will see a difference.

Die in the Shell

Many of my chicks this season have died while hatching without being able to get out of the shell. I have seen so much good advice in your magazine I feel sure you can help me. —Subscriber, Irvington.

You do not say how you hatch. When incubator hatched chicks fail to get out of the shell we sometimes lay it to lack of moisture, sometimes to faulty incubation, sometimes to lack of vigor in the germ itself. When chicks that are hatching under hens die in the shell it is more often due to the latter cause. I wonder if you were very particular about not keeping your eggs too long before they were incubated. Incubator experts say ten days is the very limit for keeping eggs. If eggs are kept too long they never hatch well.

White Faced Black Spanish

Mrs. T. T. Middleton of Lone Star Ranch, Lankershim, sends the name of Rowan Bros. of Rowan Realty Company, Los Angeles, as the only breeders of White Faced Black Spanish in Southern California.

Breeders' Names on Liner Page

Almost daily we have requests for information as to "Where can I buy a setting of Ancona, Houdan, Bronze Turkey or Pekin eggs?" Often these come in when the last issue of the Cultivator in its classified liner ads gave the names of breeders in many parts of the state. Read the little liners. There are three columns devoted to poultry ads.

Also a word to the breeder who is not carrying an ad. He will accommodate a vast number of people and at the same time make a speck for himself if he will simply tell the world through the California Cultivator classified liners.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

Report on high producing pens from April 10 to 20: The 620 contesting birds laid for the ten days 4,348 eggs, or an average of 70.1 per cent for each day. Six pens laid over 80 per cent. The highest hen was that of Boehm & Noel of Hayward with a production of 84 per cent.

High pen productions: Boehm & Noel, 84 eggs; J. J. Shore, 83; Hanson's, 82; Alex Stewart, 82; Geo. Gray, 82; Fred Stallings, 82; E. D. Crewdson, 79; L. A. Thornewill, 78; Ely's, 78; Geo. B. Ferris, 78; Hollywood Farm, 77; Pacific Trapnest Station, 77; W. H. Marshall, 76; S. L. Gibson, 76; Sunrise Poultry Farm, 76; Wm. Bacon, 76; San Jose Poultry Yards, 75; R. H. Young, 75; Geo. B. Ferris, 75; Bolfig's, 75; W. J. Neef, 75.

SECOND EGG LAYING CONTEST AT POMONA

The second annual Southern California farm bureau egg laying contest at Pomona will begin October 1, 1922, and end September 30, 1923. This contest is limited to California entries. For information address Southern California Farm Bureau Egg Laying Contest, 814 South Garey Ave., Pomona.

Missouri experiments put 56 pounds on grade lambs in 90 days, while scrub lambs, fed and handled the same way, took 122 days to make this weight. Also, the scrubs required 40 per cent more feed and sold for \$2.85 less a hundredweight.

One Washington County, Ohio, dairyman reports a net increased income of \$44 per cow from three years in a cow testing association.

Says Sam: Every man is his own university in the long run.

WEATHER REPORT			
San Francisco, April 29, 1922.			
Stations	Week	Rainfall—	Temp.—
		Season Norm.	Max. Min.
Eureka	T 33.59	42.34	52 42
Red Bluff	0 16.09	23.20	86 50
Sacramento	0 13.62	18.92	82 46
San Francisco	0 19.10	21.26	86 46
San Jose	0 14.22	16.01	76 38
Fresno	0 10.22	8.91	82 44
San Luis Obispo	T 22.56	19.46	82 42
Los Angeles	0 18.99	15.06	84 51
San Diego	.04 18.27	9.54	82 53

The Mission Hatchery



HOME OF BABY CHICKS
Look at Our May Prices!
By Insured Parcel Post, Prepaid
\$10.35 to \$12.35 hundred—White Leghorns
\$12.35 per hundred—Brown Leghorns
\$15.35 per hundred—R. I. Reds, B. Minorcas
\$16.35 per hundred—Barred or White Rocks
Prompt delivery. Quality chicks.
Satisfaction. Send for circular, or order direct from above. Chicks sent C. O. D. \$2 deposit per hundred is sent with order.
We Can Handle Large Orders
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THE MISSION HATCHERY
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OF EVERY DESCRIPTION
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Buy the Tractor That Saves You Most Money

What you want on your farm is power that will do your work faster, better and cheaper. The form of power is not the most important question. You want the best and cheapest available.

If any one tractor produces cheapest power—if it does your work day after day, year after year, at cheapest cost—that is the tractor you should buy.

OILPULL TRACTOR

The Cheapest Farm Power



Triple Heat Control

A perfected system of kerosene burning has made possible the remarkable OilPull savings. Mail the coupon for a FREE copy of our new booklet on Triple Heat Control.

The cost of tractor power is determined largely by fuel cost—upkeep expense and length of tractor life.

The OilPull saves money on fuel. According to the results of exhaustive expert tests, the OilPull fuel bill is 39% less than the average of all other tractors.

The OilPull is guaranteed to burn distillate and stove-tops successfully.

The OilPull saves money on upkeep. The upkeep expense reported by owners is 50% less than the average upkeep expense reported to the Government in a recent tractor investigation in the Corn Belt.

The OilPull saves money on depreciation. Thousands of OilPulls are still giving faithful service after eight, nine, ten and even twelve years of use.

Let us send you more detailed information on how the OilPull will save money on your farm. In the meantime, see your local dealer.

Advance-Rumely Thresher Co., Inc.
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The Advance-Rumely Line includes kerosene tractors, steam engines, grain and rice threshers, alfalfa and clover hullers, husker-shredders and farm trucks.

Served through 30 branch offices and warehouses

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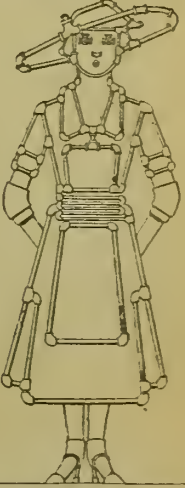
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Experience has proven the superiority of iron pipe for irrigation purposes. And, when you specify Pacific Iron Pipe you can be confident of getting the best used iron pipe on the market. Every length is thoroughly tested and guaranteed.

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237 Howard Street San Francisco



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PACIFIC PIPE COMPANY
REG. U.S. PAT. OFF.

WAGNER'S Giant Winter RHUBARB

April and May best time to plant. Should return up to \$1000 per acre first year. The California Rhubarb Association could have used the output of 1000 acres this season. Plant now for next Spring's market.

WAGNER'S NURSERY

(J. B. Wagner & Son)
1550 EAST VILLA STREET Dept. C PASADENA, CALIFORNIA

When Writing Advertisers Please Mention the Cultivator.

Power!

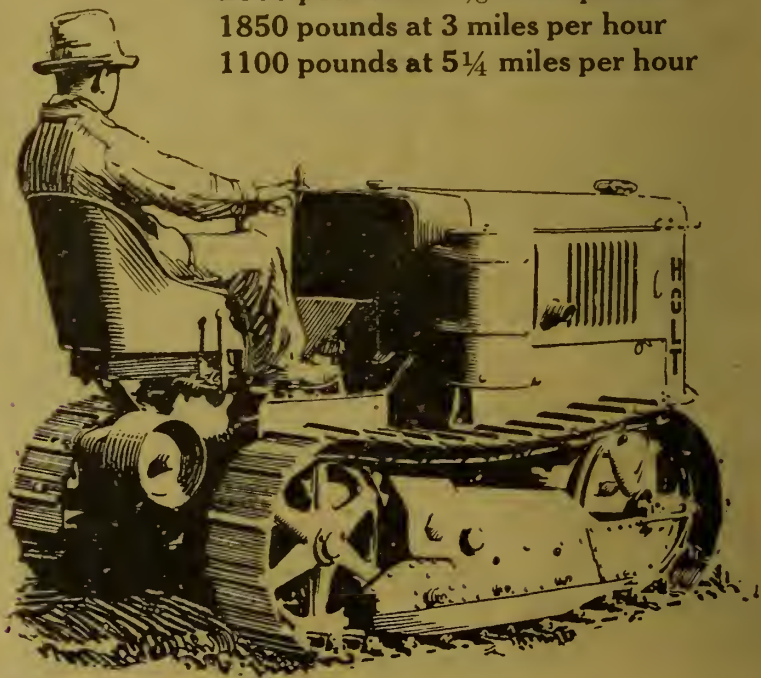


Judge the 'Caterpillar' T35 Tractor by its performance—don't let its small size mislead you

Don't confuse "Caterpillar" T35 Tractor with the ordinary small tractor, either in dependability, endurance or power. T35 is small, but small in size only. In power it surpasses many tractors of much greater size. In quality of design and workmanship, and in dependable, enduring performance, it is not even approached by any other tractor.

In addition to a liberal warranty covering materials and workmanship, the T35 is guaranteed to deliver 15 drawbar horsepower, with the following drawbar pulls:

2600 pounds at $2\frac{1}{8}$ miles per hour
1850 pounds at 3 miles per hour
1100 pounds at $5\frac{1}{4}$ miles per hour



Read what the users say regarding the power of T35

With a 10-foot disc weighted down and cutting from 4 to 6 inches deep, the tractor walked right along and even on the turns it did not slow up. It will handle a 7-foot scraper without any trouble and a 15-inch spring-tooth cultivator set to its extreme depth.

THEO. C. SJOQUIST, Turlock, Calif.

I used the T35 to subsoil and went down 20 inches deep the second time. I pulled my 3-gang plow nine and ten inches deep and the "Caterpillar" went along so easy you could hardly tell it was working.

JACOB DITTENBIR, Reedley, Calif.

I have pulled a new subsoiler apart twice and have had to instruct my man to use the soft pedal in the future.

W. O. GAINES, Lindsay, Cal.

I have subsoiled 65 acres of vineyard and 30 acres of pasture land to a depth of 16 to 18 inches.

OLIVER S. NEWMAN, Woodbridge, Calif.

I have subsoiled 16 inches deep. Have also pulled a 7-foot double disc—the T35 simply played with this load. It was no work for the engine at all, even on the turns at the end of rows.

G. WEYAND, Acampo, Calif.

The Holt MANUFACTURING COMPANY

Stockton, California Peoria, Illinois
Spokane, Wash. San Francisco Los Angeles

The Holt Mfg. Co., Stockton, Calif.

Please send me by return mail a copy of your new folder on "Caterpillar" T35 Tractor.

Tear off and mail with name and address filled in to obtain literature.

Name _____

Address _____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

May 13, 1922

No. 19



in the World's Asparagus Garden in the Sacramento and San Joaquin Delta District

The Pacific Guano and Fertilizer Co.

Successors to

Hawaiian Fertilizer Co.

and

The Pacific Guano and Fertilizer Co.

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GUARANTEED MANURE

NEVADA SHEEP AND STEER

Guaranteed to contain a minimum of $1\frac{1}{2}\%$ Nitrogen, 1% Phosphoric Acid and 3% Potash. It is in splendid mechanical condition, free from dirt and commercially dry. **THE PRICE IS RIGHT.** When you are in the market for **Manure that is all Manure**, write us, or get in touch with our agents. We are represented in all localities.

California Cultivator

Vol. LVIII, No. 19

Los Angeles, May 13, 1922

One Dollar Yearly

Keeping Livestock Records

By Jack Klein

BREEDERS of pure bred livestock are as a rule very busy men and a thousand and one things are constantly demanding their attention. A sick cow, a new born calf, an occasional visitor who wants to buy something or a lot of visitors who drop in to gossip for no good reason at all take up all the time they can spare from their very actual work of feeding and caring for the stock. The task of keeping up the records is one that is very distasteful to the majority of breeders and is usually the last thing they attend to. Negligence on the part of the breeders has cost many a fine animal its place in the world and has made a grade out of one that was bred in the purple. In some cases whole herds have been sold out as grades because some one was not smart enough or did not take enough interest in his own welfare to keep up the records.

If the breeders could only be brought to see the value of a competent bookkeeper, one who cannot only keep a record of the income and outgo of the place but who can keep a check on the herd and have a reliable record made out in such a way that anyone can see at a glance whether an animal is doing what it should or not, there would be a lot more of them making money.

When W. R. Harriman took charge of the Los Angeles County farm he found practically no records of the big herd of Holstein grades on hand. Also he knew that some very excellent pure bred had been bought from one of the most prominent breeders of the state but they had completely disappeared and to this day no trace has been found of them. One of the first things he attended to was the introduction of a comprehensive system of bookkeeping by which he could tell

from day to day what was going on in the herd. This system has been changed and modified from time to time until now it is remarkably simple and could easily be adopted by any big breeder who would care to give a few minutes daily to its operation.

A card index is kept of the entire

herd, in which each animal has a card which shows all the vital statistics, including date of birth and by whom bred. For the cows there is a space for each service, also showing date of calving and sex and disposal of offspring. On the reverse side are spaces for monthly milk records for six

years. In this way a complete record of the cow is kept close at hand. The cards are arranged in a file such as room clerks keep in large hotels, and such information as when she was born, went on test and is due to calve is available without removing the card from the file.

Another report which is filed daily in the office of the superintendent is (Continued on Page 531.)

DEPARTMENT OF CHARITIES-COUNTY OF LOS ANGELES-FARM DIVISION

DAIRYMAN'S DAILY REPORT

Day of Week *Friday* Date *April 21-1922*

INVENTORY

Bulls	7	Cows Milked	113	In String	No.
Bull Calves	20	Cows Dry	20	Dry	No.
Cows	142	Springers	4	Fresh	Cow No. 360-36-227
Heifers	35	Cows Fresh		Calf Sex	bull
" Calves	12	Cows Sick		Bred	Cow No. 216
" S. Cows	2			Bull	45

Total No. *208* Total No. Cows *142* Sold *1* Died *1*

MILK RECORD

Milk on hand	1764	lbs.	Milk Bottled	Quarts	40	Pints	
" Rec'd Morning	1679.2	"	" Temperature	Morning	45.5	Noon	45
" " Noon	967.6	"	" Ice used	lbs.	230	"	220
" " Night	1092	"	" Sterilizer operated	Hrs.	2.00	Gauge	280
Total to acc't for	5532.8	lbs.	Milk pasteurized	Morning		Noon	

DELIVERED

WHOLE MILK			CREAM			SKIM MILK		
MORNING	NOON	NIGHT	MORNING	NOON	NIGHT	MORNING	NOON	NIGHT
Farm Commissary	1261.6	84		12				
Calves	29	42						227.1
County Hospital	84	300		72				57.5
Separated		41.6						
Sold to Creamery	199	34		108				
J. Hall		222						
Drug Store	22.5							
Held over	22.5	104		109				
Adjustment								
TOTAL	1821.2	1461.8		2184				524.9

Average Milk per Cow *22.2* lbs. Total Milk Produced Today *3628.8* lbs.

FEEDING RECORD

MATERIAL	COST PER TON	TO WT.	TO COST	AV. WT.	AV. COST	TO WT.	TO COST	AV. WT.	AV. COST
Alfalfa Hay	18.00	1000	9.45	9.29	.084	100	1.18	.64	.008
Beet Pulp	22.50	800	9.00	7.07	.080	40	.72	.26	.006
Bran	26.00	40	.72	.26	.006	40	.72	.26	.006
C. S. Meal	35.00	200	3.50	1.77	.021	1500	5.25	9.68	.036
Ensilage	7.50	2500	9.37	22.12	.085	1500	5.25	9.68	.036
Glucose "A"	28.00	674	12.92	5.97	.115	100	2.44	.97	.016
Sugar	22.50	100	2.25	1.11	.015	1560	16.77	10.06	.108
Seleo Alf.	21.50								
S. Milk fr. Calv	27 gal	81.25				237.1	6.75	9.17	.023
Calc Meal						84.0	4.50	2.90	.165
Milk for Calves	10 gal	.45							
Total Feed Costs		5590	46.89	47.05	.415	3671.1	27.98		

Employees: *None* Civilian *None* Inmate *None*

Remarks: *None* Dairyman *F. A. Sugden* Clerk

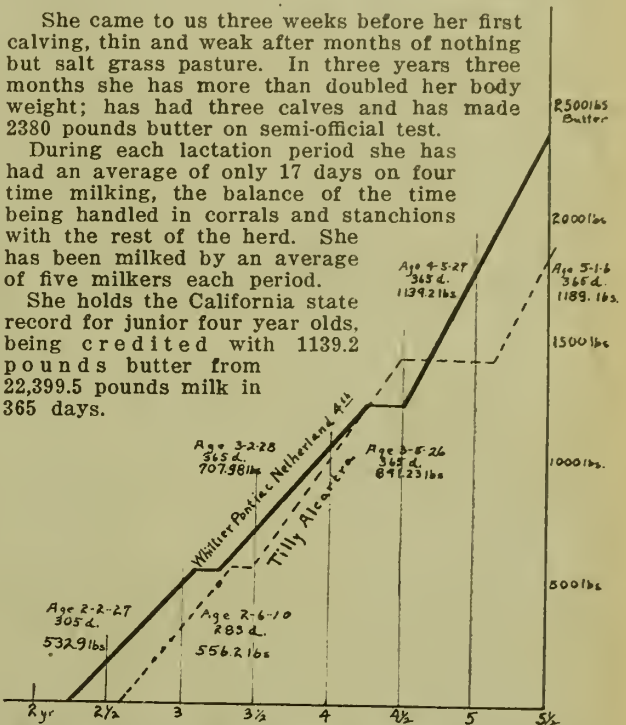
Lifetime Record of WHITTIER PONTIAC NETHERLAND 4TH

-Reported semi-official tests showing comparison with Tilly Alcartra—more butter than Tilly at the same age.

She came to us three weeks before her first calving, thin and weak after months of nothing but salt grass pasture. In three years three months she has more than doubled her body weight; has had three calves and has made 2380 pounds butter on semi-official test.

During each lactation period she has had an average of only 17 days on four time milking, the balance of the time being handled in corrals and stanchions with the rest of the herd. She has been milked by an average of five milkers each period.

She holds the California state record for junior four year olds, being credited with 1139.2 pounds butter from 22,399.5 pounds milk in 365 days.



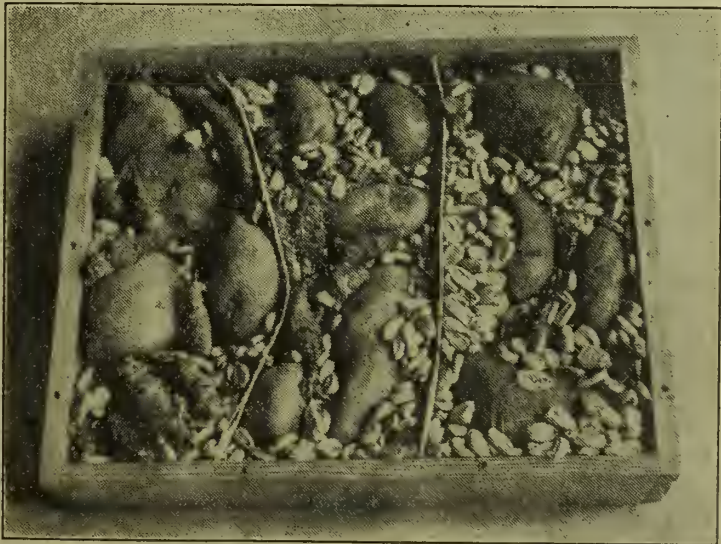
Federal Quarantine No. 37

By W. R. Wood

THE conference to be held in Washington, D. C., on May 15 between the federal horticultural board of the department of agriculture and the fruit and nursery interests of the country should command the attention of every horticulturist in the state of California.

The question at issue is whether or not there shall be a modification of Federal Quarantine No. 37. Those desiring this modification for the most part are the foreign growers, importers and nurserymen, dealing largely in imported plants, bulbs and flowers. On the other hand all American horticulturists having the good of the industry and the welfare of their country at heart should stand firmly behind the federal plant board in their efforts to maintain and enforce this quarantine.

The purpose of Federal Quarantine No. 37 was not to prohibit the importation of plants, bulbs, flowers, etc., but to restrict their entry into the United States, so that it would be



Box of Contraband Caught in the Act of Endeavoring to Get by Quarantine Officials

The potatoes, corn, peppers and other insect carriers shown in the above photograph were consigned to the furnace instead of securing entrance to the country and spreading insects and possibly disease in Arizona. This box was picked up by the plant quarantine office at Los Angeles harbor from a South American vessel. The box was brought in by an Arizona farmer in the hope of introducing potatoes, corn and other seed which might prove of great value to American agriculture. Note the frass and offcastings of insects plainly visible in center of picture. He was entirely innocent of any intent to do wrong. This is only a simple illustration of the necessity of protecting American agriculture by continuance of the plant quarantine board and enforcement of Quarantine Order Number 37.

possible to more carefully guard against the introduction of dangerous insect pests and diseases. Ample provision is made for the importation of such stock, bulbs, seeds or plants as may be necessary to supply this country's needs, provided the proper precaution is exercised with reference to pests and diseases.

California growers should realize more clearly perhaps than those of any other state in the Union the necessity for the enforcement of these quarantine regulations. Our fruit industry represents a large part of the wealth of the state and we are already spending millions of dollars annually in fighting pests and diseases, a large part of which came to us from foreign lands, and one has only to spend a short time with any of our quarantine guardians at the different ports of entry to be impressed with the fact that every steamer from a foreign port brings new pests and diseases, many of which might be more serious to our horticultural industries than those we now have.

(Continued on Page 535.)

Agricultural News Notes of the Pacific Coast

Northern California

A cow testing association is being organized in Glenn County.

Wool fleeces are weighing up to five pounds heavier this year than last.

Storage stocks of apples are smaller throughout the state than last year.

Eight thousand acres of rice land is now flooded in the Glenn-Colusa district.

May farm bureau meetings in Glenn County; Plaza, 19; Grapevine, 24; Glenn, 26.

Effort is being made to organize a 40,000 acre irrigation district near Roseville, Placer County.

The Trinity Valley farm center held its first picnic of the season, April 23, at Salyer, Trinity County.

Sutter County farm bureau will hold its annual picnic at Dow Grove in the Sutter Buttes, May 20.

Yolo County farm bureau meetings: Capay, May 17; Zamora, 18; Willow Oak Park, 19; Plainfield, 25.

A 90,000 pound sale of new clip wool was made by F. J. Mendosa of Colusa County at an average price of 31½ cents.

The new premium list for the state fair is nearly ready for the printer. It will provide for many new agricultural classes.

The Sutter Basin Company is greatly increasing its asparagus plantings. This concern will ship this season 15 carloads.

The membership drive of the California Rice Growers Association has closed with 304,000 acres signed under five year contracts.

At a massmeeting in Hayward a plan was enthusiastically launched for building permanent quarters for the Eden Township Show.

The Tehama County fair will award prize to livestock exhibitor maintaining his stock and quarters in best condition at fair grounds.

The third annual ram sale of the California Wool Growers' Association will be held at the university farm at Davis on June 15 and 16.

The California Rice Growers' Association reports membership signed on five year crop basis controls approximately 204,000 acres.

The Placer County farm bureau exchange has been organized with headquarters at Lincoln. The principal business of the exchange this season will be handling of grain.

The Superior California Development Association purchased 1,000 acres of the J. L. Mendenhall property and is planning to plant Thompson Seedless and Muscat raisin grapes, and alfalfa.

Farm bureau meetings in Shasta County: Inwood, May 13; Cottonwood, 15; Bella Vista, 17; directors, Redding, 20; Millville, 23; Palo Cedro, 24; Hat Creek, 26; Fall River, 27; Mountain, 28.

The Jacinto irrigation district limits flow of water allowed one person to five acre feet in season, with rates for all in excess of two or three acre feet which will eliminate rice growing from the district.

Fifty thousand refrigerator cars will be needed to handle California's deciduous fruit crop this summer, according to estimates forwarded the transportation companies from fruit growers, dealers and shippers.

Central California

Many ranchers about Lemoore are increasing their poultry.

Owners of 200 cows at Crows Landing have signed up in the cow testing association.

The Kings County cannery at Armona has a force of 240 working on the spinach pack.

Tulare County this season will add nearly 1,000 acres of bearing prune trees to its producing acreage.

The 14th annual Raisin Day parade at Fresno, April 27, brought out a crowd of 125,000.

Irrigation started on Delhi Colony last week of April, several weeks later than in the usual season.

Because of cold weather it is expected that fat cattle will be about two weeks later than usual in getting on the market.

Mariposa cattlemen report pasture in Bald Hills short, but heavy and stocky with thousands of sheep in splendid condition.

Grain growers of the Tulare lake district have put in a lot of protective work on levees in preparation for expected high water in June.

Reported importation to Mono County of bulls from scab infested area in Nevada is being investigated by the state department of agriculture.

Turlock melon growers are encouraged over the warmer growing weather. Sales Manager Cross of the association reports new members signing daily.

First cutting alfalfa in the Oakdale section of Stanislaus County is averaging better than a ton to the acre. A large new acreage has been seeded to alfalfa.

The Fresno County tree planting committee and directors of the county farm bureau are conferring on tree varieties for highway planting throughout the county.

Experiments have been started by the growers' service department of the Sun-Maid Raisin Growers to determine effect of irrigation on frost damaged vineyards.

Farm bureau meetings in Kern County: Mountain View, May 15; Pond, 17; Inyoken, 18; Muroc, 19; Rosedale, 19; Shafter, 22; Arvin, 26; directors, Bakersfield, 27.

Kings County farm bureau directors add their endorsement to purchase of 46 acre site for a county park six miles north of Lemoore and eight miles northwest of Hanford.

Growers of alfalfa representing more than 2,000 acres in the Kerman district have set \$20 per ton in the field as price for first cutting. The next meeting of the alfalfa growers will be held May 15.

The Southern Pacific is running "spring lamb specials" on Tuesdays and Fridays from points north of Fresno and on Mondays and Thursdays from points south. First unloading at Sparks, Nevada, second at Ogden.

An experimental vineyard has just been planted at Weed Patch by the growers' service department of the Sun-Maid Growers. The chief purpose is to test out cultural methods. Similar work is carried on at Clovis and at Mendota.

Southern California

Five federal inspectors are now busy on Coachella onion shipments.

Monrovia celebrates her 37th birthday anniversary, May 20, with Football Fiesta.

An experimental planting of 200 pecan trees is being made near Piru, Ventura County.

Diamond Brand News estimates at least 3,000 tons of walnuts lost through the freeze.

Blythe, Riverside County, is making large express shipments of peas to Los Angeles market.

Walnut growers think their chances good for securing four cent tariff on unshelled nuts, 12 cents on shelled.

The Escondido, San Diego County, farm bureau is canvassing possibilities of reopening the local cannery.

Several packing houses in Orange County closed for a few days to let accumulated fruit get off the market.

The Mojave Valley Fruit Association is planning to build a packing house at Victorville, San Bernardino County.

The Imperial County Fair Association is asking supervisors to call election on a \$50,000 bond issue for the fall fair.

Ventura County requires all incoming trees to be vacuum fumigated before planting as protection against scale insects.

Effort is being made to organize all livestock breeders of Riverside County. A mass meeting will soon be held at Riverside.

Approximately 5,000 cars of lettuce shipped from Imperial this season is estimate of C. W. Runge of the Southern Pacific.

Fruit growers of Yucaipa Valley last week listened to a talk on apple and pear spraying by Prof. E. O. Essig of the state university.

The Temescal Water Company of Corona has filed on 20,000 acre feet of water from the Santa Ana, to be taken out at Barton Flats.

Keeping of individual tree records and giving of individual tree care was emphasized in walnut field meetings held by Los Angeles County farm bureau.

Three hundred sacks of peas were shipped from Arroyo Grande, San Luis Obispo County, to Los Angeles on April 24. The same day 300 were sent to San Francisco and a carload of artichokes to the East.

Citrus and walnut growers have proved during the past cold season that temperatures average three to five degrees colder in orchards carrying growing cover crop than neighboring orchards under clean cultivation.

A great irrigation and power project has been started on the San Luis Rey River in San Diego County. A dam will be built on the San Luis Rey and two others on the San Diegito. The project is said to be backed by the Santa Fe.

The Imperial County Farm Bureau Exchange has been formally organized with A. T. Taecker, Brawley, president; G. E. Weist, secretary-treasurer. Twenty-three grain growers, controlling 1,200 acres, signed memberships.

The Coast and General

Yuma sent out 33 carloads of hay in one day last week.

Arizona farm bureau is forming a marketing agency.

Frosts of the last week in April injured apricots in Southwestern Colorado.

Several deciduous fruit orchards have been planted about Tucson, Arizona.

Fifty-five cars of steers were shipped to California from Douglas, Arizona, last week.

Grape growers of Casa Grande, Arizona, have organized a marketing association.

Potato growers of Canyon County, Idaho, will pool their crop through their farm bureau.

Arizona wool growers are holding on, expecting prices to improve. Few sales have been made.

The cow testing association of Tempe, Arizona, had 89 cows producing over 40 pounds fat during March.

Livestock men of Grant County, Oregon, are facing serious condition with shortage of hay and feed and snow still on the ground.

The North Pacific Cooperative Berry Growers plans selling as much of the strawberry crop as possible on f. o. b. Seattle basis.

Shipments of early cabbage estimated by United States department of agriculture at 25,250 cars, 43 per cent more than last year.

A beet sugar factory has been established at Valdivia, Chile. The greater part of Chile's sugar now comes from Peru in the raw state.

A \$2,000,000 sale of timber has just been made at Grays Harbor, Washington, 6,000,000,000 feet of timber at the head of Hoquiam River.

The Yakima Valley of Washington last year produced 17,000 crates of strawberries. Twice that amount is estimated as this year's output.

Idaho regards as an evidence that horses have increased in value the fact that horse thieves are again operating in many parts of the state.

To restore worn out pineapple fields in Florida and rid soil of nematodes it is recommended that they be grown to Natal grass for a two year period.

The Texas and Southwestern Cattle Raisers' Association at its recent convention at El Paso elected H. L. Johnson of Wilcox, Arizona, vice-president.

Farmers of Yuma Valley, Arizona, are warned against baling uncured hay. Some dockage has been suffered by shippers on this account. An average of 20 cars a day is being shipped to California.

The Cochise-Graham Stock Growers' Association of Arizona held their annual convention at Phoenix last week, electing J. C. Page of Willcox, president; Wm. Lutley, Tombstone, vice-president; Wellington Johnson, Willcox, secretary. The next meeting will be held at Willcox.

Oregon dates: Stock show and Shorthorn meeting, Rainier, May 20; Oregon Jersey Jubilee, Willamette Valley, May 25-27; Guernsey Gayeties, Tillamook County, June 1-3; State Grange Annual, McMinnville, June 6-9; Rose Festival, Portland, June 7-9; Union Livestock Show, Union, June 7-9.

Trustworthiness of Thermometers

By Dr. Ford A. Carpenter, Manager Department of Meteorology, Los Angeles Chamber of Commerce

ARE your temperature readings accurate?" is one of the questions being asked with increasing frequency in California. It may be answered in the affirmative if the thermometer has been properly made or tested, if it has been properly located, if it has been correctly read, and if the readings have been promptly recorded.

It is the purpose of this paper to present some of the difficulties encountered in the manufacture of thermometers; to describe some of the methods used in their calibration; to show how they may be placed in localities giving

certification of thermometers used by the citrus growers of Southern California, so in November, 1920, a testing bureau was established.

Orchard Temperatures Incorrect

The result of a year's tests of thermometers brought to the testing department by over 100 fruit growers gave interesting figures. It was found that 43 per cent of the thermometers read too high, 45 per cent read too low, 6 per cent were structurally out of

oil in smudging for frost protection by having incorrect thermometers."

Types of Thermometers

There are three general types of thermometers in use in the orchards for frost protection: The U-tube (Sixe pattern), the ordinary stem thermometer, and the horizontal or minimum thermometer. The first named were notably inaccurate; only 1 per cent were found to be without error and nearly one-third were thrown out as being dangerously inaccurate. The ordinary kind of thermometer fared only a little better, only 2 per cent being reliable. Of the horizontal variety 32 per cent were dependable and 3 per cent were sufficiently erroneous to be classed as dangerous.

For over 30 years the governmental meteorological services of this and other countries have adopted a standard maximum and a standard minimum recording thermometer. This instrument, being somewhat more difficult to make than other types, probably caused the manufacturers to advertise and sell the other simpler varieties without regard to accuracy. The commonest kind of thermometer used in the orchards of Southern California is the U-tube model designed half a century or more ago by Sixe of London. Where errors of 3 to 6 degrees are inconsequential, this thermometer may serve, but for use in situations where half a degree may determine the danger point such instruments invariably invite disaster.

The chart shows in graphic form the relative dependability to be placed on the different types of thermometers:

Shading or Screening Thermometers

The exposure of a thermometer is most important, second only to the original accuracy of the instrument. As the object sought is the temperature of the air, the thermometer should be exposed to air currents (not that wind affects temperature per se, for it cannot if the bulb of the thermometer

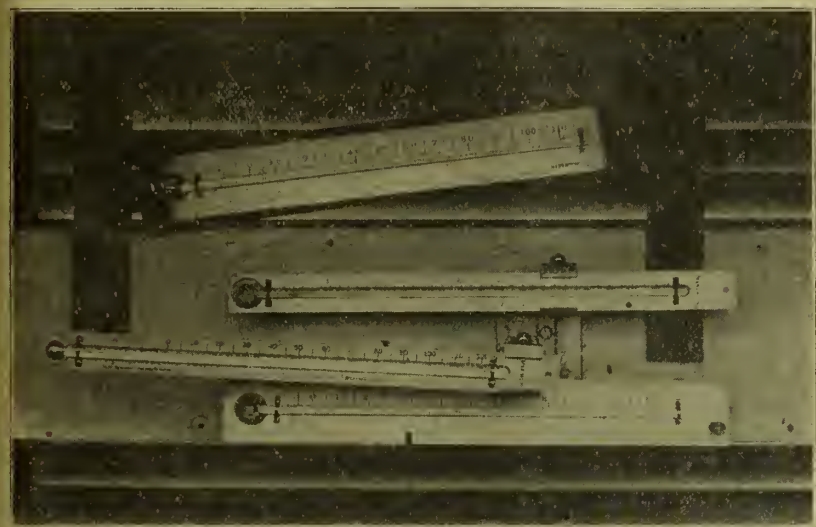
be kept free from dust) and yet shaded from the sun's rays. Wherever possible thermometers for orchards should be given the standard weather bureau exposure, i. e., in a suitably made instrument shelter screened from the sun, double roofed and open only to the north. The necessity for protecting thermometers from the sun in order to obtain the true temperature of the air was shown during a South Pole expedition. Commenting on this, Dr. Griffiths Taylor, the Australian meteorologist, stated: "If we expose the thermometer to the sun we do not obtain the air temperature by any means. For instance, 154 degrees Fahrenheit is undoubtedly hot, yet this was recorded in Antarctica in 1902! But the true free air temperature at this locality was 24 degrees, or eight degrees below freezing!" In other words, the difference between the reading of the thermometer in the sun and in the shade was 130 degrees.

The size of the shelter for the thermometer is immaterial, provided it is not too large. It is important, however, that the shelter be made of thin wood and painted white. The thermometer should be located, if in an orchard, in that portion giving average condition, not too close to a tree, free from the influence of a dwelling, and also distant from the relatively warm air emanating from an irrigation standpipe or ditch. These are some of the ideal conditions under which dependable temperatures may be secured.

Observation in the Orchard

The personal equation in reading thermometers cannot be overlooked. Observers should cultivate the habit of reading to tenths of degrees. This is not difficult for it is only a matter of training the eye to estimate. Milham summarized what he aptly terms "temperature blunders" as follows: "There are four avoidable blunders: A good thermometer must be used in determining the temperature. It is a waste of time to attempt to make accurate determination of the tempera-

(Continued on Page 520)



Photograph of the inside of a special meteorological observer's shelter at a cooperative United States weather bureau station, showing a standard weather bureau horizontal minimum recording thermometer with an extra minimum thermometer above and two extra thermometers below

he best results; to explain how personal errors may be avoided; suggest the making of satisfactory records; enumerate the results of a year's tests of various types of thermometers and summarize the relative accuracy of the different types in use by orchardists and others.

Necessity of Thermometer Testing

It is an unsolved problem whether redulity or incredulity is responsible for the greater amount of error. In the matter of thermometers ordinarily in use there appears to be no doubt at all about the solution: it may be said without hesitation that it is the former, for not one person in a hundred ut what believes that the thermometer is reliable. This is not only true of the processes of taking temperature readings in the citrus orchards of California or elsewhere, but the same criticism holds good in the use of clinical thermometers and thermometers when applied in the arts and in the industries. Human nature is apt to accept a printed statement or an engraved or stamped scale as being correct without personal investigation. And is it not natural? We never think of checking up the accuracy of a foot ale or a yardstick; it is accepted as being dependable. If the making of thermometers were as simple a matter as dividing off the tenths or sixteenths of an inch on a wooden or metal strip most of the difficulties in the use of a thermometer would be solved.

When the practical research department dealing with meteorology applied to agriculture and aeronautics was created in the Los Angeles chamber of commerce, one of the objects at forth was the standardization of certain instruments used in industry. A few tests were convincing proof that one of the most important fields for investigation was the examination and

order, and only 6 per cent were accurate. The 210 thermometers that were submitted for test by the orchardists during the year were not the ordinary kind, but instruments bearing names of well known makers and cost their owners on an average of \$5 each. One fruit grower reported, "Ninety per cent of the thermometers we were using were incorrect, and after having same tested and marked we were able to save several thousand dollars. I believe that citrus growers of California have wasted thousands of gallons of

RELATIVE ACCURACY: THREE STYLES ORCHARD THERMOMETERS

NO CORRECTION

UNSAFE

MODERATE

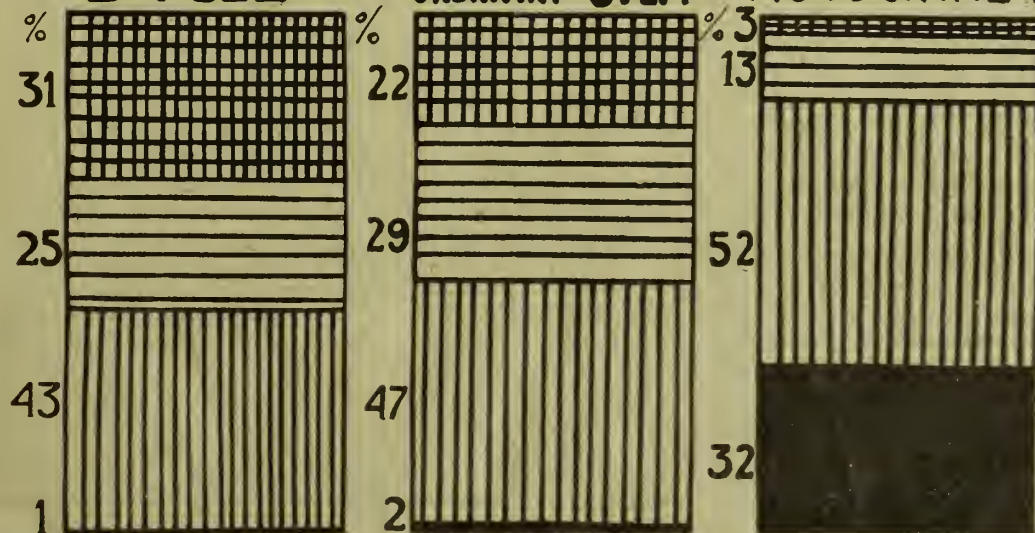
DANGEROUS

210 THERMOMETERS: VALUES IN PER CENTAGES

U-TUBE

ORDINARY STEM

HORIZONTAL TYPE



This diagram represents the relative accuracy of the three principal types of thermometers in general use. Two hundred and ten thermometers were tested; 124 of the U-tube pattern, 55 of the ordinary stem variety, and 31 of the horizontal self-recording style. Only one per cent of the U-tube pattern, two per cent of the ordinary straight stem and 32 per cent of the horizontal model were found to be accurate.—From Bulletin Southern California Academy Sciences.

Established 1877

Forty-fifth Year

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and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
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Saturday, May 13, 1922

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We guarantee our subscribers against
loss through dishonesty of any advertiser
in the Cultivator. We do not attempt,
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between subscribers and honest, respon-
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debts of honest bankrupts. Notice of
complaint must be sent us within 30 days
from date of the transaction, and the
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EDITORIALETTES

America is in line for feeding
all the world on asparagus. Califor-
nia has large producing possibilities,
and some day may have canneries
sufficient to meet the demand of all
the world. Finer quality and greater
quantity is not to be found than in
the delta land of the San Joaquin and
Sacramento Rivers. As to quantity
we are already producing two-thirds
of all in the United States. See how
it grows in the photo on the cover.

Mr. Reed of the Sacramento cham-
ber of commerce has given the fol-
lowing regarding the asparagus in-
dustry: "The Sacramento Valley
delta district has almost finished har-
vesting, marketing and canning its
1922 asparagus crop which is worth
more than \$4,000,000. Of the total
acreage in the entire United States
amounting to a little over 32,820, two-
thirds, or more than 20,479 acres, are
in the central California district,
which makes it the asparagus center
of the world. This season it is esti-
mated the canneries at Sacramento

and delta points will put up over
900,000 cases which carry the choicest
brands and will be distributed in
every corner of the globe. The crop
comes on early in the spring, and the
pack lasts until cherries ripen, and
other fruit and vegetable crops in ro-
tation are handled."

The tall stack hasn't gone yet.
Some will be made and sold this year.
The committee reported favorably on
the modified stack but individual
growers may prefer the perfect com-
bustion possible with the tall stack.
Mr. Scheu finds that many growers
still insist that the greater number
of heat units secured through perfect
combustion and by direct radiation
from sides of stack abundantly com-
pensates for loss, if any, from the
column of heat delivered from the top
of the tall stack.

Congressman Swing has introduced
a bill which provides for an appro-
priation of 90 million dollars for
preliminary steps in the building of
Boulder Canyon Dam and All-Amer-
ican Canal to the Imperial Valley.
This fact was no sooner made public
than the fight began on the bill. It
will continue as long as there is pos-
sibility of defeating it. In the mean-
time Imperial Valley people and the
majority of the people in Southern
California will aid Congressman
Swing in every way in their power.

Dr. Walker, president of the State
Federation of Farm Bureaus, informs
the Cultivator that the grain growers
of this state are now organizing to
take advantage of the U. S. Grain
Growers, Inc. The U. S. Grain Grow-
ers, by the way, is the child of the
American Federation of Farm Bureaus
which is responsible also for getting
the livestock people of the country
into a great cooperative organization.
Dr. Walker says that the value of the
grain which will be handled by the
Grain Growers in California this year
will put it in line amongst the larger
cooperative marketing organization.

Dr. Walker is at present visiting
farm bureaus of Southern California,
touching various points in connection
with the farm bureau conference jour-
ney. He will attend the meeting of
the Los Angeles County dairy depart-
ment and the Orange County annual
at Orange County Park.

The last two weeks have shown
marked activity by the farm bureau.
In addition to many annuals of county
associations there was the state con-
ference of farm advisers at Berkeley
followed by the conference of farmers
and members of farm bureaus in au-
tomobile trip covering over 800 miles.

The automobile, the truck, the tele-
phone and good roads have cut the
mile in two, and the farm formerly,
as sometimes expressed at least, out
of touch with civilization is today
brought to the outskirts of the town.
In addition the phonograph, electricity,
modern plumbing, and other aids to
comfort and social life have brought
much to even the most remote ranches.
Now comes the most wonderful of all,
the radio. Some of us are still won-
dering and asking, "Where is the end
and what will it amount to?" While
we are wondering and asking the high
school boy is taking an elementary in-
struction book, buying a few supplies
and installing the radiophone to the
joy and astonishment of his own fam-
ily and the surrounding neighbors. It
is simple, it costs but little and we be-
lieve will ultimately result in not only

a wonderful plaything but an aid to
farm efficiency. More another week.

Speaking of radiophones we are re-
minded of a news item in a recent
daily paper. The item was headed
"Be Gentle With Electricity." Four
boys putting up aerial wires for a
radio receiver let them fall over a
high tension electric light wire, not
thinking of the danger. The light wire
was insulated, but the scraping of the
radio wires back and forth wore off
the insulation. Suddenly there was a
blinding flash and the two boys fell
to the ground, one dead and the other
seriously shocked and burned. The
father of the dead boy, running out,
seized the wire and was killed. It is
scarcely possible there may be any
danger in radio equipment but the
hint of the tragedy referred to above
should make our boys careful, very
careful, while playing with electricity.
While working with the radio keep in
mind that high voltage electricity has
its perils.

Everybody in Sacramento is grow-
ing whiskers, that is, "them as what
can." This in commemoration of a
time in California when safety razors
were unknown. The Days of '49! In
all history there is nothing to equal
this great romance of California, and
Sacramento is now inviting the world
to join her in celebrating those days
of gold. The invitation is being ex-
tended not only by all the papers of
California but many in the East are
giving pages of publicity, reprinting
posters and saying all kinds of in-
teresting things about California.

USE THE OPEN ROAD

No other place in the world can
offer greater inducement or compen-
sation for the use of its highways than
can California. The roads themselves
are of the best built and most exten-
sive, and their way lies along the
ocean or through the valleys and into
the mountains, with wonderfully beau-
tiful scenery at every turn. This week
we are observing "The Open Road,"
and as there is an automobile for every
five or six of our inhabitants it is to
be assumed that few of our residents
but will join in the celebration. Like
many other celebrations the effect of
this one will not end with Saturday
night for many are saying: "We have
not seen all we expected to this week
but we have planned for a trip
amongst the sequoias or into the
Yosemite or to Yellowstone, to the
Grand Canyon or to some of the more
quiet seaside or mountain resorts."
Some are planning to visit Europe,
more to see California first.

A LATE RAIN

The melting snows of the Sierra
Nevada sent down such a flood that
Kings River broke its bank and
threatened to fill old Tulare Lake, the
bed of which is now covered with
nearly 400,000 acres of ripening
wheat. The light rain of Monday and
Tuesday struck terror to the hearts
of all but fortunately it turned into
such a cold storm that the hardening
of the melting snows finally turned
the rain into an advantage and it is
now hoped no great damage will
result.

The rain covered the entire state,
ranging from a trace to nearly two
inches. Sacramento had a precipita-
tion of .12 inches, San Francisco .26,
Red Bluff .18 for Tuesday only,
Fresno .18, San Luis Obispo .42, Los
Angeles .61, Redlands 1.30, Yucaipa
1.12, Santa Ana .55, Pomona 1.06,
Monrovia 1.03, Riverside .87, Glen-

dora .82, Bakersfield .30, Long Bea-
.52, Corona .70, Pasadena .89, Port-
ville .55. Sacramento County report
millions for it will plump up to
ripening grain. A few sections we
caught with some alfalfa down b
the state over the benefits are vast
greater than the losses.

A GOOD THERMOMETER

A thermometer according
Webster is "any device for measure-
temperature," then adds: "Strictly
speaking, temperature is not a mea-
urable property, but its rise and fall
can be estimated in terms of accom-
panying changes."

Too many growers are content with
"any device" rather than one which
will enable a correct estimate of "ac-
companying changes" occurring in
one's fruit. Still any device even
though costing but few cents may
enable that correct estimate if it
tried out and we learn its idiosyncra-
sies. They may be learned by fol-
lowing the rules of standardization.
Some manufacturers are following
those rules, and tested, standardized
thermometers are to be had.

A fund of valuable information on
thermometers is to be found in Dr.
Carpenter's article on fifth page of
this issue. This article is from a
address delivered by him before the
Southern California Academy of Sci-
ences and again before the orange
growers attending the recent frost
fighting convention at Covina.

DYNAMITING FROST

A new and almost startling
suggestion is made as to frost control.
It is made by Bingham T. Wilson,
long time observer of California
weather conditions and one who has
a desire to protect California orchards
without the nuisance of smoke. Mr.
Wilson writes to the Cultivator:

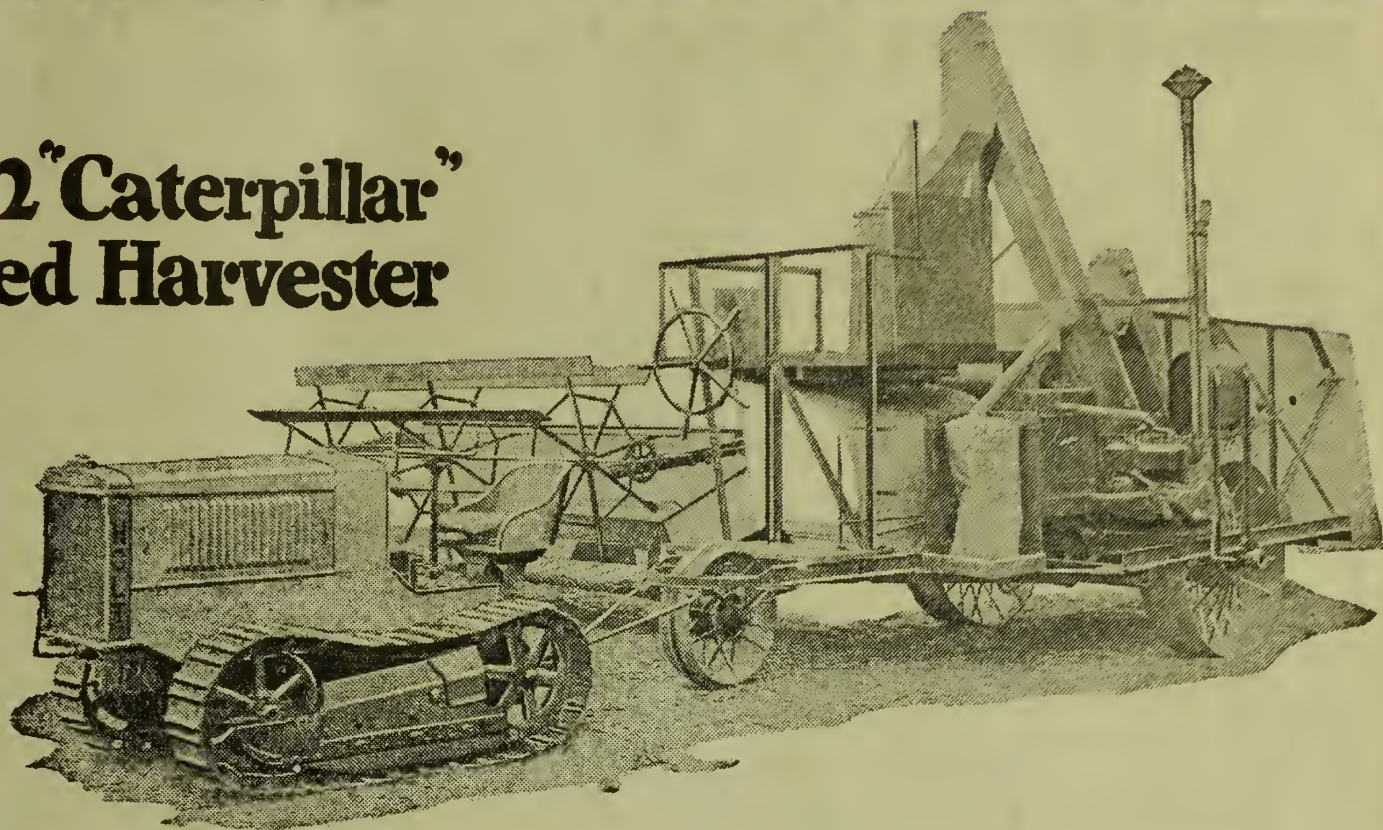
"During the recent frost preventive
convention at Covina I was deeply im-
pressed by the general sentiment ex-
pressed in favor of eliminating the
smudge pot by bringing down the
warmer air currents from above. There
can be little doubt that under normal
conditions those currents do exist, at
even with a freeze like the one of the
past winter, which took on somewhat
the elements of a blizzard, the higher
orchards were saved by these same
warmer air strata, proof conclusively
in favor of the mechanical warming of
our orchards. I have given this mat-
ter much thought and am convinced
that this heat descension can be suc-
cessfully brought about by the use of
explosives in the form of frost grenades.
Bombs exploded at an elevation
of 100 feet over our orchards will ef-
fectively drive the warmer air down
and create artificial air currents that
will assimilate with the colder air be-
low, thereby warming it all. This sys-
tem requires but little expensive ap-
paratus. A small bomb trap that would
throw the grenade is about all, while
the bombs themselves need not be ex-
pensive or extensively used. Next
winter I shall experiment and would
like to enter into cooperation with
whatever organizations exist in order
that we may thoroughly test its ef-
fectiveness and, if successful, present
it to the farmer free from patent
encumbrances and at the least pos-
sible expense.

"Bombing the air would have its ob-
jectionable features, no doubt. During
the process of bombing no orchardist
could sleep, but then what orchardist
can when the thermometer is at 27
degrees and falling? An investigation

(Continued on Page 539.)

Here is a real *in a* HOLT Harvester **SMALL SIZE**

Model 32 "Caterpillar" Combined Harvester



A harvester built to last a lifetime

MODEL 32 is a Holt Harvester in every respect, possessing the same qualities that have established the enviable reputation of the larger machines, employing exactly the same separator design; reaching, in addition, a higher point of achievement in harvester design than has ever before been approached. It is a lighter-running harvester than has ever before been built, easier handling, adaptable to every harvesting condition, an all-metal machine that will last a lifetime.

Never before has the grain grower—unless he farmed big enough acreage to purchase the larger Holt Harvesters—been able to buy equipment that would harvest his crop so *quickly*, so *efficiently*, so *economically*. Never before has a *real* combined harvester been offered in such small size—a harvester that takes only 2 men to operate it, 6 to 10 horses to pull it, that weighs less than 7000 pounds, that saves and cleans the grain in the same thorough manner as the larger Holt Harvesters. Only as a result of Holt experience is such an achievement possible—only Holt could build such a machine.

The 1922 production of Model 32s is limited—to make sure of obtaining delivery, your order should be placed at the earliest possible date. Don't delay filling out and sending the coupon for full information about the Model 32.

Weights less than 7000 pounds

6 to 10 horses pull it easily

Cuts full 12 feet

Requires only 2 men to operate

Hyatt Roller Bearings throughout

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All-Metal separator

20 horsepower motor

Cylinder direct-driven from motor

Safety sprockets eliminate breakage

Easily moved over roads

Tear out and mail this coupon

The Holt Mfg. Co., Stockton, Calif.

Please send me your illustrated descriptive folder about the Model 32 "Caterpillar" Combined Harvester.

My grain acreage is _____ acres.

Name _____

Address _____

The Holt MANUFACTURING COMPANY

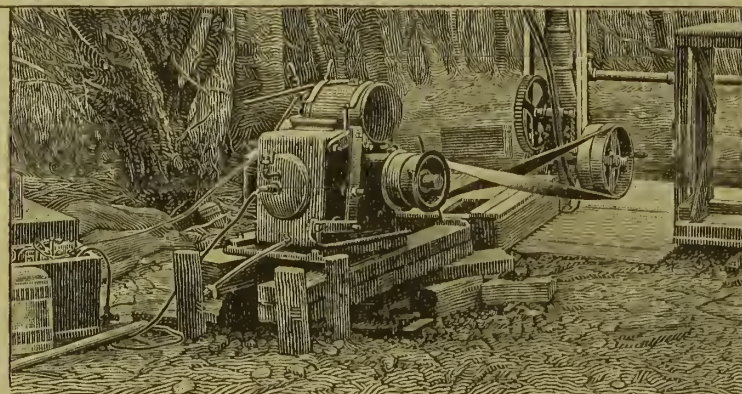
Stockton, California
Spokane, Wash.

Peoria, Illinois
San Francisco

Los Angeles



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"My Goodyear Klingtite Belt operates smoothly and powerfully, under all weather conditions. A belt of another material that I had on the same pump jack was as useless as a piece of rope. This one is strong and close-gripping."
—ELMER THOMPSON, Farmer, Little Sauk, Minnesota

You can leave it out there alone, without a man to watch or tend it, and be sure your Goodyear Klingtite Belt is holding steadily to the pulleys and delivering full power every time the engine turns.

It goes right on working through winter snows, spring rains, and summer heat. Atmospheric changes do not affect it. It keeps a slipless grip on the pulleys.

For every farm power duty, there is a Goodyear Klingtite Belt, designed, built and tested specifically for farm service.

Your local dealer in hardware or implements has Goodyear Klingtite Belts for sale. For further information about their economical and trouble-free performance in farm service, write to Goodyear, Akron, Ohio, or Los Angeles, Calif.

GOODYEAR

KLINGTITE BELTS

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New Walnut Diseases

There recently appeared in the "Re vista Agraria" of Naples, Italy, an article on a new walnut disease, with suggestions of treatment, in which the ailment would seem identical with the one now puzzling California growers. We quote:

"On a farm belonging to the Comune of Sant'Anastasia (Province of Naples) there are about 700 walnut trees which should be in full bearing, but for some years two-thirds of them have shown signs of withering. The foliage is very scanty, the shoots of the year are short and weak, and the pith is more or less brown; during the summer, the leaves turn yellow, and in June a larger or smaller number of the small nuts are shed. Finally the branches become partially or wholly withered, and when the course of the disease is very rapid the whole tree succumbs. From cracks or lesions in the trunks there exudes, especially in spring, a blackish, somewhat mucilaginous substance, which frequently comes out from small bubble like cavities in the heart of the tissues. These are, however, often not very noticeable, but an unfailing symptom of the disease is the more or less distinct blackening of the living tissues situated immediately beneath the cortex, which also extends irregularly to some extent up the trunk. As a rule, only the base of the trunk and the large roots are thus attacked, the lower branches remaining immune.

"The whole root system, as well as the larger roots, is infected to a certain degree, and crystalline deposits are often found in large numbers in the tissues. On the thick roots especially as far up as the root collar, or even higher, are seen masses of whitish mycelia or thin black rhizomorphous filaments which wind among the tissues or make their way between the wood and the cortex. The white mycelia sometimes assume arborescent forms which are very characteristic, being arranged in a fan like manner. Sometimes the mycelium causes the delignification of the large roots, which become quite soft.

"A cursory investigation reveals the fact that the soil on which these walnut trees are growing varies in depth, but is everywhere shallow and rests upon a very compact bed of rocks which from their nature cannot easily be penetrated by the roots and contain but few elements suitable for plant food. It is thus permissible to suppose that the roots of the walnut trees, when the latter have reached a certain age do not only meet with an obstacle preventing their further expansion but are also unable to abstract from the soil all those substances which are necessary to the life of the tree. Further, it is well known that walnuts need rich deep soil and therefore do badly where the soil is poor and shallow. All these circumstances contribute to lower the activity of the root system and predispose it to the attacks of the cryptogamic flora of the soil which derive great benefit from the humidity resulting from the impermeability of the sub-soil. Hence the constant presence of large numbers of mycelial hyphae which can be seen from outside, lie hidden under the cortex, or wind concealed from sight through the various tissues of the cortical and ligneous zones. Another fact of a general nature must also not be lost sight of, viz., the climatic conditions. In Campania rain falls frequently and heavily from October to March so that the ground is constantly moist; if to this fact is added the relatively warm temperature of this region which prevents the soil freezing, even during the coldest months, it is easily understood that the cryptogamic soil flora has every opportunity of growing with extreme rapidity and of attacking the roots during their winter rest and, moreover, when they are already weakened by complex conditions of a cultural nature.

"It is advisable to scarify the infected wood and to disinfect the lesions, but this is not enough to control a disease which originated and has its chief extension in the root system. Therefore, unless it is decided not to take any measures, seeing that the soil is probably quite unsuited to the cultivation of walnuts,

the only thing to be done is to use substances to destroy the fungi in the soil and prevent their growth. This would at all events give a certain respite to the roots so that the length of the life of the tree would be prolonged and a fairly good crop of walnuts secured for a few years. Carbon bisulphide could be injected to a depth of 40-50 centimeters, 30-35 grammes being used per square metre; other suitable substances are a 2.5-3 per cent solution of sulphate of iron, a 5 per cent solution of sulphate of copper (the roots having been properly uncovered), or quicklime.

"These remedies must be applied at two different seasons, quicklime, carbon bisulphide or copper sulphate being used in the winter from November to December, and sulphate of iron sprays in the spring, after the leaves have unfolded."

OLIVES IN THE SOUTHWEST

The first olives were introduced into southern California by Franciscan Fathers 150 years ago. The original plantings were made near the San Diego Mission. Since then olive growing has been carried on in many parts of California, in Arizona, and in a few other sections. Within the past 25 years the olive industry has assumed a place of importance in the commercial fruit industry of the United States. The basis of the industry in this country is now the production of ripe olive pickles, although for a number of years small quantities of green olive pickles were made of the larger types of fruit. Until 1900 almost the entire production of olives in this country was utilized for oil. At the present time oil is chiefly pressed from those olives which are too small to be acceptable commercially.

For olive growing a comparatively mild climate is necessary. A temperature of 10 to 14 degrees Fahrenheit above zero is likely to prove disastrous to the tree, and the fruit will usually be injured by a drop below 28. The dry atmospheric conditions of California and the arid Southwest, where irrigation supplies the necessary soil moisture, appear to meet its requirements. A new Farmer's Bulletin, No. 1249, Olive Growing in the Southwestern States, by C. F. Kinman, pomologist, describes in full the methods used in olive orchards, the conditions most favorable to successful results and the proper handling of the fruit in the pickling plants. Many illustrations are given, so that the bulletin will meet the need for information of those contemplating engaging in the industry. It may be obtained upon application to United States Department of Agriculture, Washington, D. C.

BROWN ROT OF CITRUS

During and after heavy rains investigators have found brown rot injury to oranges and lemons in a number of places. In one case on a single tree 24 affected fruits were found.

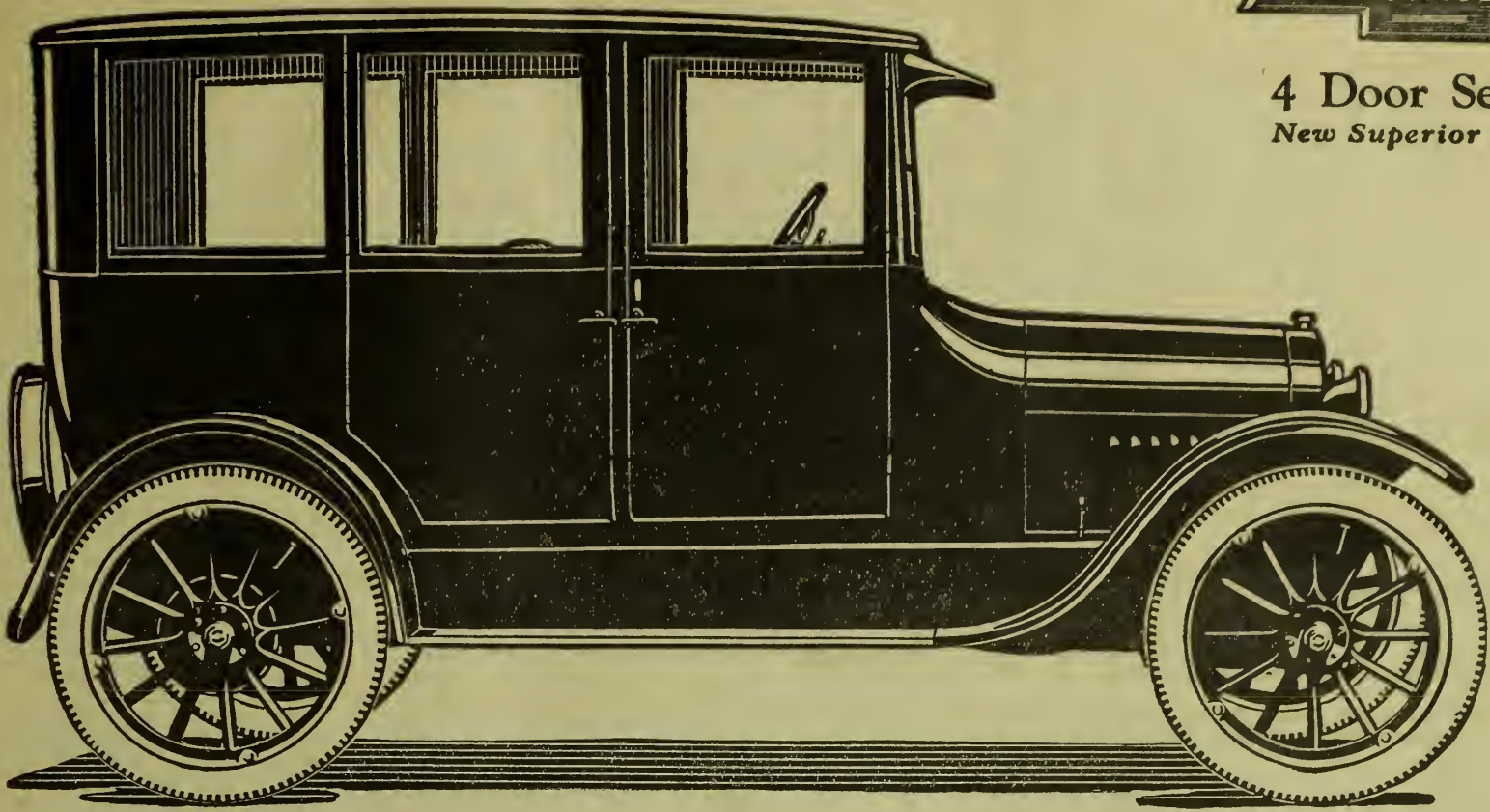
Brown rot injury is always likely to occur in citrus orchards when conditions become favorable to its activity. The fungus causing brown rot is a natural resident of our citrus soils but is prevalent more particularly in the heavier soils. This fungus grows to the surface during wet weather and the spores are splashed up on the low hanging fruit by rain drops, resulting in the characteristic spotting and decay so well known. This same fungus is the one responsible for most of the gummosis in citrus trees.

It is always a good thing, particularly if the soil is rather heavy, to spray the ground under the trees with a thick Bordeaux mixture as soon after fumigating as possible, as a precautionary measure.

After damage has occurred the ground under the trees as well as the lower foliage and fruit should be thoroughly saturated with Bordeaux mixture. A good strength is 3-3-50. It is also desirable to remove affected fruits from the tree and from the ground under the tree so as to prevent at least a part of the infection.



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New Superior Model



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The Ideal Family Car

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Never before has a Fisher Body Sedan of this quality been offered at a price so low. The beautiful lines, superb finish, luxurious upholstery and refined appointments that have made Fisher Bodies the standard of excellence in closed cars, are all here in full measure. Its four doors fit perfectly and cannot rattle.

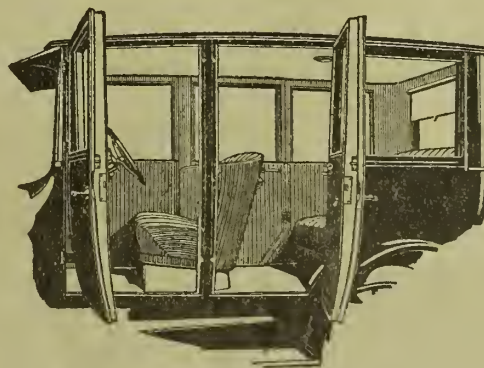
The heavy plate glass windows can be instantly lowered to any desired point, or as quickly raised, and the plate glass windshields are both movable, permitting instant conversion of the Sedan into either a closed or an open car.

Mounted on the New Superior Model Chassis, this car is fully equipped mechanically, and combines ample power and speed with steadiness and ease of handling.

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How to Thin Apricots

By A. H. Hendrickson, Deciduous Fruit Station, Mountain View



APRICOTS should be thinned to increase the size of the fruit, prevent breakage of limbs due to excessive loads, and to stop the spread of brown rot in clusters of ripening fruit. The practice of thinning apricots on heavily loaded trees is one to be recommended in order to produce fruit of large size and highest quality. Ordinarily, unless prevented

by frost or disease like brown rot or shot hole fungus, the apricot tree tends to set more fruit than it can size properly. This means a great quantity of pits is produced. The grower, however, is chiefly interested in fruit—not in pits.

There is no stated time for thinning, but the work should be done before the pit hardens. A good time to thin is when the fruit is from one-half to

three-quarters of an inch in diameter.

Apricots should be thinned so that no two fruits will touch when ripe. Ordinarily the young fruit should not be left closer than from three to five inches on strong shoots and only one fruit to each short spur. Two fruits may be left near together on opposite sides of a limb if no other fruits are closer than four or five inches. In orchards where irrigation is possible a larger number may be left than in the drier foothill sections where the trees cannot be watered. On young and vigorous trees which have set a major portion of their crop on the main branches, the fruits may be left fairly thick, as they will in all probability grow to proper size. Clean fruit of large size is what is wanted both for canning and drying.

In the coast counties it is especially desirable to see that the fruits do not touch when ripening. Brown rot during certain seasons works very rapidly in ripening apricots. In clusters there is often enough moisture between the fruits in the morning to permit the spores to germinate. The disease thus works very quickly from fruit to fruit and within two or three days the entire cluster may be infected.

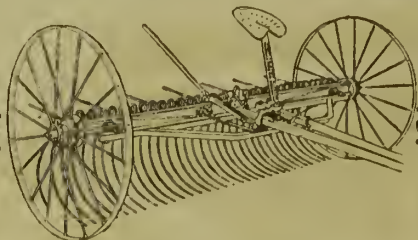
Thinning in Long Pruned Trees

Thinning apricots on trees which have been pruned according to the "long" method requires special consideration. In practically no case does the grower thin a "long" pruned tree heavily enough. Where the pruning method has been changed from the

"short" to the "long" system, it must be remembered that in most cases the bearing area of the tree has been greatly increased. Fruit wood, formerly removed, is left, and the tree usually sets a larger number of fruits than in the case of a similar tree short pruned. Due to the fact that many branches have been left uncut this increased set is not very apparent. The result is that too many apricots are left on the tree and cannot be fully sized.

In some cases, particularly near the coast, the trees often set fruit on the slender one year wood beyond the fruiting whorl. As the season advances the branches bend out and downward, exposing the fruit near the end to the direct rays of the sun. A period of exceptionally warm weather such as occurred in June, 1921, may cause a scalding of these fruits at the ends of the branches. Furthermore, as these apricots near the extremities of the branches are farthest from the source of sap, they oftentimes do not grow as large as those on the large branches in the center of the tree. In a long pruned tree which has made a vigorous growth the previous season no fruits should be allowed to remain on the end two or three feet. They can be removed easily by means of a cane or light stick on the end of which has been fitted 12 or 14 inches of old spray hose. The branch may be struck with this hose to knock off the apricots at thinning time without material injury to the branch or buds. This work can be done very quickly and cheaply, removing the danger of having small or scalded apricots.

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All Steel
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High Quality

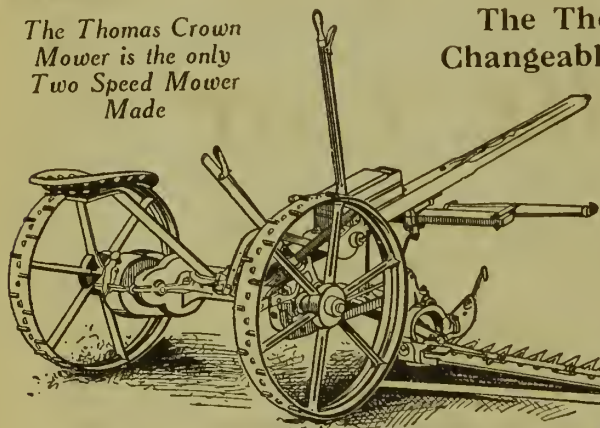
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If you want a rake that will give you no trouble, that is always ready for use, requires no repairs, and above all, that is easiest to operate—**BUY A THOMAS HAY RAKE**.

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Sizes 3½, 4½, 5, 6 and 8 foot, with wide rim ground wheels. Slow speed for 90% of work, causing less wear. High speed for very heavy work. Cutting where other mowers fail.

The foot lift and hand lever work in conjunction automatically, and with the gag lever gives absolute control in raising and lowering the bar. The tilting lever is easily operated, with ample adjustment for any condition of the grass.

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Double eccentric steel arch connection, stronger, more adjustment than others, and giving practically instantaneous adjustment on cutting bar.

Inner shoes malleable, not cast iron, as are many others.

Wearing lugs in heel of each guard, less friction, better support for knife. All boxes removable; no wear on frame. Ball thrust bearing for crank shaft pinion. Heavy drop forged steel pitman straps. Sliding hitch, direct pull; no side draft.

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Frosted Walnut Trees

By Ernest Braunton



THE agricultural extension service of Los Angeles County held two meetings on treatment of frosted walnut trees, one at Pomona, May 3, and one at Van Nuys, May 4. Dr. L. D. Batchelor, from the Riverside citrus experiment station, was the lecturer, and D. C. Wylie of the field department, California Walnut Growers' Association, the surgical operator.

Dr. Batchelor stated the damage was done during the nights of November 17, 18 and 19, the first frosts, and unusually severe for the season. At some points the temperature dropped the first night to 25 degrees at 11 p. m., and registered 20 before morning. As a rule the upper parts of the trees only were injured as these included the tender growing tips. Where there were no air currents some trees were frozen to the ground.

To overcome the injury which may otherwise occur every year in some sections it is necessary to ripen the wood before frosts come. This does not mean that leaves have dropped or turned yellow, but the tips have stopped growth and will extend no farther. The remedy is to control irrigation, for growth will continue so long as soil moisture is present. In silt loam such as is present in the H. W. Hall orchard at Pomona, where the first meeting was held, soil moisture remains for a long time, and irrigation must be suspended early, or about July 15. In sandier soils, where moisture is early dissipated, irrigation may be done a month later, or August 15. Dr. Batchelor said three irrigations each season should be given—in May, June and July. In young orchards make the last irrigation light, not wetting the soil to a depth greater than three feet.

Among varieties the Eureka is more generally susceptible to frost injury than Placentia or Erhardt. If injury is light, only the tips being killed, Dr. Batchelor advises no pruning until the all walnut pruning is done. Do not all walnut pruning is done. Do not be discouraged so long as there is life above the bud or graft; some of the

best orchards were badly frost injured when trees were young. Nearly all frosted trees may be made over if vigorous shoots appear. Where irrigation has been suspended in July or August, one should not wait later than Christmas for rains. If none fall by that time irrigate immediately.

CAPRIFIG FIELD DAY

Caprification of the Calimyrna fig is essential to the success of that variety. Ever since the introduction of the blastophaga in 1900 improvements have been made, new varieties discovered and material progress made in the success of this interesting process of fig culture. The details of caprification are important and must be attended to carefully in order to make for greater success in the growing of the Calimyrna.

The planting of 50 acres of caprification in the foothills at East Orosi has probably done more to insure the success of the Smyrna type of fig than any other one thing during the past 23 years. This orchard was planted in the spring of 1921 and is growing vigorously at the present time. Members of the Peach and Fig Growers are planning to hold an all day field meeting on May 19 at the Caprification chard to discuss varieties, baskets, methods of distribution, summer pruning and other important points leading to success.

The following tentative program has been prepared by the department of horticulture of the California Peach and Fig Growers, which is cooperating with the Tulare and Fresno County farm bureaus in arranging this program:

9:30 a. m.—"Caprification Varieties and Their Identification," I. J. Condit
"The Maslin Varieties of Caprification," G. P. Rixford; "Caprification Baskets and Distribution," "Question Box."

1 p. m.—Inspection of caprification orchard; Hutchinson & Toler orchard at orchard of A. J. Dye; summer pruning of caprification trees; caprification grafted into Calimyrna trees; caprification of Kadota figs; visiting neighboring orchards.

Every fig grower who is interested in learning more of the details of caprification should prepare to attend this meeting. Growers who attend are requested to provide their own baskets and lunches as the picnic under the

trees near the orchard can be enjoyed. This orchard is located on the place previously owned by L. P. Sorenson and adjoining that of E. A. Sorenson, who is caring for the orchard.

CALIFORNIA VALENCIA ORANGE SHOW

Notwithstanding the fact that California Valencia oranges are bringing the highest price in history, millions of Valencias will be exhibited at the forthcoming California Valencia Orange Show to be held in Anaheim, May 23 to 30. Valencia growers have been keeping a watchful eye on their best fruit, and some of the finest specimens of Valencias ever grown will be entered in the competition for prizes at the show.

The crop this year is said to be exceedingly heavy and producers are planning to exhibit in far greater numbers than ever before.

Practically all of the fruit distributing associations in Southern California will have feature and rack exhibits. Municipal and civic bodies will also place beautiful displays. The decorations will be exceedingly beautiful this year.

It is expected that the growers will find a great deal of interest in the industrial section. Here will be shown every conceivable kind of implement and article used in citriculture. Nearly 90,000 feet of floor space comprise the various sections of the show. There will be 280 exhibitors in the industrial and automobile sections, the two departments being housed under different tents.

The show will be located in the beautiful new 20 acre city park at Anaheim. Besides the large tents here will be two smaller canvasses which will house the baby welfare department and the exhibit of the Laguna Beach Art Association.

Accommodations for motorists are being arranged. An official parking place, adjacent to the show grounds, is being arranged and will care for 5,000 cars.

SUTTER COUNTY PEACH GROWERS CONTEST

When we hear of a five year old orchard of cling peach trees producing 10 tons, 242 pounds per acre, on an entire orchard of 13½ acres without fertilization, the most credulous of us open our eyes, but that is exactly what happened in our 1920 peach growers contest and that record still holds.

Peach trees are not supposed to be in full bearing until they are ten years old. What are the possibilities of a five year old orchard? That is one of the things we are delving into by means of our annual contest.

Already our years of contests have taught us much about the peach industry. They have had a large influence in increasing the use of cover crops among the contestants from 11 per cent in 1920 to 28 in 1921. What is true of the contestants is largely true of the fruit industry of the county as a whole.

They have caused longer pruning to be practiced throughout the entire country and long pruning, as recommended by the university has been adopted outright by 500 acres of orchard where two years ago practically no pruning of this kind was done.

Each orchard that wins a ribbon or cup takes its place as a demonstration of improved orchard practice. It goes away with hide bound traditions of orchard culture and sets up the most progressive practice that gives results.

Cups and ribbons have been put up by the California Cannery League for trees of leading varieties, and the varieties have been divided into different age groups so that the competition might be as fair as possible.

The points were awarded on a basis of 100. Eighty points were given for the highest tonnage of No. 1 fruit, ten for perfect condition of orchard and ten for the perfect delivery of the fruit.

The tonnage of No. 1 fruit was taken from the weigh tags, returned by the canneries, the Cannery League returned the grading on the fruit, and the condition of the orchards was judged by Professor J. C. Whitten of the University of California.

Each contestant was obliged to fill out a card with regard to all the cultural methods practiced by him in pro-

ducing a crop. This card was held in the farm bureau office. From these cards it was possible to obtain valuable information in regard to the peach industry and its improvement. All the zest of healthy competition has been brought to the full.

This year we are out to beat that 20 ton record.

WALNUT GROWERS FIELD DAY AT SANTA BARBARA

At a recent meeting of the executive committee of the walnut growers' department of the Los Angeles County farm bureau at which representatives from Orange, Ventura and Santa Barbara Counties were present, it was decided to hold the second annual walnut growers field day at Santa Barbara on Saturday, September 2. A special program committee was appointed which is to meet at Santa Paula to outline the program for this activity. Plans are being made for special rates at the hotels and an excursion trip through the beautiful Santa Barbara district for Friday, September 1. It

is believed that walnut growers of Southern California will attend in large numbers. At the first annual field day held last year at Puente more than 1,000 walnut growers were present.

*CROP PROGRESS IN ARIZONA

Under the influence of higher temperatures all vegetation has made rapid advance during the week. Early planted cotton has made the second joint and in many places plants are six inches high. Where replanted, cotton is making a sturdy growth and presents a uniform and healthy appearance. Potatoes are doing extremely well and recent weather conditions have been favorable for a large yield. Cantaloupes are coming on nicely notwithstanding attacks of aphids which are also reported to infest cotton and potatoes. First cutting of alfalfa in the Salt River Valley is reported as poor and light owing to the effects of cold weather. Barley is turning yellow and a considerable amount of grain hay is being cut. Grapes are blooming in the Yuma sec-

tion, summer squash is on the market and string beans are appearing. Annual shipment of date stock from Yuma has been completed, the greater part going to India.

CASEIN SPREADERS INCREASE SPRAYING EFFICIENCY

The use of preparations of casein to increase spreading properties in liquid sprays is rapidly coming into prominence. The last ten per cent of efficiency in covering often counts more for control purposes than the ordinary 90 per cent application usually given, and any factor which thus tends to make up for the element of human laxity ought to be widely adopted. Several firms now have for sale such casein spreaders.

Within the San Joaquin valley itself Raisin Day is coming more and more to be regarded as the day when we sing the praises of cooperation, regardless of the industry that may be affected.—Fresno Republican.

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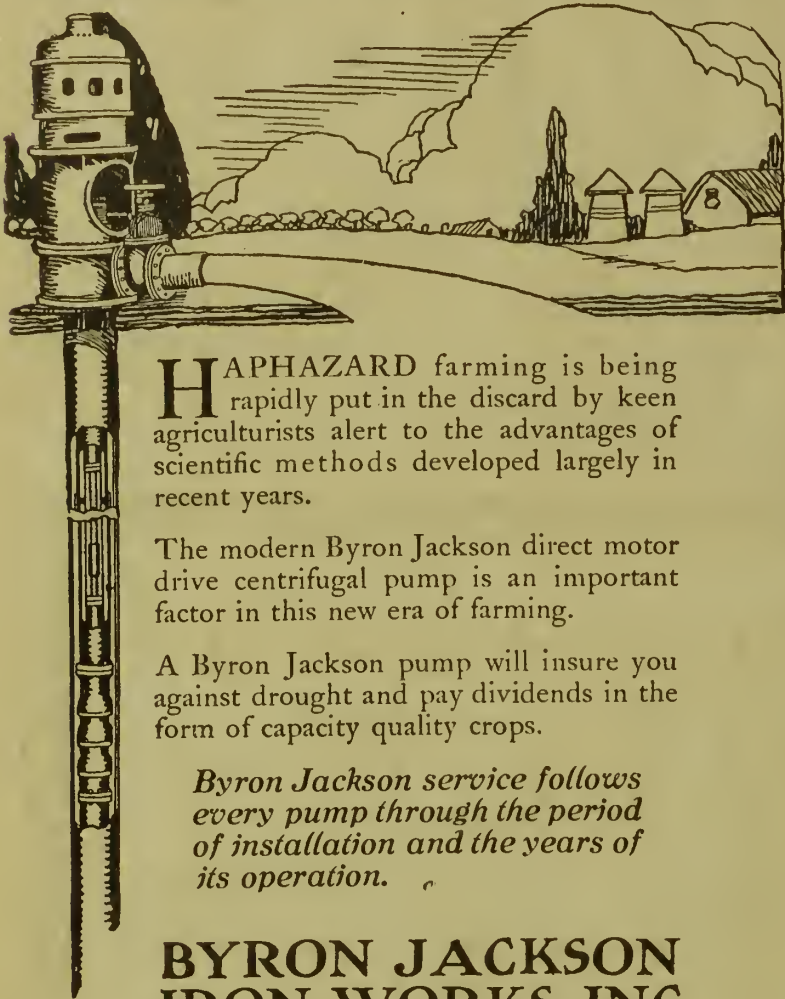
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Wherever water is to be lifted

Southern California Vegetable Garden for May

By D. F. Reichard



THE month of May this year finds us just about a month behind in weather conditions. Consequently our gardens are backward. Beans, corn, melons and the like that ordinarily would be good sized plants have been struggling along making slow progress under the adverse weather conditions. But, look out! Keep your ground in good shape, a spell of hot days is liable to come on unawares, then the plants will tell you whether you have kept the moisture where it is available. It is imperative that there be enough moisture available in the soil to keep the plants in good growth; lack of moisture soon stunts the plant, making it or its fruit tough and pithy instead of the nice savory succulent vegetable anticipated when the garden was started. Apply water either by sprinkling or slowly running the water in furrows near the rows of plants—the latter way is preferred. Thoroughly cultivate as soon as the ground is dried out enough to work.

For those who have not already started their gardens we would sug-

gest that you thoroughly soak your ground and work it at least ten inches deep and pulverize it. There is still time enough to "put over" a good summer garden in which may be planted beans, corn, cucumbers, melons, okra, roselle, tomatoes, peppers, squash, eggplant, as well as many of the hardier vegetables, but do not try to grow peas nor Irish potatoes; they do not do well when planted at this time of the year.

Watch your garden closely for pests. They attack with full force this month. Get after the aphids with a solution of Black Leaf 40 or nicotine. For chewing insects, as slugs, snails, worms and beetles, use arsenate of lead either as a spray or in the dust form. On very young plants just coming up a very good plan is to scatter tobacco dust or slaked lime, on the hills. These act as a repellant to the insects. Mildew, rust and other fungi are treated with Bordeaux mixture lime-sulphur solution or sulphur. Gophers and moles are best controlled by the free use of traps. Thorough cultivation keeps the weeds out which are most lusty thieves of moisture.

Commercial Floriculture

By Ernest Branton



EVERY year the Cultivator receives queries from subscribers who wish to grow cut flowers for the market, usually as a "side line," to fill a gap in the horticultural program, or to make use of soil areas not in use during some part of the year.

Last week a request for information on commercial floriculture came from Carlsbad. That section may have as good soil and general conditions as any part of the state, but lying nearly midway between San Diego and Los Angeles, it is not close enough to either city to be readily available. Of course, daily shipments may be made with regularity, even as they are made from Los Angeles and San Diego to points in Arizona. But florists like best to deal with fields immediately available. When one gets a "hurry up" call and wishes all the 'mums, carnations or roses of a specified color he can obtain within an hour or two, the home fields are the only ones drawn upon. It is possible to phone and have them delivered in an hour's time or to send an auto to field and bring them in. This matter of availability should be the first consideration in choosing a location. Rapid transportation comes next and one should be close enough to market to deliver personally and not rely upon train service.

The choice of soils is a serious matter. A light, rather than a heavy soil is preferable for a majority of flower crops, and one should be able to get the flowers picked every day, no matter how much it rains. Good drainage is therefore essential. Freedom from frosts is a fundamental unless one expects to grow on limited lines only.

All commercial growers, as a rule, suffer losses each year from frosts. Even though plants like rose bushes are hardy, sharp frosts nip and spoil the buds. Years ago the writer knew a grower near Los Angeles who could market but one variety of rose during cold snaps, Catherine Mermet; 20 other varieties were frozen in the bud.

Abundance of water at low cost is another fundamental necessity, for cut flower crops are from short season plants largely, a 90 day period at most, and must be heavily supplied with water throughout. Good flowers are more dependent upon water supply

than upon any other contributing factor. After all these points are settled one still has to decide what flowers should be grown for the local market. Not all market demands are for like supplies, even of the most popular flowers.

TRUSTWORTHINESS OF THERMOMETERS

(Continued from Page 513)

ture with an inferior instrument. The error of parallax must be avoided. The correct position of the eye is such that the line of vision is at right angles to the stem of the thermometer. The observer must avoid heating the thermometer by the presence of his own body. A thermometer must be given time to indicate a new temperature.

Temperatures Should Be Plotted

To secure best results orchardist and others using thermometer readings should enter them on contour maps of their plantings. One of the first things that will become apparent will be that contours of elevation and lines of equal temperatures do not coincide. Higher ground does not always indicate a warmer region nor do lower levels correspond with decreased temperatures. The drainage of the air, the drift of surface currents, the orientation of the locality to the sun's rays, and the character of the immediate environment all contribute to the varying temperatures encountered over a comparatively restricted locality. Temperature control can be studied and definitely determined by the use of accurate thermometers properly placed and carefully observed.

COVER CROP YIELDS

In order to discover the best type of cover crop to use and the proper method of producing the highest possible yield a group of experiments have been carried out by the agricultural extension service at Yuba City in Sutter County, and the following figures have been secured:

Anderson Bros.—Purple vetch, 1.3 tons per acre; Melilotus Indica, 3 tons per acre (planted December 14 under similar conditions).

F. L. Hutchinson—Purple vetch, 7.4 tons per acre; Melilotus Indica, 4.4 tons per acre (planted in October).

Anderson Bros.—Melilotus Indica (irrigated one month after planting) with irrigation, 7.8 tons per acre without irrigation, 3.3 tons per acre (planted in October).

Dr. E. S. Moulton—Purple vetch, 6.4 tons per acre; common vetch, 5.4 tons per acre (planted in November).

A. J. Clarke—One ton lime on Melilotus Indica, yield 3 tons per acre; two tons lime on Melilotus Indica, yield 6.75 tons per acre.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department. Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Life Insurance

A person insured in a fraternal society for over 20 years. At the expiration of this period under the California law is the insurance collectable? If so what method should be taken?—Subscriber, San Luis Obispo.

Such matters turn entirely upon the contract of insurance which in the above case would of course include the charter and by-laws of the particular insurance society. The insurance may be in the nature of endowment insurance payable at the expiration of a particular period or may be straight life insurance payable only after death.

Land Not Used by Railroad

Land is deeded to railroad with proviso that if the road is not constructed the land would revert to the owner. How long would the owner have to wait in order to enforce this reversion?—Subscriber, Winters.

It would depend entirely upon conditions and the particular wording of the deed. Generally speaking it would be a reasonable time and what would be a reasonable time would have to be construed by the court.

Pumping Plant Owned by Four

Four brothers whose land corners at one point wish to put in a well and pumping plant at the corner. Can an agreement be drawn or can each buy a fourth interest in the one-half acre upon which the plant is located so that if one should sell out he could sell his interest in the plant without furnishing a water right to the buyer, or could one of them own the plant and sell water to the others without assuming the obligation to do it perpetually?—Subscriber, Fair Oaks.

Such a matter could be easily handled in several ways. One method would be to have the agreement between the four parties putting down the well so drawn that in case one desired to sell his land at any time the others would have the right to purchase plant at valuation of his interest; or an agreement could be drawn by the four so that water might be sold by one for a limited period.

Damages from City

I fell over the border of a road by reason of negligence upon the part of the city. This road is very dangerous. Would I be able to collect damages from the city? If so in what court would the action have to be taken, and would I have to have an attorney and if so where would I get one?—Subscriber, Pleasantville.

The liability of incorporated cities for injuries received in the case of streets and highways out of repair is strictly limited by statute and this seems to vary in different cities. It has frequently been held that cities are not liable for injuries sustained by private individuals through the neglect of the officers charged with the duty of keeping streets in repair. In other words, the officers themselves are the only ones who could be held liable. These matters depend so much upon the exact facts of the particular case that whether there is any liability in this case could not be stated. It would undoubtedly be necessary for you to take the matter up with an attorney so that the facts of the case could be thoroughly and intelligently investigated. It is not necessary for you to go to an attorney in

your city but any one in the state would be entitled to take the matter up. For economical reasons it would undoubtedly be best to get one as near your locality as possible. Such action would be prosecuted in the superior court either against the city or against the officers of the city.

Loan to Veterans

Under the laws by which the state undertakes to help ex-service men to buy a farm must a person have cash to make part of the payment? I have implements and a tractor but no cash.—Subscriber, Anaheim.

There are two acts involved in this question. One is the act whereunder the veterans welfare board purchases property and in turn sells it under contract to ex-service men for a period to be fixed by the board, not exceeding 40 acres, wherein one-fortieth of the principal is paid each year with interest at five per cent per annum. In such cases the ex-service man must

make an initial payment of ten per cent of the purchase price of the land in the case of a farm and five per cent in the case of a home or homesite. The other bill is one for the purchase and subdivision of land into farms. In this instance any veteran who is not the owner of agricultural land or right thereto to the value of \$15,000 or who by his purchase of land under the act shall not hold land to that amount, may become a purchaser of one of these farms, each of which shall have a value not exceeding, without improvements, \$15,000, or in the case of farm laborers allotments each of which shall have a value not exceeding, without improvements, \$1000. Preference in the allotment of these farms is by law required to be given to veterans trained in agriculture or those who were wounded or disabled in the military service and are otherwise qualified by experience. No provision is required in this instance for a first

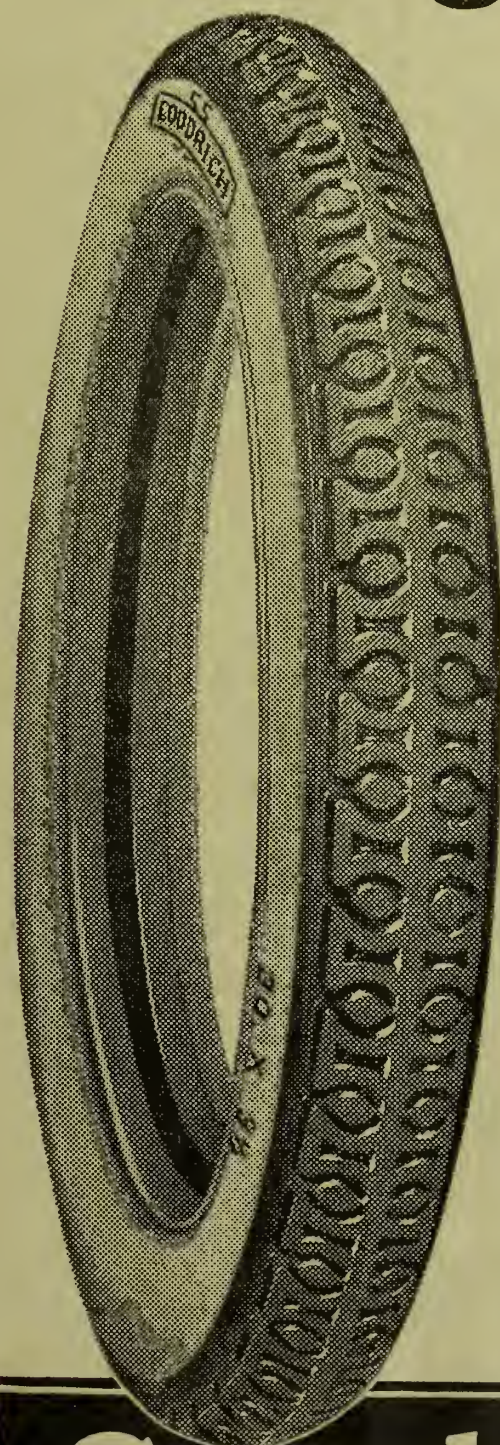
cash payment. The period of payment for the land is the same as that above stated. The purchaser may be required, however, to apply for a loan from the federal farm land bank to pay the amount of such loan to the welfare board then taking the remaining contract subject to that loan.

CITRUS BUD WOOD FROM KENTUCKY INTERCEPTED

The bureau of plant quarantine of the California department of agriculture has been advised that S. A. Sexton, state quarantine guardian at Exeter, Tulare County, recently intercepted a shipment of citrus bud stick from Newport, Kentucky, in the parcel post. Commenting upon this timely interception, Mr. Strong, chief of the bureau, says, "No better way to introduce citrus canker into the groves of California could be conceived."

Horticultural Commissioner Pomerooy of Kern County reports bearing raisin vineyards, 1243 acres; non-bearing, 5680.

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A Titan 10-20 Tractor will pull the machine under favorable conditions, while the International 15-30 will pull it practically everywhere. It can be operated by 8 to 12 horses. Two men run it, one on the driver's seat and one to look after the operation of the machine. Wagon loader, which is furnished as regular equipment, eliminates use of sacks. This year a new 12-ft. machine is placed on the market. A 3-ft. extension, for use where conditions permit, may be had at extra cost with the 9-ft. harvester-thresher. For stationary threshing a feeder and rake stacker are furnished at extra cost. Bagging platform with canopy top can be supplied if desired. Tractor hitch regular.

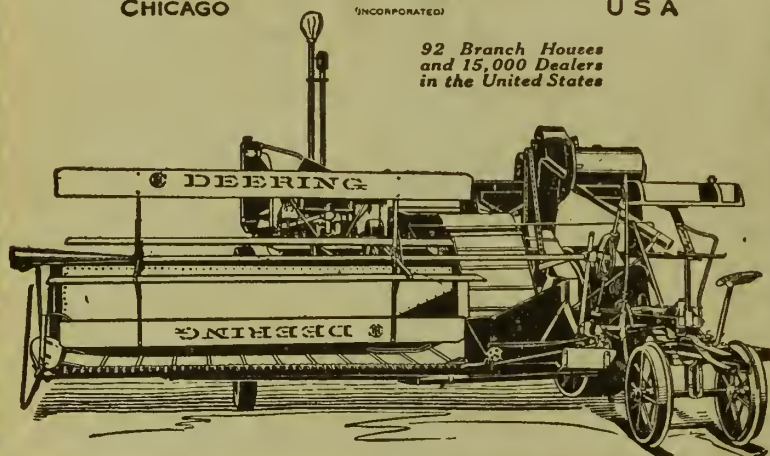
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FUMISPRAY kills by contact and fumes the following parasites—Oyster Shell, San Jose, Purple, Black, Red, Brown, Cottony Cushion and Scurfy Scales; Green, Black and Woolly Aphis; Thrips, Red Spider, White Fly, Pear Psylla and other forms of insect life.

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Questions and Answers

Planting in the Moon

If there any truth about the value of planting all vegetables that grow under ground in the dark of the moon and those that grow above ground in full moon? There has been more talk about that in this neighborhood than I ever heard before. I never before heard such argument.—Subscriber, Burbank.

Specialists connected with the United States department of agriculture and other specialists have made thorough investigations and report that they are unable to find any advantage in planting any seed or plant "in the moon." The time was when some farmers started almost every operation on the farm "in the moon." This was especially true as to laying fences, setting posts or even pruning trees. Moon farmers are not so numerous as they were in those good old days.

Gum Disease

What treatment and care should be given to a tree that has gum disease?—Subscriber, Redlands.

The inquirer does not say as to whether tree is citrus or deciduous. On the assumption that it is a citrus tree we would refer our inquirer to page 124 of the California Cultivator of August 6, 1914, where Prof. H. S. Fawcett fully discussed the problem in a two column article. We do not believe the treatment then recommended has been improved upon. In effect the treatment is: Use sharp knife, first determining area of the disease, then cut back from the diseased line half an inch or more into clean healthy bark. Remove the bark in this healthy strip and cut or scrape all the diseased wood until clean white surface is secured. Paint thoroughly with Bordeaux paste. Bordeaux paste consists of one pound bluestone dissolved in three quarts of water and two pounds unslaked lime slaked in three quarts of water. When lime cools stir the two mixtures together.

Various Bugs

Am sending small box containing big grub or "worm"; also black thousand legged worm and a beetle. What are they?—Subscriber, Oilfield.

The big black beetle is the ground beetle which infests apricot trees, eating the leaves, and sometimes attacking watermelon vines. It is a rather difficult pest to handle because poison sprays are of little avail unless made very strong. As to its attack on trees, that may be prevented by use of tanglefoot or some sticky band around the trunk near the ground. The millipede, or thousand legged bug, does not belong to the insect family and is usually not considered of sufficient importance to justify a regular campaign. They may be partially controlled by clearing up rubbish or sticks under which they congregate and live, in part, on decaying vegetable matter. However, when their regular diet is short they may attack growing lettuce or similar plants. The big soft grub over an inch in length was the larval state of the ordinary June bug or May beetle. They usually infest lawns or ground filled with roots and little disturbed by cultivation.

Shothole Borer

I have found some holes on the outside of my front door which seem to be caused by some kind of an insect. They are about the size of pinholes and are on the oak part of the door. Can you tell me what kind of a bug does this harm, and what I can do to stop this trouble?—Subscriber, San Marcos.

The attack of this pest, which is probably the common shothole borer, might have been prevented by keeping the door varnished or painted. The best way to prevent the pest from attacking fruit trees is to keep the tree in good healthy condition at all times. The borer prefers dead wood. Where a tree is infested it may be covered with a coat of carbolated whitewash. It is possible the live insects now infesting the wood of the door may be controlled by washing thoroughly with gasoline which may penetrate and kill the insect. This should be followed by a coat of varnish or paint.

Dates in Imperial

Are dates grown successfully in Imperial Valley. If not, why not? If successfully grown, how do they compare with those grown in Coachella Valley. At what age do they begin to bear and what is considered an average yield per acre? What varieties do best, and can offshoots be had in small quantities of 25 or 50 and at about what price?—Subscriber, Orange.

Dates are grown to quite a large extent in the Imperial Valley, but the culture has not extended as rapidly as in the Coachella Valley. Being farther removed from the river and gulf influence Coachella is possibly hotter and certainly more arid than the Imperial Valley. The dry, or sometimes called bread, date has succeeded admirably in the Imperial Valley. The moister or Deglet Noor type has proven better adapted to Coachella Valley conditions. The date will bear at three or four years of age, and an average yield is practically impossible to estimate because there are but few plantations of sufficient scope to give a fair average. Individual trees have yielded as high as 600 pounds. On this point Paul Popenoe writes: "Yields as high as 500 or 600 pounds for a single palm have been recorded, and it is not unusual to find a tree bearing half that much in California or Arizona. But in such cases will bear less next year. One hundred pounds per tree per year should satisfy." As to varieties there are literally hundreds. Question as to best may be better answered when one knows exact conditions under which they are to be planted. There are but few suckers from imported plants available, and prices range around \$10 to \$15 each.

Damp Soil

Some spots on top of our soil have turned moss color. Kindly explain and give cause and remedy. The soil has had plenty of manure.—Subscriber, Wyandotte.

It is possible the soil has poor drainage, has become acid and needs application of lime and a system of tiling.

Artichokes, Etc.

I have bearing artichokes in my vegetable garden where they get water every evening when I sprinkle. This morning I noticed many flies, lady bugs and ants on them and the under leaves rusty looking and coarse, and the fruit on them, the little ones, look as if they were not going to be anything. Have I given them too much water? Can I transplant them now, or is it too late? Can such plants as carrots, beets, etc., be transplanted when two or three inches high? What is the cause of all my bush Limas not coming up, also okra? Is the earth still too cold for okra?—Subscriber, Burbank.

Keep the under leaves pulled off just as soon as they begin to look old or unhealthy. They harbor the flies

and aphids. Clear away all rubbish under the plants and cultivate lightly. Spray with nicotine solution or scatter over tobacco dust if former measures do not rid plants of aphids. Give plenty of manure or complete fertilizer. Give plenty of water but do not drown out. If it can be avoided withhold sprinkling water but irrigate deeply and heavily occasionally. Beets, onions and most other plants can be transplanted when three inches high. It is probably too late to transplant artichoke shoots although in a cool season such as this small shoots might be moved successfully. Be careful there is no drying of roots and irrigate immediately after resetting. Beans and other seed not coming up may be due to wireworms in the soil, too much water and cold weather rotting the seed, or other reasons which can only be determined by examination.

Curl Leaf

Some of my new fruit trees look badly, show something like curly leaf, leaves shriveled up and are covered with ants. Please let me know with what to spray them. — Subscriber, Burbank.

Curl leaf is showing up exceptionally strong this year. It is too late to secure best results but a weak spray of commercial lime-sulphur may prove beneficial. The most satisfactory preventive of this trouble is early spray of Bordeaux or strong lime-sulphur.

Small Fruits Profitable

Do raspberries, blackberries or strawberries pay best, and is there a good living in any of them? — Subscriber, Burbank.

The best answer to this question should come from the market which one is able to supply and the amount of fruit produced around that market. While waiting for more definite information why not diversify and plant all three of those varieties which will do well in the Burbank section. As to the living, that depends upon the fruit grower being able to grow fruit and hunt up good market.

No Chickens Allowed

We have lived a year on an acre of land, have about 500 chickens and now some people are trying to get this neighborhood to do away with all poultry. That will leave us in bad shape after all the money we have put into the place, so we were wondering what we could do to make a living. Our place is all in young trees, a general assortment for family use and some to sell. I believe they will finally succeed in making this district do away with chickens.—Subscriber, Burbank.

It is unfortunate that roosters will crow and that some late sleepers object to the racket, and, worse, it is to be regretted that some excellent productive sections near large towns become so desirable as strictly gilded residence districts that chickens with feathers are not wanted.

Look for cheaper land. Presumably good prices prevail and ready sale may be counted on. But if one likes his own section and prefers to remain, we think the courts will protect one in the use of property so long as a nuisance is not created. A reasonable degree of cleanliness and care as to elimination of crows should put a poultry yard where it may not be declared a nuisance. The "swat-the-rooster" campaign was started by poultrymen as a purely economic one and may well be continued in order to lessen opposition to poultry as neighbors.

Paint costs less than decay.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Cow Bloating

I have a cow that bloats on alfalfa hay no matter how little she eats. Is there any remedy for her?—Subscriber, Orland.

Doubtless there is a large roll of feed in the large stomach that will not pass nor form into cuds and return to the mouth to be remasticated. This you will have to work out gradually, and when it is all out the cow will be all right again. Get two quarts raw linseed oil, add eight ounces turpentine, two ounces aloin and one ounce powdered nux vomica. Mix thoroughly and divide into eight doses. Give one dose every day while it lasts; also once or twice a day stir up the contents of the stomach by using your fist on the left side of the cow and kneading the stomach to move the contents about. This will help to break up the mass so it will pass away. Give the cow salt and give her very little grain until she stops bloating, and you see her chewing her cud when resting.

Bruised Knee

I have a cow that slipped several times when the stanchion was open and has fallen on her knees. On one knee there is a swelling that bothers her in lying down and walking. The bunch is soft and is growing larger. Would like to know your opinion of it, and also what you would advise doing for it?—Subscriber, Artesia.

It is an abscess full of serum but not pus. If left it will form a hard,

callous tumor and make the knee stiff. Slash it wide open with a sharp knife. Make the cut up and down, but not across the knee. Do not be afraid to make the opening large, so the skin will not heal before the cavity closes up. With your finger clean out all the contents of the cavity and then wash it out once a day with a warm solution of permanganate of potash, using one-fourth teaspoon of the permanganate to the quart of water. When it is healed grease it once a day with bacon fat to remove the swelling. It will take some time to get it back to normal.

FIRE CRUELTY

The California state board of forestry asserts that there is a cruel side to forest fires that is often overlooked, a cruelty that if thoroughly understood, would cause every person to join the ranks of those who are extremely careful with fire while in the forests or rural communities. If those whose sheer carelessness allows fires to start could but conceive the suffering that forest fires entail, "they would never allow a fire to start and would be first to aid in combating a fire that they found burning uncontrolled. Nobody could relish the sight of a rabbit, caught by the fire, speeding over hot ashes and coals with its fur smoking or ablaze, its eyes blinded so that it may run directly into a burning bush. Even a big timber rat, seen in the act of trying to drag its young to safety through hot coals after the fire has swept its home, is a thing to incite pity and admiration.

"But small animals do not suffer alone in forest fires. Time and again, after the fire has swept by and the blackened earth becomes cool, a number of buzzards will be seen to congregate and examination will result in the discovery that a young deer, some-

times an old doe, has been hemmed in or blinded by the fire and has died an awful death from suffocation and heat. If every one of the million and a half people who visit the forests of California annually knew the suffering that fire brings, as well as the loss, there would be no further need to combat carelessness in our forests."

CROP REPORTS

Wm. B. Jackson, Ontario, San Bernardino County

Apricots, half crop; cold rain first of April caused drop. Peaches, good at present. Pears, trees in full bloom. Grapes showing up well.

C. G. Marchus, San Pasqual, San Diego County

I find the cots in this valley will be 80 per cent crop. Only the first bloom has been saved. The frost took the second bloom completely. We will be two weeks late this season.

I again wish to commend the service you are doing in this survey of crop conditions. Keep it up.

J. W. Mills, Farm Adviser, Solano County

Almonds, 20 per cent. Apricots, 95 per cent. Cherries, too early to tell but indications are for 60 per cent crop. Peaches, 100 per cent. Pears, 75 per cent. Prunes, 50 per cent. Grapes, too early.

Harold L. Pomeroy, Horticultural Commissioner, Kern County.

Almonds, 65 per cent. Apples, too early to estimate. Apricots, 60 per cent. Peaches, 85 per cent. Pears, too early. Prunes, 90 per cent. Grapes, 90 per cent.

Fresno is chosen for the second annual Pacific Dairy Show next September in connection with the Fresno district fair. The states so far signed up for participation are California, Arizona, Utah, Idaho, Washington, Oregon and Nevada.

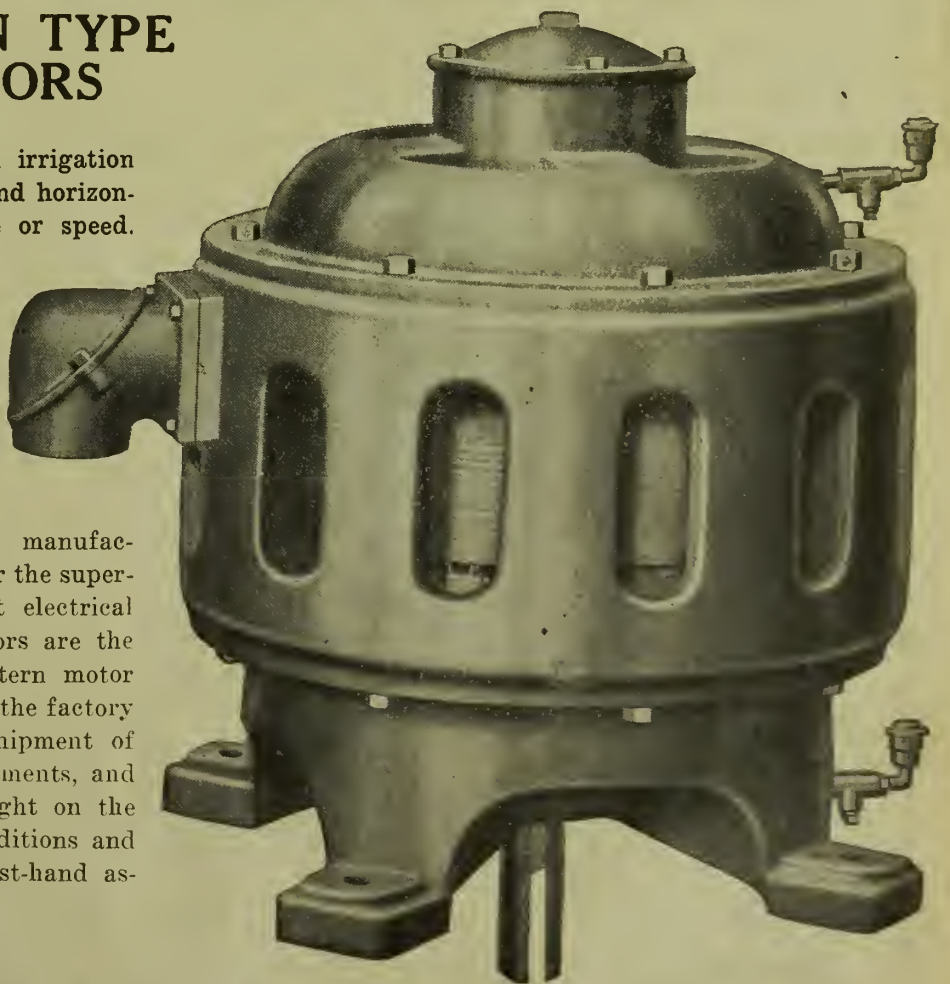
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LOS ANGELES

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The Thrifty Citizen Who Caught the Plugged Nickel



Mr. Brown had swallowed his lunch and had paid his bill. Cautiously he counted his change. "Here!" he said, sharply, "Take back this plugged nickel and give me a good one!"

Mr. Brown walked proudly out. They couldn't fool old Brown.

But old Brown had fooled himself.

Brown's day was heavy and dull. He lacked "pep." There was a mid-afternoon drowsy spell when he needed to be awake—the direct and natural result of heavy, starchy breakfasts and lunches, taken on faith and without question as to value—just because the food looked and tasted like food.

Thousands of shrewd business men who count their change, take their food for granted.

That's what builds up the sanitarium business, and puts the tired "all-done" feeling into the mid-afternoon of a business day.

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Served with cream or good milk, Grape-Nuts is a complete food, always ready, always a delight to the taste—and always a safe selection for the man who thinks his stomach is entitled to some of the same protection he gives to his pocket.

Grape-Nuts—the Body Builder "There's a Reason"

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Household Department

GARDEN PLANTIN' TIME

When that lazy sort o' feelin'
Gets to playin' down your spine,
An' you get a sort o' itchin'
Fer a fishin' hook an' line,
An' the bees begin their hummin'—
As they do in early spring,
An' the mockin' birds out yonder
In the trees begin to sing;
When you're lovin' all creation
With a love that's most sublime,
Strikes me that it's gettin' somewhere
Close to garden plantin' time.

When the idle summer dreamer
Takes his lay beneath a tree
In the shade, to greet the comin'
Uv a summer reverie,
An' he longs to sit an' ponder,
Not a care upon his mind
While the cheerful, soothin' sunshine
Spreads around him, you will find
If you trace the dates o' nature
To the scenes o' yester year
That the garden plantin' season
Is a-gettin' somewhere near.

When the happy country youngster
Has a sun grin on his nose,
An' you know he's been a-wadin'
By the mud between his toes,
An' the work's a-cumulatin'
Like the work will, as a rule,
An' the weather seems invitin'
Down towards the swimmin' pool,
Then just count your stars as lucky
If, in castin' round about,
There ain't somethin' in the garden
That is needin' settin' out.

Still, in all my meditations,
An' I guess I've had my share,
I have found in life its pleasures
Sort o' flavored with its care,
An' there's been some tribulations—
Not, to say, complain about—
But jes' fretful little moments
Sorter wafted in an' out,
An' I've often been discouraged
Borderin' upon that clime,
But I've found the world good natured
'Long at garden plantin' time.—Jack
Dunaway in Farm and Ranch.

AMERICAN TRACTORS AND IM- PLEMENTS IN OTHER LANDS

HERE is a department of commerce report which opens to the general reader the pages of history, of travel, of the thrilling romance of man's conquest of the earth. Get out the family atlas!

The vital need of machine power in Turkey has become obvious and urgent, as a result of the exhaustion of the available supply of animals in the long drawn out wars, most of the draft animals having been used for cavalry and artillery purposes, and many of them to supply food for the soldiers. Consequently a demand is arising for the tractor and the plow, says Consul General Ravndal in a report to the department of commerce. American tractors, as well as other American made farm machinery, possess a fine reputation in Turkey and at present dominate the market. The Hahnemann (German), Fiat (Italian), and Renault (French) tractors are in the field, but they cannot compete successfully with the American machines which are being offered. The chief desiderata are price, efficiency and simplicity, and the American tractors have been found to fill these requirements.

Similar considerations also apply to other agricultural machines and to tillage instruments, for which the demand is growing in the Near East. These include reapers and binders, threshing machines, plows, harrows, cultipackers and drills.

Near Eastern Market

There appears to be good ground for encouraging American manufacturers of agricultural implements and machinery to pay increasing attention to the Near Eastern field. In the extension of this trade it is essential to extend credit to dealers in order that the latter may be able to carry out the practical demonstrations which are so necessary in these virgin markets and to accommodate the farmers financially. It is also important that measures be taken to have a full supply of spare parts on hand in suitable repair shops.

The opportunities for the development of the Anatolian, Thracian and adjoining markets for agricultural machinery and implements are considered very good. The situation at the present time is adversely affected by the absence of highways and railways and other means of transporting farm produce to the central markets, but this defect is certain to be gradually remedied.

No duty is charged for the admittance of agricultural machinery into Turkey. As a rule, general agencies

are established in Constantinople with branches in other cities.

American Colonists in Mexico

Over 1,000 members of an American religious society which is organizing colonies in Mexico recently arrived in the district of Benito Juarez, Chihuahua, Mexico, where they plan to establish themselves. Fifteen thousand more colonists are expected to reach this district within the next few months, and as their activities will be mainly agricultural, this should open up an excellent field for the disposal of American agricultural implements and machinery, says the agricultural implement division of the department of commerce.

Agricultural Machinery in China

The total imports of agricultural machinery into China for 1920, which is the latest year for which statistics are available, amounted in value to \$1,259,005 United States currency. Of this amount approximately 57 per cent came from the United States, 23 per cent from Canada and 12½ per cent from Japan. About 15 per cent of these imports were imported into Manchuria through the port of Dairen, says Consul General Pontius, Mukden, in a report to the department of commerce.

Tractors Move Haycocks in India

In the Ambala district of India during the farm harvesting season the demand for transport and labor exceeds the supply. It was with this point in view that during November of last year experiments were conducted in drawing hay in cocks to the stack or hay press by means of tractors. The experiments, according to reports received by the agricultural implement division of the department of commerce, were quite successful, and the new method was found to be much more economical than the old system of transporting hay from the cocks to the stack by means of bullock carts. The tractor is fitted with a long chain. This chain is pulled around a cock of hay, and both ends of the chain are attached to the drawbar of the tractor. The chain is lifted about one foot from the ground and the tractor set in motion. It gradually tightens on the hay until the whole cock moves off sliding over the ground on its own base. The speed varies according to the load, but cocks of from 4,000 to 5,000 pounds can be pulled at a fair walking pace. The system, besides being economical, is a labor saving device, as one tractor with three men takes the place of at least 15 carts with 15 men.

Vegetable Oil for Fuel in Belgian Congo

The extremely high cost of transportation of gasoline into the interior of the Belgian Congo, largely due to tsetse flies, which make it impracticable to use animals for transporting goods and necessitates the use of native porters, led the Belgian colonial ministry to organize a trial of road tractors using palm oil as fuel. The results of these trials gave full satisfaction. The semi-Diesel two and four cycle engines ran normally on the palm oil, and the power developed was equal to if not greater than that obtained with kerosene. Nothing was noted that suggested possible difficulties in using palm oil in these engines. Starting up, without gasoline injection, was good, and there was no carbonization.

HINTS FROM HOUSEKEEPERS

Boston Brown Bread in Tube Pan

Here is another case of necessity mothering a happy invention. I had my Boston Brown bread ready to cook but could not find one of my can molds. What was to be done? In looking through my pan cupboard my eye lit upon the tube cake pan. I poured all the batter into this and put it into my steamer. Result—the best brown bread I ever made. Anyone who has bothered with greasing can molds and keeping tops on tight so there should be no soggy ends to the loaves will appreciate this discovery.—Reader, Los Angeles.

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HOUSEHOLD QUERIES

"Buckeye Cookery"

Please tell me where I can secure copy of "Buckeye Cookery." It is certainly a fine collection of recipes and I would like to get hold of it.—Subscriber.

A collection of recipes under title "Buckeye Way Cook Book" was published some years ago by Powell & White, Cincinnati, Ohio. We do not know whether it is still available or not.

Lime in Aluminum Teakettle

Would you please tell me how to take the lime out of an aluminum teakettle.—Subscriber, Meridian.

Ordinarily it is sufficient to hold teakettle upside down and tap lightly. The lime does not stick to the smooth surface. Boiling a little vinegar or lemon juice in the kettle should make it perfectly clean. Do not boil longer than necessary to loosen lime.

Music of "The Dying Cowboy"

In the Cultivator of April 8 Ruth Christenson of Fresno asks for the music to the song, "The Dying Cowboy." It is a parody on a very old ballad, "Bury Me Not in the Deep, Deep Sea," and can be found only in collections of old songs. The air is as dolorous as the words. I send the information to the household department rather than direct to Miss Christensen, as others no doubt would like to put the words to music.—Cecelia Stahl, Claremont.

Steel Cut Oatmeal Cookies

In answer to "Subscriber, Sebastopol," I am sending my best oatmeal cooky recipe:

One cup butter, 2 cups sugar, creamed together; 2 eggs well beaten, 6 tablespoons sweet milk, 2 cups steel cut oats, 2 cups flour with 2 teaspoons baking powder sifted in it, and spices to suit taste. Mix in the order given and drop in small amounts (about a teaspoon for each cooky) on a greased pan and bake. Chopped nuts and raisins, 1 cup each, are an improvement and a variation. These are fine and a great favorite with the children.—Mrs. F. M. Carlson, Biggs.

Bleaching Flour Sacks

Would like to ask through your question department what is the best method of removing the coloring and lettering from muslin flour sacks?—Subscriber, San Fernando.

Dampen flour sacks, sprinkle the lettering liberally with kerosene, roll up tightly and let stand over night with just enough water to cover. In morning rub out in warm water with washing powder dissolved in it. If it is desired to whiten the whole material, finish by the usual boiling and bleaching in the sun.

BUT NOT VICE VERSA

When little Percival arrived at school on the opening day, he carried the following note to the teacher: "Dear Teacher: Our sweet little Percival is a very delicate, nervous child, and if he is naughty—and he is likely to be naughty at times—just punish the boy next to him, and that will frighten him so he'll be good."—Wayside Tales.

POPULAR REQUEST

Customer: "I say, do you ever play anything by request?"
Delighted Musician: "Certainly, sir."
Customer: "Then I wonder if you'd be so good as to play a game of dominoes until I've finished my lunch?"

The man who is worthy of a kindness is the man who will pass it on when it comes to him.

LETTER FROM A HOME IN THE REDWOODS

Walking as a recreation has become a popular pastime. Come visit with me in the country ten miles from the nearest railroad station and about 100 miles from the city. The home was selected because of its charm. Some of the acreage is pure "wilderness" with bush and virgin trees such as redwood and is unusually adapted to hiking. New trails are being made which are charming. They wander about so capriciously; they climb so cheerfully up the slopes and hillsides and lead you through so much freshness and varied scenery that the pleasures of sight soon make one forgetful of bodily fatigue, but we should have names for those new trails and I would be glad of suggestions. Wild flower seed has been sown broadcast, so, soon there will be thousands and thousands of wild flowers. Seats made of blocks of redwood are placed conveniently for enjoying beauty spots. Steps are cut into the trails to make climbing easy and rustic bridges are built over the creeks. In one place a live tree growing horizontally across the creek has steps cut in it, and we call it the "living bridge." This trail may be called "Las Cruces" meaning "The Crosses."

Squirrels and quail run about quite fearlessly, or sit up and watch you pass, so close, they can almost be touched.

Being so far away from the city makes it a little hard to get help in the house, or maybe there isn't enough to go round, so here was an unforeseen problem to solve. How I have done it may interest other country dwellers and if so, will write about it later.—Mrs. A. Stainton.

(Wouldn't we, all of us, like to visit Mrs. Stainton's home in the redwoods! These columns are open to letters containing suggested names for those redwood and flower bordered trails, and we will all be glad to hear how Mrs. Stainton has solved the "help" problem.—Editor).

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

Most children object to having their teeth brushed, but if you will let them do it themselves they will think it great sport, and even a two year old can do it, if mother will guide the hand at first, until the habit is firmly established. Tell them the importance of cleaning the teeth, and the danger of eating sweets or biting hard things, and most children are willing to do the right thing if you give a good reason. Children demand fairness above everything, and although this may take time, you will be rewarded in the end.

If a child seems to have a great many colds, it is time to attend to the diet, clothing and general care. They should be given very little cereal or any starchy food or sweets. Don't have them overdressed so that they perspire, and see that they sleep in cool rooms that are well ventilated.

When teaching a child to blow the nose, compress one nostril and have him blow and then compress the other nostril.

I am going to give a personal experience of mine in hopes that it may solve a problem that most mothers go through.

My little daughter was four years old when she informed me that she would live with someone else when things didn't go just her way. I realized that this could not continue, so one day I took her into the nursery and we had a talk. I told her that if she was not happy here I couldn't have her in the house, for it would make me very unhappy; but I did want her to be contented, for I wanted to go on loving and caring for her. But if she wanted to go, I would pack her suit case, only it would mean that she could never come back again. She remarked that maybe she would only want to stay a few days, but I said, "No, I couldn't have that; it would mean for good."

This ended it, for "mother" and "home" mean "love and shelter" to them all, bless their hearts!



You'll Enjoy Working These Little Wonders In Your Home

IT'S surprising how much you can accomplish in beautifying your home with a little paint and work "that is really fun."

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We have a special "Home Service Paint Department" which devotes its time to telling women just how to refinish home things successfully.

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making these products for 73 years.

Fuller's Free Advice and Fuller's Products will be very helpful to you in beautifying your home. Take advantage of them now.

Free Advice

Write us now—a postcard—for Fuller's "Home Service" Paint Book, which tells you just what to buy for every kind of painting. Send full description and get our free advice on any kind of painting you want to do.

Decoret Varnish Stains for refinishing furniture and interior woodwork. They stain and varnish in one operation. Match the color of any natural wood. 8 colors.

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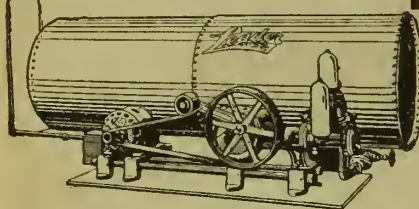
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MAKING BEEF HAMS

Here is how a Missouri farmer, Marshall Gordon of Boone County, does it.

"I select heeves not over two years old, preferably two year old heifers, which should be corn fed," says Mr. Gordon. "I butcher my beeves, along with the hogs, late in November or early in December when the weather is cold enough to thoroughly cool the meat before salting. Meat should not be frozen before salting, as it does not take salt as well and is harder to trim properly. The day after the butchering, the hind quarters are trimmed much like pork hams with beef ham proportions. I use the rest of the carcass for fresh meat. If I want several beef hams I buy some small hams from the local butcher."

"I put the beef hams in the dry salt box with the other meat and cure in the same way. I place a layer of hams in the box, taking care that they do not touch each other, and fill the spaces with salt. I cover the hams with about a quarter inch of salt. The meat remains in the box about a month or more, depending somewhat upon the weather. If the meat is frozen most of the time, the hams will require more time to take the salt. I usually pack hog shoulders in the same box and I can tell about my heef hams by the way the shoulders are taking salt."

"I hang the hams on wire hooks in the smokehouse where I smoke them for about a month. I build a small smoldering fire of hardwood chips each morning under the hams. I am careful about keeping the hams from touching each other in this process, too. A month seems like a long time, but the smoke gives the proper color and flavor to the meat."

"After the smoking the hams are carefully wrapped in three layers of heavy paper and placed in canvas sacks especially prepared for them by Mrs. Gordon, who takes measurements and makes a tailor-made job of it. Ordinary flour sacks will not do. The hams remain hung where they are smoked. The hams are rarely opened before midsummer following, although they are ready to eat as soon as smoked. When we cut our steaks off, the sacks are fastened up and the hams hung again. The cut edges of the ham are sealed with flour to prevent the hams from hardening."

A writer in Texas Farm and Ranch adds:

"Mrs. Gordon says that the best way to cook the ham is to broil it, and the many hundreds of guests at Rockhurst unanimously say that she knows."

"The smokehouse where Mr. Gordon prepares all of his farm meats is a good one. The walls have a thin layer of concrete and the floor is of cement. These help to maintain an equable temperature and are rat and mice proof, but as an additional precaution against these Mr. Gordon has his meat box suspended from the joists by heavy trace chains. This box is a large one, but is very shallow, not over a foot deep. This enables him to lay the meat so that it will not touch and it insures good opportunities for cooling. But, as Mr. Gordon puts it, the equipment in handling and curing meats is not as important as the care one may take in the process."

DELICIOUS WAYS OF USING ALMONDS

Blanched and Salted Almonds

Pour boiling water over the fresh meats. Let them stand for ten minutes or until the skins can be easily stripped off. Dry the big, white almond meats between the folds of a clean dish towel. Put them in a baking pan with a teaspoon of melted butter or olive oil and turn them over and over until they are well coated. Then place them in the oven stirring occasionally so that they will brown evenly. A sprinkle of salt next, and sift them in a colander to dislodge superfluous salt or butter. Cool and keep in a dry place.

Almond Devil Cake

2 cups brown sugar, ½ cup butter, 2 eggs, ¾ cup sour or butter milk, ½-½ cup chocolate, 2 cups flour, 2 teaspoons baking powder, ½ teaspoon soda, ½ teaspoon salt, 2 cups chopped blanched almonds, ½ cup boiling water. Cream butter and sugar, add

eggs well beaten, add milk alternately with dry ingredients mixed and sifted, add almonds dredged with 1 teaspoon flour, add boiling water, bake as a loaf in a moderate oven.

Almond Roll

1 cup California dried figs, 1 cup almond nutmeats. Wash and dry figs. Blanch almonds. Cut out stems of figs and put nuts and figs through meat chopper together. Work, using hands, on a board dredged with confectioner's sugar, until well blended. Make a thick roll and cut in slices with a sharp knife. Dip slices in sugar and put away in layers—using oiled paper between. Will keep indefinitely.

Almond Brittle

2 cups sugar, 2 tablespoons Karo, ½ cup water, ½ teaspoon soda, 2 cups almonds, blanched and broken. Boil sugar, Karo and water until a drop in water will crack, add soda, beat until frothy, add nuts, pour on a huttered plate, cut when nearly cold.

Caramel Almond Fudge

3 cups sugar, ¾ cup milk, 1 to 1½ cups chopped almonds. Put 1½ cups sugar in saucepan with milk, boil slowly, put 1¼ cups sugar in pan and caramelize—just as soon as it is all melted pour into the other pan. Cook the combined mixture to soft-ball stage. Cool, then add nutmeats—beat thoroughly and drop by spoonfuls on oiled paper.

Almond and Prune Cake

½ cup butter, 1 cup sugar, 2 eggs, ¾ cup sour milk, 1½ cups flour, 1 teaspoon soda, 3 teaspoons chocolate, ½ teaspoon cinnamon, ½ teaspoon allspice, ½ teaspoon cloves, ¼ teaspoon salt, 1 cup chopped cooked prunes, 2 cups almonds. Cream butter and sugar. Add yolks of eggs well beaten, add milk alternately with dry ingredients mixed and sifted, add prunes, and almonds chopped and dredged with flour, fold in egg whites beaten stiff, bake as a loaf in a moderate oven 45 minutes to 1 hour. (This cake is moist and improves with keeping.)

WHEN THE PAPER DOESN'T COME

My father says the paper he reads ain't put up right.
He finds a lot of fault, he does, perusin' it all night.
He says there ain't a single thing in it worth while to read.
And that it doesn't print the kind of stuff the people need.
He tosses it aside and says it's strictly on the bum—
But you ought to hear him holler when the paper doesn't come.

He reads about the weddin's and he snorts like all get out;
He reads the social doin's with a most derisive shout.
He says they make the papers for the women folks alone;
He'll read about the parties and he'll fume and fret and groan;
He says of information it doesn't contain a crumb—
But you ought to hear him holler when the paper doesn't come.

He's always first to grab it and he reads it plumb clean through,
He doesn't miss an item or a want ad—that is true.
He says they don't know what we want, the durn newspaper guys;
"I'm going to take a day some time an' go and put 'em wise.
Sometimes it seems as though they must be blind and dumb—"
But you ought to hear him holler when the paper doesn't come.—Exchange.

THE MYSTIC THREE

There are three words; the sweetest words

In all the human speech—
More sweet than are all songs of birds,
Or page's poets reach.

This life may be a vale of tears,

A sad and dreary thing—
Three words and trouble disappears
And birds begin to sing.

Three words, and all the roses bloom,
The sun begins to shine;

Three words will dissipate the gloom
And water turn to wine.

Three words will cheer the saddest days—

"I love you!" Wrong, by heck!
It is another, sweeter phrase.

"Enclosed—find—check."

"OI! VAT A SEEKNESS!"

Isadore Levinsky was dying of smallpox. The doctor had just told him the terrible truth.

"Send for the priest," he murmured. "You mean the rabbi, don't you?" asked the doctor.

"No, the priest. Do you teenk I want the rabbi should have soch a seekness what I got it?"

A wide awake man waits until night for his sleep.—"Aesop's Film Fables."

Many are awakened but few get up.

The Cultivator Patterns



3901. Child's Dress: Cut in four sizes, 2, 3, 4 and 5 years. A two year size will require 1½ yards of 32 inch material. Price 10 cents.

3900. Ladies' Dress: Cut in six sizes, 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size requires 3½ yards of 54 inch material. The width at the foot is 2¼ yards. Price 10 cents.

3702. Girl's Dress: Cut in four sizes, 8, 10, 12 and 14 years. A 10 year size will require 3¼ yards of 40 inch material. Price 10 cents.

3691. Ladies' House Dress: Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 4¾ yards of 44 inch material. The width at the foot is about two yards. If made of contrasting material, collar, belt, cuff and pocket facings require three-quarters yard. Price 10 cents.

3889. Girl's Dress: Cut in four sizes, 4, 6, 8 and 10 years. The gulmpie will require 1½ yards of 27 inch material, and the dress 2½ yards for a 6 year size. Price 10 cents.

3890. Ladies' Wrap: Cut in four sizes, small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size will require 4¾ yards of 44 inch material. Price 10 cents.

3410. Junior's Dress: Cut in three sizes, 12, 14 and 16 years. A 14 year size will require 4 yards of 44 inch material. Price 10 cents.

3896. Ladies' Apron: Cut in four sizes, small, medium, large and extra large. A medium size will require 2¾ yards of 36 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Do not expect patterns under Two Weeks from date of order.

CATALOGUE NOTICE

Send 12c in silver or stamps for our Up To Date Spring and Summer 1922 Catalogue, containing over 500 designs of Ladies', Misses' and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker. Also colored plates.

PATTERN DEPARTMENT

California Cultivator Los Angeles

Ormondale Shorthorns Dispersed at \$259 Average

With 52 head of Shorthorns selling for an average of \$259, the Ormondale Ranch herd passed out of existence at the close of the dispersal sale which was held at the ranch Thursday, May 4. The above average, while conservative, was generally regarded as satisfactory by the Shorthorn fraternity for there was included in the sale every hoof that made up the herd, and many of the cows were well along in years. At the same time such values on the class of cattle sold cannot fail to spell a profit to the buyers.

With one of the most charming settings ever provided for a cattle sale in California the auction was started promptly at one o'clock, and throughout it progressed with a smoothness and snap that held the large crowd at close attention.

As was expected, the top of the sale was established with the great young bull, The Caledonian, son of Imp. Caledonia. This youngster, with faultless breeding and an individuality that carried him through the last show season without defeat, was sought by a number of the leading herds, but the final bid of \$2,000 sent him back to the farm from which he came, and it is probable that he will again wear the colors of Caledonia Farms at the fall shows. Edward Cebrian of Caledonia Farms was the most extensive buyer at the sale and, aside from the above mentioned bull, selected seven of the better bred females which naturally included the top female at \$700, the attractive roan daughter of Imp. Gartley Landsdowne.

William Ward of Blackhawk Ranch was the next heaviest buyer, taking six head for himself and others. A particularly good buy was made by Ward when he got the red Bruce Mayflower cow.

An interesting feature of the sale was the selling of the cow Sweetheart and her three daughters. It will be remembered that this cow is the dam of the famous international champion, Little Sweetheart. Two full sisters to the champion were in the group. The Pacheco Cattle Company got one and I. C. Muddux took the other.

William Edinger of Hood bought the two year old bull Count Kingwood for \$475. This bull was purchased last fall for \$2,000. The Newhall Land and Farming Company was a strong supporter of the sale as was E. R. Dimond of Redwood City, who is just laying a foundation for a herd.

The sale was held under the management of the California Breeders' Sales and Pedigree Company and Ben L. Rhoades and John A. Davis were the auctioneers.

A complete list of the sales follows:

- BULLS
- 1, The Caledonian, roan, Sept. 1920; Caledonia Farms, West Sacramento, \$200.

2, Count Kingwood, roan, Oct. 1919; Edinger-Johnston Co., Hood, \$475.

8, Unnamed, roan son of Imp. Boquhan Guinea Stamp, Oct. 1921; Frankenheimer Bros., Stockton, \$285.

15, Roan Volumnia, roan, June 1917; Caledonia Farms, \$200.

16, Edna S., red, Jan. 1908; W. J. Muddicoat, Palo Alto, \$50.

17, Guinea's Bud, roan, Jan. 1921; Newhall Land & Farming Co., \$165.

18, Maplewood's Supreme, red, Oct. 1921; W. T. Sesnon, San Francisco, \$125.
- FEMALES
- 3, Mayflower 4th, red, Sept. 1914; Blackhawk Ranch, Diablo, \$360.

4, Boquhan's Mayflower, roan, Feb. 1921; Caledonia Farms, \$350.

5, Snowball, white, May 1916; Caledonia Farms, \$400.

6, Ormondale Lady, roan, Oct. 1919; Caledonia Farms, \$700.

7, Ormondale Snowball, white, Oct. 1920; Caledonia Farms, \$350.

9, Lancaster Snowball, white, Mar. 1915; H. C. Muddux, Sacramento, \$125.

10, Boquhan's Snowball, white, Feb. 1921; H. C. Muddux, \$225.

11, Orange Lassie, roan, Mar. 1918; C. Slack, Tracy, \$190.

12, Maplewood Violet, 3d, red, Feb. 1913; F. Petersen, Haywards, \$200.

13, Good Volumnia, red, Jan. 1912; R. V. Traynham, Davis, \$180.

14, Red, Volumnia, red, Mar. 1909; Newhall Land & Farming Co., San Francisco, \$110.

19, Gem's Beauty 2d, roan, Jan. 1911; Blackhawk Ranch, \$140.

20, Ramsden Queen, roan, Sept. 1917; Newhall Land & Farming Co., \$150.

21, Choice Orange, red, April 1917; R. V. Traynham, \$135.

22, Queen Generosity, roan, June 1917; H. Matthews, Porterville, \$160.

23, Ormondale Gratitude, white, May 20; C. A. Slack, \$205.

24, Roan Volumnia 2d, roan, Jan. 1919; Newhall Land & Farming Co., \$240.

25, Maplewood Maid 4th, red, Jan. 1913;

- Blackhawk Ranch, \$225.
- 26, Choice Beauty Milmar, red, Feb. 1919; Caledonia Farms, \$300.
- 27, Sultan's Galaxy, roan, Sept. 1916; E. F. Petersen, \$240.
- 28, Boquhan's Galaxy, roan, Jan. 1921; J. H. Matthews, \$225.
- 29, Ormondale Maid, red, Dec. 1915; Blackhawk Ranch, \$330.
- 30, Scottish Amanda, red, Nov. 1910; H. C. Muddux, \$135.
- 31, Boquhan's Amanda, roan, Feb. 1921; E. R. Dimond, Redwood City, \$210.
- 32, Boquhan's Volumnia, roan, Feb. 1921; E. R. Dimond, \$200.
- 33, Scottish Jane, red, Dec. 1911; Howard Vaughn, Dixon, \$110.
- 34, Roan May, roan, March 1918; Blackhawk Ranch, \$180.
- 35, Ormondale Aconite, roan, March 1921; Wm. B. Murphy, Brentwood, \$215.
- 37, Sweetheart, red, Sept. 1913; C. A. Slack, \$310.
- 38, Little Sweetheart 2d, red, April 1918; H. C. Muddux, \$310.
- 39, Little Sweetheart 3d, red, April 1920; C. A. Slack, \$280.
- 40, Little Sweetheart 4th, red, April 1920; Pacheco Cattle Co., Hollister, \$300.
- 41, Ormondale Countess, red, July 1920; E. F. Petersen, \$250.
- 42, Ormondale's Viola 2d, red and white; E. R. Dimond, \$175.
- 43, Ormondale Chieftess, red, Dec. 1919; Newhall Land & Farming Co., \$250.
- 44, Ormondale's Gypsy, roan, Dec. 1920; Caledonia Farms, \$210.
- 45, Orange Crest 6th, red, Jan. 1920; Newhall Land & Farming Co., \$215.
- 46, Ormondale Lassie 3d, red, Nov. 1920; E. R. Dimond, \$160.
- 47, Lady Volumnia, red, Nov. 1920; E. R. Dimond, \$175.
- 48, Ormondale's Gold Gem, roan, Dec. 1920; E. R. Dimond, \$185.
- 49, Sultan's Galaxy 2d, roan, Jan. 1919; A. Mangini, Redwood City, \$120.
- 50, Roan Lassie, roan, Jan. 1918; Blackhawk Ranch, \$160.
- 51, Butterfly Countess, red, Sept. 1912; E. F. Petersen, \$180.
- 52, Unnamed, April 1921, heifer calf out of No. 51; Wm. F. Murphy, \$150.

53, Unnamed, Oct. 1921, bull out of No. 49; W. F. Sesnon, \$140.

INNISFAIL SALE, A BARGAIN EVENT

California breeders and ranchers who are interested in Milking Shorthorns missed a lot of rare bargains by not attending the first public sale from the Innisfail herd that was held at the farm near Davis, Friday, May 5. There has never been a better lot of Milking Shorthorns exposed in the West than were catalogued for the sale, and the average of \$203 on the 21 females and \$191 on the eight bulls does not begin to represent the real value of the cattle. It can certainly be said to the credit of Messrs. Rowe that they were game and that every animal was sold regardless of what the final bid happened to be. Furthermore cattle were offered as long as there appeared to be buyers. Some day the efforts of Messrs. Rowe will be more appreciated.

Two bulls, Innisfail Favorite and Snow White, were the tops of the sale at \$310 and \$400. Both went to Foothills Farm, Carleton, Oregon. The top female was Greenhill Susan that was purchased by Horace O'Rear of San Francisco for \$300. The University of California secured three very attractive heifers.

Buritt B. Allen of Ravenna, Ohio, was the auctioneer. A complete list of sales appears below:

- BULLS
- 1, Innisfail Favorite, Feb. 1919; Foothills Farm, Carleton, Ore., \$310.

2, Snow White, Sept. 1920; Foothills Farm, \$400.

- 3, Innisfail Favorite 3d, March 1921; H. J. Need, Galt, \$285.
- 4, Westward Knight, March 1921; C. B. Younger, Santa Cruz, \$210.
- 5, Innisfail Louie, April 1921; Richard C. Cassell, Woodland, \$165.
- 7, Innisfail Favorite 4th, March 1922; E. H. Day, Gazelle, \$60.
- 9, Bill Clay, Jan. 1922; J. W. Dutton, Duttons' Landing, \$65.

FEMALES

- 11, Imp. Favorite 34th, April 1912; A. Humbert, Alamo, \$230.

12, Greenhill Susan, April 1914; Horace O'Rear, San Francisco, \$300.

13, Waterloo Daisy, March 1916; E. H. Day, \$195.

14, Glenside Fern, Feb. 1913; J. C. Jones, Alamo, \$155.

15, Louise, June 1915; Wm. Lewis, Oroville, \$185.

16, Island Buttercup, Aug. 1916; C. B. Kidwell, Dixon, \$150.

17, Marsh Curlew, Nov. 1917; Caledonia Farms, West Sacramento, \$225.

18, Greenhill Betsy, June 1914; J. C. Jones, \$180.

20, Carol, Oct. 1916; E. H. Day, \$225.

21, Madge Wildfire, May 1918; C. H. Meyer, Menlo Park, \$205.

22, Rose Fairfield 2d, Dec. 1917; C. B. Kidwell, \$150.

23, Valley Belle 7th, Dec. 1919; Caledonia Farms, \$135.

24, Phoebe, May 1920; G. C. Long, Payne's Creek, \$145.

25, Lola, May 1920; G. M. Eastman, Fairmead, \$160.

26, Solano Fillipall, June 1920; H. V. Traynham, \$145.

27, Innisfail Betsy, Nov. 1920; G. C. Long, \$120.

28, Innisfail Lady, Oct. 1920; Van Gordon, Alamo, \$110.

29, Oleta, Oct. 1920; H. V. Traynham, \$190.

30, Innisfail Betsy Jane, Dec. 1920; H. V. Traynham, \$140.

31, Rose, March 1921; J. C. Jones, \$160.

32, Annabel 2d, March 1921; Horace O'Rear, \$180.

33, Valley Belle 8th, May 1921; Max C. Bollman, Placerville, \$135.

34, Valley Belle 9th, May 1921; University of California, \$155.

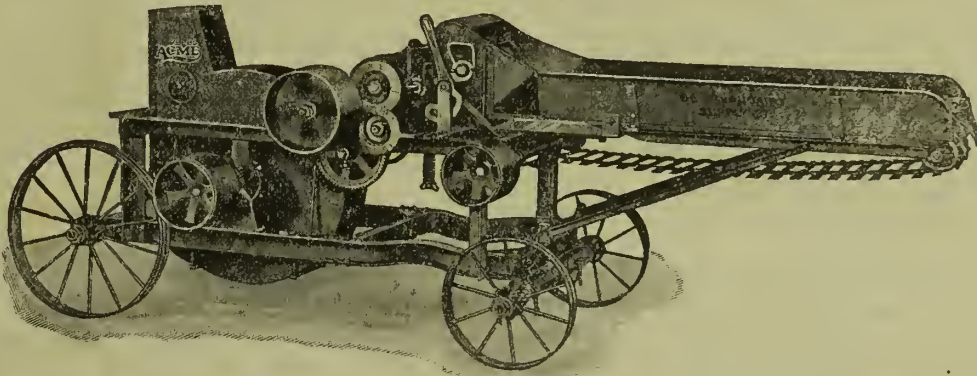
35, Island Betty, June 1921; University of California, \$155.

36, Frances, June 1921; University of California, \$130.

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DE LAVAL PACIFIC CO. SAN FRANCISCO

Making American Cheese

By C. M. Gere, in Farmers' Bulletin 1191



CHEESE may be made at any time of the year, and on farms where there is a surplus of milk during certain seasons cheese making offers an exceptionally advantageous means of conserving, for later use, milk which otherwise might be wasted. The making of cheese does not require a great deal of time, and if good milk is used and directions are followed no one should have difficulty in making good cheese.

Approximately five or six hours are required from the time the milk is placed in the vat for heating until the cheese is put into the hoop for final pressing, and during that time it is not necessary for the operator to give it his entire attention. From this point until the end of two weeks only a few minutes are required each day to turn the cheese. After that time the cheese is turned only twice a week until fully cured.

For making cheese in small quantities on the average farm the Cheddar process used in factories is somewhat too complicated to be practicable. With the more simple method, known as the hand stirred or granular process, presented in this bulletin, however, good cheese can be produced on the farm.

Favorable Conditions

Best results have been obtained in regions where the nights are cool throughout the summer and where cool water may be obtained. These factors favor the production of a high quality cheese. Where these conditions do not exist it is more difficult to produce a high quality cheese during warm weather, as gas producing bacteria are more abundant at that time.

Only whole milk should be used, as skim milk cheese made by this method is hard, dry, and lacking in flavor.

Because the market requires a uniform product it is not generally economical or practicable to make farm

cheese for the general market. Cheese that is satisfactory for home consumption, however, can be made wherever a supply of fresh, clean milk is available.

Yield of Cheese

Approximately 10½ pounds of cheese are obtained from 100 pounds (11⅓ gallons) of milk containing four per cent butterfat. The yield varies with the fat content of the milk and also with the quantity of solids lost in the process of manufacture. A cheese of any size may be made.

It is important to have fresh, clean milk for cheese making. If milk is to be kept over night it should be cooled to a temperature of 60 degrees Fahrenheit or lower and held in that temperature until used. The milk should not be held more than 12 hours, as it is very essential that the milk be perfectly sweet.

Cheese Vat

A wash boiler, large kettle, or tub may be used for cheese making, but if cheese is to be made frequently or on a large scale a regular cheese vat is more satisfactory. A cheese vat is so constructed that hot or cold water may be circulated around the milk for regulating the temperature.

Having control of temperature throughout the manufacturing process is essential to the successful making of cheese. A good thermometer therefore should be used.

The milk is heated in the vat or wash boiler to a temperature of 80 degrees Fahrenheit, at which it is held until after the curd has been cut.

Coloring

Cheese made without the addition of coloring matter is light yellow or straw color. If a deeper shade of yellow is desired a small quantity of coloring is put into the milk. Regular cheese color should be used and no butter color, as the latter colors the fat but not the curd. From one-half to one teaspoon of cheese color to 10 pounds of milk is sufficient. The color should be stirred thoroughly through the entire mass of milk.

Adding Rennet

Rennet extract, which is used to curdle the milk, may be obtained from a dairy supply house. If the extract is not available rennet tablets may be used, which sometimes may be obtained at drug stores. Rennet should be added at the rate of one-third ounce or two teaspoons for each 10 pounds of milk, or enough to curdle the milk in from 30 to 45 minutes. The rennet should first be mixed with a pint of cool water and then stirred into the milk very thoroughly, and the stirring continued slowly for about three minutes. It is very important that the temperature of the milk at this time be 86 degrees Fahrenheit and that it remain at this temperature until the curd is properly set, which should be in from 30 to 40 minutes, depending upon the quantity of rennet used, the acidity, and other qualities of the milk. After the rennet has been stirred in, the milk must stand undisturbed until curdled. If there is the slightest motion to the milk while curdling the curd will not be firm. The vat should be covered to keep the surface of the milk from cooling.

Cutting the Curd

The curd must be cut at the right stage of firmness. If cut when too soft it will be broken up, resulting in a loss in yield, or if allowed to get too hard it will be cut with difficulty. The usual method of determining the proper stage for cutting is to insert the forefinger in the curd at an angle of 45 degrees and about one-half inch under the surface. The finger is then raised slightly and the curd split with the thumb. If the curd splits smoothly without leaving particles on the finger it is ready to be cut. Special curd knives may be obtained for cutting the curd into cubes of equal size. Uniformity in the size of these cubes is necessary to insure uniform firming of the curd. The curd should first be cut lengthwise of the vat with a horizontal curd knife and then cut crosswise with a vertical knife, thus leaving the curd in small cubes. To insure a maximum yield of cheese it is necessary to avoid crushing the curd or breaking it into very small pieces. The curd knives should be inserted and removed from the curd in such way as to cut the curd rather than to crush it. The horizontal knife should be placed in the vat and moved slowly to the opposite end of the vat, where it is turned half way round, and not removed from the vat until all the curd has been cut.

If curd knives are not available the curd may be cut with a large butcher knife, cutting both lengthwise and crosswise of the vat, and then, after carefully giving the curd a quarter turn so that one side is now on top, cutting lengthwise again. When the cutting has been completed the pieces of curd should be about three-eighths inch in size, each dimension.

Heating and Stirring Curd

As soon as the curd is cut it should be stirred gently in order to prevent the pieces from sticking together and forming large lumps. The cubes of curd contract slowly and expel whey. As soon as a considerable quantity of whey is separated from the curd usually in about 15 or 20 minutes heating should be started. It is very important to raise the temperature very slowly, at the rate of about two degrees in five minutes, until a temperature of 100 degrees Fahrenheit is reached. Various methods of heating



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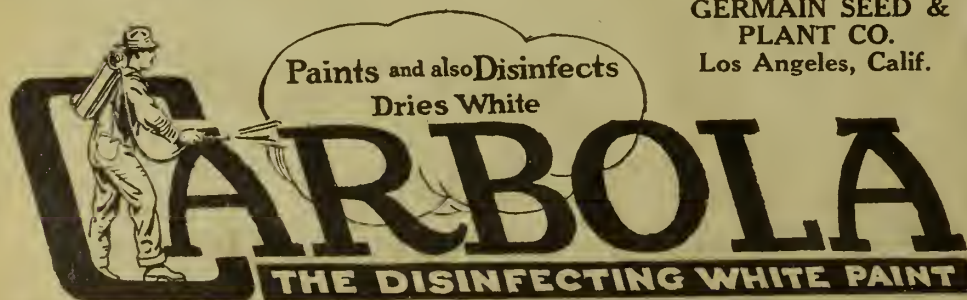
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For Hog House



For Stable



For Cellar

the curd may be used. There is less danger of heating too rapidly, however, if some of the whey is dipped out, heated to about 140 degrees



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Fahrenheit, and gradually poured back into the vat. During the entire heating process the curd should be stirred just enough to keep the small cubes from matting together. The curd should remain in the whey at a temperature of 100 degrees Fahrenheit until it is firm and is sufficiently acid.

If the cheese is made in a vat or other large vessel it will be found convenient to use a rake for stirring the milk and curd. A rake can easily be made at home.

Testing for Firmness

The proper degree of firmness of the curd may be determined by pressing a mass of it between the hands. If when suddenly freed from pressure the pieces fall apart at once and show no tendency to stick together, the curd is of the proper firmness. At this stage the cubes have contracted to about one-half the size they were when the curd was cut. If the curd becomes too firm, the cheese will be dry and "corky," while, on the other hand, if the curd is not firm enough, the cheese will be soft, too moist, and likely to sour.

Testing for Acidity

The amount of acid which is allowed to develop in the curd before removing the whey is the most important step in the cheesemaking process. The curd while in the whey should be closely watched to prevent the development of too much acid, as a curd that is overacid produces a dry, mealy cheese with a sour flavor, while a curd with too little acid is likely to develop gas and bad flavors during the curing process and does not keep well.

The proper amount of acid to develop in a curd before removing the whey may be determined by pressing a little curd in the hand, pressing gently but with increasing firmness for about a minute, or until the particles adhere and moisture is expelled. This piece of curd is rubbed gently on a clean, hot iron until it adheres and is then very slowly and carefully pulled away from the iron. If in doing this fine silklike threads one-quarter to one-half inch long are formed, the whey should be removed. If threads do not form, sufficient acid has not yet developed, and the curd should be left in the whey to permit the development of acid. During this period occasional stirring is required to prevent matting. The iron should be just hot enough so that the curd will stick to it and not burn the fine threads.

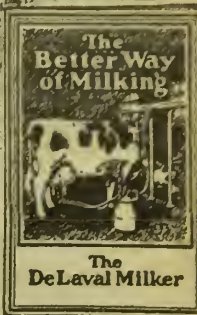
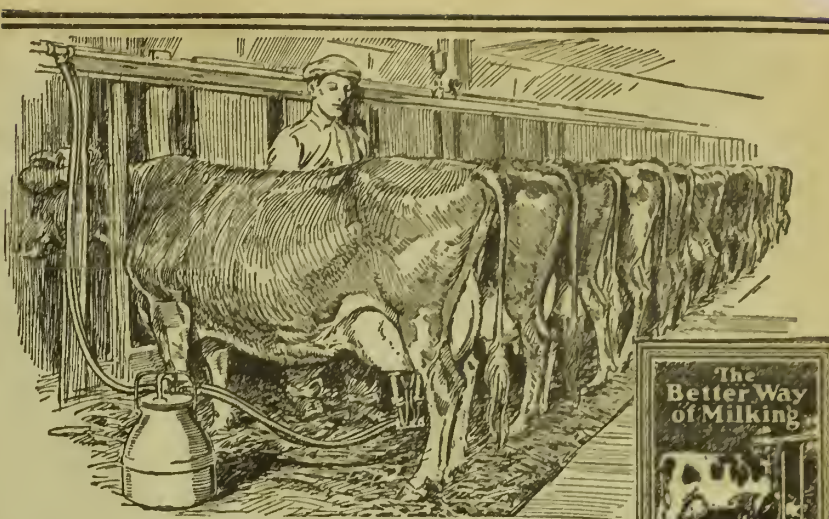
Removing Whey

As soon as the curd is firm and the proper amount of acid has been developed, the whey should be removed. The curd is allowed to settle, the free whey is dipped off, and the curd is then placed on the rack to drain. While on the draining rack the curd should be stirred continuously until all the free whey has escaped; after that it should be stirred every 5 or 10 minutes to prevent it from matting together, and to keep it broken into pieces of the size of a large hickory nut. The curd should be kept warm and as near 100 degrees Fahrenheit as possible, to permit the development of acid. This may be accomplished by keeping the curd covered with a muslin cloth, and if a jacketed vat is used, warm water may be employed also.

A simple and inexpensive draining box can be made from a wooden box about two feet square and eight inches deep. A close-fitting V-shaped bottom, sloping from both sides toward the center, should be provided. The lower edge of the V-shaped bottom should be on a level with the bottom of the box and the sloping sides should meet the box sides three inches from the bottom, giving a slope of about three inches to the center. This provides drainage for the whey which drips from the rack placed above.

The rack is made of slats one-half inch thick and three-fourths inch wide, set one-fourth inch apart and nailed to crosspieces. A three-fourths-inch hole should be made in the end of the drain box near the bottom to allow the whey to drain from underneath the rack. Before dipping the curd into the draining box a muslin cloth should be spread over the rack to prevent the curd from passing down between the slats.

If only a small amount of cheese is



"I would not think of returning to hand milking"—

So says Mr. Bolmert, a De Laval milker user, shown above, who along with many other dairymen from thirty different states and Canada give their experiences with the De Laval Milker in the book shown to the right.

Mr. Bolmert goes on to say, "My cows are also doing much better than they did by hand milking. They hold first place in the Rogue River Testing Association, and I have cut the time of milking by half."

There are now thousands of De Laval Milkers in use in all sections of the country, and practically all these users agree with Mr. Bolmert that the De Laval Milker increases production over any other way of milking, keeps the cows' teats and udders in better condition, produces cleaner milk, saves time, and makes dairying more pleasant and profitable.

A De Laval Milker soon pays for itself. If you are milking a herd of cows by hand or using an inferior milker, you are losing enough milk and time, and enough money in other ways, to pay for a De Laval. Sold on easy terms.

De Laval Pacific Company
61 Beale Street San Francisco

Sooner or later you will use a
De Laval
Milker and Cream Separator

Latest and Best Information on Milking—Free!

This beautifully printed and illustrated book contains pictures of cows, barns, etc., from De Laval milker users in thirty different states and in Canada. The pictures are accompanied by statements from these milker users concerning their experience not only with the De Laval but with other milkers. The best thing of its kind ever issued. It also gives you an idea of how dairying is conducted in all parts of the country—and may suggest how you can make your dairying more profitable.

Ask your De Laval Milker Agent for a copy, or write to the nearest De Laval office for one. Ask for the new "Better Way of Milking."

THE HOLSTEIN SALE OF THE SEASON Burr Farm Dispersal

Burr Farm, Los Angeles
June 1st and 2nd

This is One of California's Foremost Herds, and If You
Want Some of the Good Ones Make Your Plans
Now to Attend This Tremendous Sale

This is the last opportunity of the spring season to buy tuberculin tested Holsteins at public sale in California, a fact that will be of interest to many inquirers for cattle.

HIGH RECORD COWS, INCLUDING TWO WITH RECORDS ABOVE 33 POUNDS BUTTER IN 7 DAYS!

MANY YEARLY RECORD COWS AND HEIFERS, AND OTHERS WELL ALONG ON YEARLY TEST!

DAUGHTERS OF 1,000 POUND COWS OF MOST ATTRACTIVE BREEDING AND TYPE!

TWO THREE-QUARTER SISTERS TO THE NEW WORLD'S RECORD 32 POUND 2 YEAR OLD!

FEMALES BRED TO KING KORNDYKE PONTIAC 20th, SIR VEEMAN KORNDYKE PONTIAC, AND TO A SON OF THE WORLD'S RECORD HEIFER, PRINCESS MAIDA VEEMAN!

Breeding, type, production, good health are all features of this offering, presenting a wealth of selection such as will probably not be available again for a long time to come in this state.

KING KORNDYKE PONTIAC 20th, the famous \$12,000.00 son of Miss Valley Mead De Kol Walker, sells in this sale. Here is an opportunity for a breeder or group of breeders to secure one of the best known and most popular young sires of the breed.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested by a Deputy State Veterinarian and sold subject to retest by the buyer except as announced in sale ring.

CATALOG FREE ON REQUEST

Auctioneers:
Rhoades & Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

When Writing Advertisers Please Mention the Cultivator.



"Listen to me son"

"YOU'LL soon have to earn your oats. But, before you feel the pinch of a girth, here's one bit of horse sense. "WHEN you get a good boss — work with all four feet and both ears. It's easy to tell a good boss. A good boss uses Gombault's Caustic Balsam. "AND it's true! The greatest horse breeders, the finest trainers, the wisest owners all use!"

GOMBAULT'S CAUSTIC BALSAM

It does the work better than firing. Hair will positively grow back natural color.

A reliable remedy for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Windpuffs, Skin Diseases, Thrush, Spavin, Ringbone, Throat and Bronchial Troubles. Will not scar or blemish. Supercedes all firing and cautery. Sold by druggists, or sent by parcel post on receipt of price \$1.50 per bottle.

AS A HUMAN LINIMENT
It is unsurpassed for muscular and inflammatory rheumatism, sprains, sore throat, burns, bruises, cuts, etc.

The LAWRENCE-WILLIAMS CO.
Cleveland, Ohio

GOMBAULT'S Caustic BALSAM

STOP CALF SCOURS

Caused usually by the same germs that cause abortion, retained afterbirth and gas. Protect your herd and your pocketbook against these losses by the use of B-K. It destroys these germs upon contact. Also cleansing and healing. Use B-K as directed — money back if not satisfied. Ask for bulletins.

GENERAL LABORATORIES
Madison, Wisconsin

B-K
The
Sentinel of Sanitation



Prevent

Blackleg

by using

Blacklegoids

Scientifically Prepared and Tested
Blackleg Vaccine in Pill Form

Consult your veterinarian or druggist.
Write for free booklet on blackleg, No. 351.

Animal Industry Department of
Parke, Davis & Company
DETROIT, MICH.



SHARPLES
PORTABLE
MOTO MILKER
NEVER HAS HURT A COW
Inexpensive Operation — Long Life

INVESTIGATE
SEND FOR CATALOG
JORDAN-HILL CO.
112 MARKET STREET SAN FRANCISCO, CAL.

to be made, a large kettle or dish pan may be used for draining the curd. A rack can be made to fit these receptacles, leaving a space underneath the rack which will serve as a reservoir for the whey that drains from the curd.

In case a vat is used for making cheese, no draining racks will be needed. The whey is drawn off through the faucet provided for that purpose. The draining and other operations necessary before the curd is ready to be pressed are completed in the vat.

Salting Curd

The stage for salting the curd is determined by the hot iron test. When the curd shows fine silklike threads from three-fourths to one inch in length when rubbed on a clean, hot iron, the salt should be added. About three ounces of salt for each 10 pounds of curd is sufficient. After the salt has been thoroughly stirred through the curd it should be allowed to dissolve and the curd allowed to cool to a temperature of about 85 degrees Fahrenheit before it is put into the press.

Preparing Press and Hoops

A very good cheese press can be made easily and quickly. A hoop or mold for pressing the cheese can be made from galvanized metal sheeting, the most convenient size being seven or eight inches in diameter and ten inches in height. A wooden bottom should be made to fit inside the hoop, and a number of three-sixteenth inch holes bored in it to allow the whey to escape.

Cheese hoops may be obtained from dairy supply houses; the Young America style, making a cheese of from five to ten pounds, is suitable for farm use.

In order to aid in the formation of a good rind and to improve the appearance of the cheese, a cheesecloth covering is used. Before putting in the curd the hoop is lined with cheesecloth, which is left on the finished cheese.

The cloths for this purpose are of two styles: (1) Circles of the diameter of the cheese for the top and bottom; (2) a bandage made by sewing cheesecloth into a "sleeve" that will fit very snugly into the cheese hoop.

In preparing the hoop for the curd a circle of cloth is placed in the bottom, then the bandage is put in, with the seam on the inside, overlapping on the bottom about one inch and extending high enough so that it can be turned over the upper edge of the hoop and held in place.

If a regular cheese hoop is used the bandage should be put over the part known as the bandager and this placed inside the closed hoop.

Pressing Curd

After the salt is dissolved and the curd cooled to 85 degrees Fahrenheit it should be put into the hoop and pressed. Pressure should be applied gently at first in order to avoid squeezing butterfat out of the curd. To do this a weight should be placed on the lever of the press about halfway between the hoop and the end of the lever, which should be about 12 feet long. A pailful of stones weighing 35 or 40 pounds makes a suitable weight. After half an hour the weight should be moved to the end of the lever and allowed to remain about an hour. Then the cheese should be taken out and dressed.

Dressing Cheese

To dress a cheese it is first removed from the hoop and dipped in warm water; the cloth circles are then removed from both ends and all wrinkles drawn from the side bandages. If the side bandage laps over the ends of the cheese too much it should be cut off, allowing only about an inch lap over each end of the cheese. The end circles are then replaced, using plenty of warm water to insure the formation of a good rind. The side bandage should not be removed at any time during the curing process. After the cheese has been properly dressed it should be put into the press and full pressure applied for 24 hours.

Curing Cheese

Curing is an important part of cheesemaking. Both the temperature and humidity should be under reasonable control. If properly ventilated, a cellar is probably the best place, during hot weather, for curing cheese on

the farm. If it is desired to cure cheese quickly it may be kept at a temperature of 65 degrees or 70 degrees Fahrenheit, but a temperature of from 50 degrees to 60 degrees Fahrenheit is regarded as the most favorable. Should mold appear on the cheese, the shelves should be wiped with a dry cloth when the cheeses are turned. If the cheese molds badly, it should be scrubbed with strong brine and placed in a drier curing room. When cheeses are placed in the curing room they should be turned daily until they are paraffined, after which they need not be turned more than twice a week.

Paraffining

The cheeses are paraffined when they are two weeks old. Cheese should be paraffined to prevent the cheese from drying too much and also to prevent molding. A convenient method for paraffining cheese on the farm is to heat the paraffin to a temperature of 240 degrees Fahrenheit, in a receptacle of suitable size, then roll the cheese in the hot paraffin for about five or ten seconds. The cheese is then removed and the top and bottom are dipped. The paraffin must be hot; otherwise the coat of paraffin will be so thick that it will not adhere to the surface of the cheese properly.

Great care should be taken to keep flies from the curing room. All windows should be covered with cheesecloth. Screen wire does not answer the purpose, as the fly which damages cheese by causing skippers is smaller than the ordinary house fly and can easily pass through the meshes of the screen wire commonly used.

Cheese may be cured enough to be eaten when six weeks old. The flavor, of course, is then quite mild.

If an even, low temperature is provided for curing the cheese it will cure slowly, and if a sharp flavor is not objectionable the cheese may be kept for many months.

Fast or Slow Curing Cheese

The manufacturing process and the temperature of curing the cheese may be modified to produce either a fast curing or a slow curing cheese.

The following conditions hasten the curing process:

1. A high curing temperature—70 degrees to 80 degrees Fahrenheit.
2. The development of less acid at time of salting (threads of approximately one-half inch by the hot iron test).
3. Using very little salt.

The following conditions retard the curing process:

1. A low curing temperature—below 60 degrees Fahrenheit.
2. The development of more acid at time of salting (threads of approximately one inch by the hot iron test).
3. Using a large quantity of salt.

Although the amount of acid developed influences the rate of curing, it is inadvisable to deviate from the directions given because of the danger of producing a cheese of poor quality.

Summary

1. Use clean, sweet milk for cheesemaking.
2. Heat milk to 86 degrees Fahrenheit. Use a thermometer to determine the temperature.
3. Add cheese color if desired, using one-half teaspoon to 100 pounds of milk. Do not use butter color.
4. Add rennet, first diluting it with a pint of cold water. Use one-third ounce (two teaspoons) to 100 pounds of milk. Stir rennet in thoroughly, then leave milk and container undisturbed for 30 minutes.
5. Cut the curd when sufficiently

firm. Do not crush or break it.

6. Stir the curd gently for 15 or 20 minutes.

7. Heat at the rate of two degrees in five minutes until the temperature reaches 100 degrees Fahrenheit. Stir while heating.

8. Allow curd to remain in whey at 100 degrees Fahrenheit until firm and until acid enough has developed. Do not let curd mat together.

9. Sufficient acid has developed when the curd will form strings one-fourth to one-half inch long on a hot iron.

10. The curd is firm enough if a handful of it pressed together between the hands falls apart readily when the pressure is released.

11. When the curd is firm and sufficient acid has developed, draw off the whey and put the curd on a draining rack. Do not let the curd form into pieces larger than a hickory nut. Keep the curd warm while on the rack.

12. When the curd forms strings from three-quarters to one inch long on a hot iron add salt at the rate of three ounces for 10 pounds of curd.

13. Have the curd at a temperature of about 85 degrees Fahrenheit; put it into a hoop, and apply pressure gently.

14. Dress cheese, return it to the press, and apply full pressure for 24 hours.

15. Place cheese in a curing room at a temperature of between 50 degrees and 60 degrees Fahrenheit.

16. While curing turn the cheese daily for two weeks, then twice a week. Paraffin cheese when two weeks old by dipping it in paraffin heated to a temperature of 240 degrees Fahrenheit.

CHAFFEY JUNIOR FAIR

The Chaffey Junior farm center of the San Bernardino County farm bureau will hold its second annual fair at the Chaffey high school in Ontario on May 19-20. The fair will include a show of pigs, calves, chickens, pigeons and rabbits, and it is expected a large showing of each will be made. The animals in order to be eligible for prizes must belong to a club member in the Chaffey district. This does not bar any outsider, either club member or breeder, from exhibiting animals. The Italian Vineyard Company will exhibit Berkshire hogs and Guernseys; Wessels & Mahoney will exhibit Guernseys and Fred Hall of Perris will have a class of Short-horns there. The animals brought in by the breeders will be used in the judging contest, which is open to teams and individuals from any high school. The students will be called upon to place a class of horses, sheep, hogs, dairy cattle and beef cattle. The judging contest will be in the hands of Professors Hughes, Howell, Thomson and Wilson of the university farm at Davis. Everyone is invited to attend, and the youngsters promise that there will be something to interest everybody.

TOSANTOS Herd

Every Cow Has an A.R.O. Record
FOR SALE—A few Bull Calves from 3 to 10 months old.

E. D. Barry, Jr. Covina, Calif.
Workman and Azusa Ave.

BREEDING DATE BOOK—FREE

We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES
AND PEDIGREE CO.

C. L. Hughes, Sales Manager

Sacramento

MR. FARMER:—

You are contemplating the purchase of a service bull next year. Why not save 50 per cent of the purchase price by buying a registered Holstein bull calf now? Pay for him next year when he is ready for service.

Sons of SIR VEEMAN KORNDYKE PONTIAC, who has 27 A. R. O. daughters, and of BURR WALKER SADIE VALE, whose seven nearest dams average 29 lbs. of butter in 7 days, included in this offer. Call or write at once.

BURR FARM

26th and Downey Road, Los Angeles
RFD 2 Box 120

HOLSTEIN

Fred Hartsook
RANCH

CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
May 23-24, J. S. Gibson Estate, Williams.
June 1 and 2, Burr Farm, Los Angeles.
Shorthorns
May 25, Caledonia Farms, West Sacramento.
Guernseys
May 17-18, Edgemoor Farm, Hynes.
Sheep
June 15-16, Annual Ram Sale, California Woolgrowers' Association, Davis.

It appears that the fight that the dairy industry in making, not only in California, but also throughout the country, for protection under the pending tariff bill, is not yet settled. Casein, copra, and soya beans were left on the free list, and the interests that are opposed to a tariff on dairy products are continuing their attack. California Dairy Council has been keeping in close touch with the situation in Washington and has been bringing all possible influence to bear to obtain a duty on casein, as well as on copra and soya beans. A telegram received from Senator F. R. Gooding states that the group of senators that is carrying the fight for the dairy industry has recommended a duty of four cents a pound on casein and three cents on milk sugar. Senator Gooding expresses confidence that it will succeed in protecting casein. The efforts of the Dairy Council so far have been successful in keeping the coconut and other Oriental oils on the dutiable list.

Adirondack Wietske Dairy Maid, the "marvel cow," owned by Bridgford Holstein Company, Patterson, has just completed her yearly test by coming through with 1,424.77 pounds butter and 34,402 pounds milk. This production entitles her to first place among all California Holsteins and, combined with her former record, constitutes a new world record for two years production. Adirondack Wietske Dairy Maids' most recent performance is a fitting climax to a series of records made in the Bridgford herd since January first, that stand without parallel in the breed. Prior to this last record three world records and eight state records have fallen to this herd.

Hogs sold up to \$10.80 in the farm bureau auction held at Hanford, April 27. At Tulare and Visalia the top was \$10.50 and at McFarland, \$10.35. Feeders sold from \$9.45 to \$10.25.

William Ward, junior member of the firm of Easton and Ward, owners of Blackhawk Ranch, Diablo, is planning to leave early in the fall for Scotland. While abroad Ward will attend the leading Scottish Shorthorn sales and will more than likely make selections for the Blackhawk herd. Ward reports a fine crop of calves by the imported bull Collynie Prince Lavender.

J. I. Thompson, manager of Straloch Farm, Davis, has returned from a trip among the Hampshire sheep breeders of the Northwest. Thompson selected 75 yearling rams, 30 yearling ewes, and 20 two year old ewes from the Selway and Gardiner flock, Detweiler, Idaho. According to Thompson the demand for Hampshires is taxing the production of the Straloch flock. It is probable that a number of the rams will be entered in the Davis sale next month.

The first California Shorthorn herd to make application to become an accredited herd is that owned by the Pacheco Cattle Company of Hollister. The first official test has just been administered, and the manager C. N. Hawkins is well pleased with the result.

John A. Bunting, owner of the Mission herd of Herefords, Mission San Jose, has taken the preliminary test on his herd as the first step toward accreditation. It is believed that this is the first California Hereford herd to apply for the federal test.

There were 12,424,000 breeding sows on farms April 1, the United States department of agriculture estimates. This is 1,237,000 more than on the same date in 1921 and represents an increase of 11.1 per cent.

KEEPING LIVESTOCK RECORDS

(Continued on Page 511.)

reproduced here. It gives a lot of information, and from it much of the data for the individual cards is compiled. There are no boarders in the big herd at the county farm as all animals which do not pay their way are weeded out. Each animal is charged with board and its share of the overhead expense and given credit for its performances at the pail and as a parent. If it fails to show a decided net profit it is soon on its way to the butcher. The effect of a few years' operation of the system has been that the herd at the county farm is now the highest producing herd containing over 100 cows in the world.

The herd book at the farm is always kept strictly up to date and a pedigree of each animal inserted so that there is no hesitation when someone wants to know the blood lines. Incidentally Mr. Harriman is somewhat of a shark on pedigrees and can recite offhand the breeding of many famous animals and of others not so famous. The charge of the farm and its 1,000 patients takes so much of his time that he is unable to give much attention to the dairy, but he carries a small book which shows the monthly production of each animal in the herd. His recreation is the cows and the last thing at night he reads the dairy papers.

When the Holstein breeders visited the farm after the guaranty sale they were shown a poster which is reproduced here. It was gotten up to answer many of the questions which the constant stream of visitors to the farm is asking. As everything in life is relative and it is only by comparison with some known thing that we can arrive at the value of an unknown article, Mr. Harriman has taken Tilly Alcartra's record as a basis—since she is perhaps the most widely advertised milk cow in the world—and from a chart of her record up to five and a half years ago shows where his pet cow has beaten Tilly, and for that reason he purchased her sire and is keeping her sons as herd bulls.

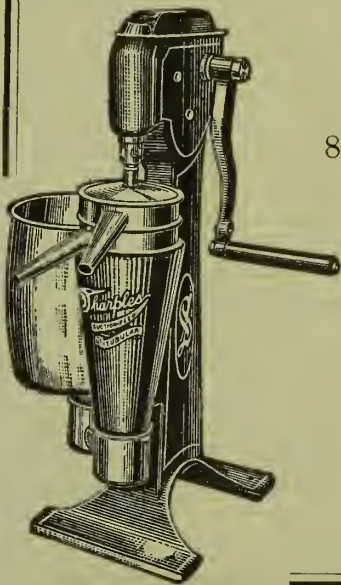
Another drawing shown was a diagram of the blood lines of the great cow, De Kol of Valley Mead, through her sons and daughters and how it appears in the herd sires of the county farm. From this diagram it is possible to work out a very comprehensive system of breeding, using first one bull and then another.

The beauty of the records is that they are not out of the reach of any breeder who is willing to give a little time to them, and they serve to emphasize the need of good bookkeepers on every big farm.

BIG PRICE REDUCTION
LOWEST IN 14 YEARS

Realizing that farm equipment must be reduced to the same level as the prices of farm products the SHARPLES SEPARATOR CO. have reduced the prices of their separators to less than one-half of the former price and have not in any decreased the quality. The new price will produce such a large volume of business that a satisfactory profit will be realized by the manufacturer. The new SUCTION FEED SHARPLES skims clean at any speed, is easy to operate, does not require an expert, easily cleaned, long lived and thoroughly dependable.

It is in constant use by more than a million satisfied users. It skims to 1/100 of 1 per cent clean all the time,—the same even quality of butter fat today as tomorrow. Put a SHARPLES to work for you. Write to the nearest distributor for detailed information and name of nearest dealer.



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SUCTION-FEED
CREAM SEPARATOR

S. M. S. RANCH, STAMFORD, TEXAS

California cowmen who wish to improve their cow herds have a rare opportunity to draw from the 1,000 bred twos S. M. S. heifers and unbred yearling heifers in lots of one or more cars. Write for particulars.

S. M. S. RANCH, SWENSON BROS., OWNERS
Frank S. Hastings, Manager Stamford, Texas

GUERNSEY DISPERSAL

71 REGISTERED
Females and Males

EDGEMOOR FARM
Owned by G. L. Strobeck
SANTEE, CALIF.

SELLING AT

Rhoades & Rhoades Pavilion, Hynes, Calif.
Wednesday, May 17, at 10 A.M.

The dispersal of the Edgemoor Farm herd makes available to purchasers a herd from a breeding establishment that has won a foremost place during the past ten years both in official production lists and in the principal show rings of America.

A Wide Selection of Females

The fifty-seven females include imported cows of most approved blood lines and daughters of such cows by richly bred sires, also a splendid lot of bred and open heifers, just the kind that careful buyers want for foundation purposes.

Females Bred to Outstanding Bulls

* Many of the cows and heifers in the offering are bred to MASTERPIECE OF EDGEMOOR, or to DEANIE'S MAROSE OF APPLE TREE POINT, two young sires of national prominence because of their breeding and individual merit.

14 Bulls in the Sale

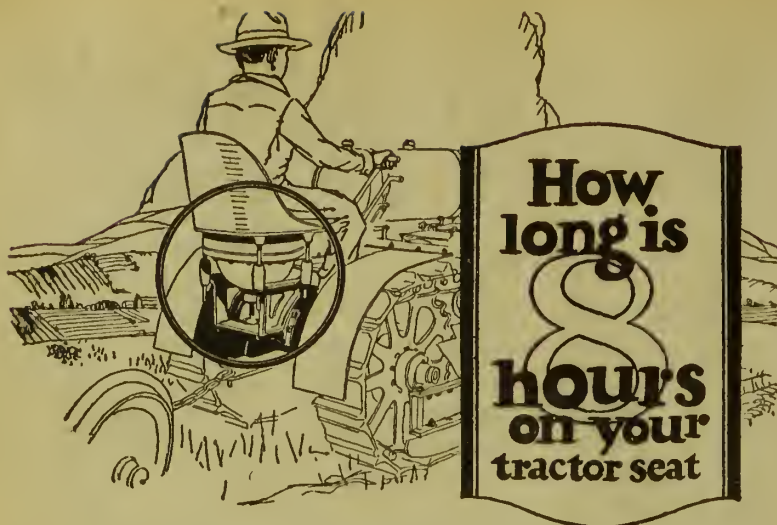
The fourteen bulls are all of service age, most of them ready for heavy service, and offer a rare selection to dairymen and breeders alike. It is not often that so many registered Guernsey bulls are offered at public sale in California, and coming as they do from this famous herd the opportunity is one not to be overlooked.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER—EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER

HEADQUARTERS OF SALE will be at Angelus Hotel, Fourth and Spring Streets, Los Angeles, from which point out of town buyers will be afforded transportation to Hynes morning of sale.

Auctioneers:
Rhoades and Rhoades, Los Angeles

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Calif.



Eight hours on an ordinary tractor seat seems years long. The bouncing, jouncing and jolting torture your back and tire you out.

Buy a SEIBEL AIR SPRING SEAT and know the delight of driving a tractor without feeling a single jolt or jar. Even the vibration is eliminated. It will protect you from spine injury and kidney trouble.

\$18.50 ON TEN DAYS' TRIAL

Send \$18.50 to our nearest agency or to the company direct. Pay the return freight if you don't want to keep the seat and your money will be refunded.

Write for descriptive circular.

SEIBEL AIR SPRING SEAT

SEIBEL AIR SPRING CO.

HUMBOLDT BANK BLDG.
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ROTH & PINTO, Biltwell Garage, 9th and L
Sts., Sacramento, Cal.

E. BEAULIEU, 334 F St., Eureka
CHAS. PILGRIM, Box 1115, Fresno.
LEM HORTON, Hollister
GROWERS' TRACTOR CO., 65 N. Market St.,
San Jose

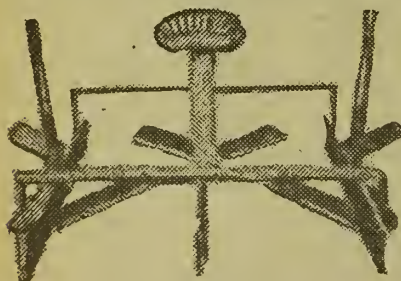
THE AUTO-OILED AERMOTOR A Real Self-Oiling Windmill

Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

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Golden Gate Weed Cutter

One of the handiest Farm Tools on the market. Kills the weeds completely, cutting them off under the surface, close to the roots. At the same time it

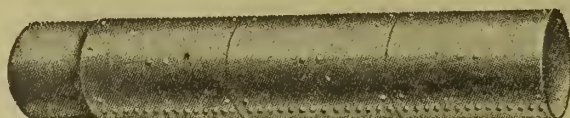
THOROUGHLY PULVERIZES THE SOIL

No need to plow after using this tool, for it leaves the soil in a perfect mulch. Here is the cheapest and best solution to the weed problem. Cuts 7 feet or less in width and adjustable to any depth. Weight, 230 lbs. Constructed of steel throughout.

SEND FOR CIRCULAR which tells you all about this handy tool and what users think about it.

C. G. SIGURD, Manufacturer
Capital Ave. and McKee Road, San Jose, Cal.

Tanks, Well Casing, Water Pipe



American Steel Pipe Tank Co. P.E. Bldg., Los Angeles

Two Thousand Acres of New Vineyard

The Fontana Farms Company has just completed a large planting of 2,000 acres of grapes. Since early in March a crew of some 50 planters has been in the field, interrupted only by rains. While the process of planting a single grape cutting is very simple, this process multiplied by 900,000 over an area of 2,000 acres becomes a farming operation worthy of interest.

The Fontana ranch, located six miles west of San Bernardino, be-

tamped with the foot. It takes about five minutes to complete one row 640 feet long and containing some 67 cuttings.

The varieties planted at Fontana are: Muscat, 30 per cent; Sultanahs, 15 per cent; Zinfandels, 15 per cent, and Mission, Tereusa, Alicante Bouchet and Cornichons, each 10 per cent.

Grape culture at Fontana is no experiment as the vineyards are located in the center of the largest and oldest grape section in Southern California



A Five Year Old Vineyard at Fontana

tween the Foothill and Colton Boulevards, is divided into 20 acre tracts. Three crews of 13 to 20 men each are separated over each tract. Each crew has two chain men, 16 planters and one or two men to distribute the cuttings, while a small truck is kept busy hauling the cuttings to the crews from where they have been kept buried.

The chain consists of a wire 640 feet long marked at intervals of nine and a half feet. It is the business of the chain men to stretch this wire to stakes nine and a half feet apart previously placed along each side of the tract, each stake having an indication of the variety of grape to be planted. When the chain is stretched taut the planters, each equipped with a steel bar, proceed to their work. The bar is driven into the ground to a depth of 14 inches, the cutting inserted, leaving three to four inches above the ground, the soil firmly packed with the bar and the surface

There are some 18,000 acres of grapes in San Bernardino County as against 13,850 acres in the remaining counties south of the Tehachapi according to the California Grape Grower.

While much of this acreage was originally without water, it is interesting to note that, according to a survey recently made by the Fontana Farms Company, over \$500,000 is being spent by the vineyardists in the Etiwanda, Cucamonga and Fontana for installing irrigation systems.

The Fontana vineyards were all piped for irrigation before they were planted, being served by the Fontana system, getting its gravity water from Lytle Creek and distributing it in a system comprising over 250 miles of concrete pipes.

The Fontana Farms Company reports that since it began planting over \$100,000 worth of these young vineyards have been sold in ten and 20 acre tracts.

Sub-Irrigation

Since tillage of irrigation lands began we have wished for a method of applying water so it would reach the roots of tree or plant without large wastage and with saving of labor. The labor of preparing soil for irrigation

and of undoing it and fitting the surface for holding the moisture is simply appalling. Hence we continue to ask, is there not some way of getting this water down to the roots and being relieved from the incessant labor of re-



Practical Sub-Irrigation.

The upper illustration is taken in an orchard near Glendale, Los Angeles County. The system is laid deep enough to escape tillage implements. The percolators and pipe shown on the surface are merely to illustrate location of percolators underneath. These percolators are connected with the irrigation system by ordinary screw galvanized water pipe. The lower illustration shows the different forms of percolators. These are all made of coarse sand and Portland cement. The bucket form at the right shows by the dark line how high the water stands in the percolator when water is turned on full force from three-quarter inch garden valve. The elongated percolator on top of the bucket form near center of picture is the form ordinarily used under strawberries or other truck crops.

When Writing Advertisers Please Mention the Cultivator.

newing the dust mulch. So our ears and eyes are open when it is suggested that possible relief is in sight. We were glad recently to inspect the system of Messrs. Bean and Woodberry at Glendale.

This is a system for applying irrigation water to trees and plants underground by means of porous containers which are connected by suitable pipes and through which containers the water percolates and is diffused through the surrounding soil. As each percolating unit uses water only as fast as it can be diffused through the surrounding ground and any in excess of this amount passes on to the next in line, it follows that the number of units is limited only by the size of the connecting pipes and the quantity of water available.

It will eliminate the labor of preparing the ground for each irrigation, the labor of applying the water and the labor of cultivating the soil when sufficiently dry, but what is of more consequence by far, it will place every gallon of water in, not on, the ground and right among the roots of the vegetation, no loss of water by evaporation or in wetting the surface soil which contains no tree roots. This means that by use of this system one inch of water will do the work of two or three as usually applied. It will call the rootlets down from the surface instead of up to the surface where they are affected by atmospheric conditions.

The different forms of containers are shown in the illustrations on opposite page.

TOMATO GROWING

About 2½ quarts of canned tomatoes is the yearly per capita consumption in the United States. How the tomato is grown, put up and shipped, together with practices followed in communities where its cultivation is highly specialized, are given in Farmers' Bulletin No. 1233, recently issued, copies of which may be obtained free of charge upon application to Department of Agriculture, Washington, D. C. The bulletin also contains valuable suggestions to growers as to methods which are profitably followed where the crop is most successful.

By 1887 the total pack of canned tomatoes in the United States was about 3,000,000 cases of 24 one quart cans each. Now the commercial pack, exclusive of soups, purees, ketchup and pulp, exceeds 10,000,000 cases of 24 No. 3 cans. These figures do not include the millions of cans put up by housewives for home consumption or the fresh tomatoes which grace American tables during the growing season.

CHANGE IN FEDERAL GRAIN GRADES

Changes in grades to facilitate export trading in Pacific Coast wheat have been made, effective July 17. When the proposed changes as to excess moisture and excess foreign material were under consideration, there was proposed also a change in the classification of white wheats so that the classes Common White and White Club would be combined into one class designated White Wheat, this new class to be subdivided into three subclasses—Hard White, Soft White and Western White—making the same application of the Hard White and Soft White subclasses as at present and designating as Western White all white wheats or mixtures of white wheats containing more than 10 per cent of white clubs or Sonora.

SUDAN SEED SHOWS JOHNSON GRASS

A warning is issued to those farmers intending to plant Sudan grass this season to be certain seed is free from Johnson grass seed. Quite a number of the samples of Sudan grass seed submitted to the seed laboratory of the state department of agriculture have been found to contain traces of Johnson grass, reports W. S. Wilkinson, Jr., seed specialist, bureau of standardization.

REMEDY FOR CUTWORMS

The extension service in Los Angeles County recommends the use of poison bran mash or citrus bran mash for the control of cutworms. The formulas for preparing the materials are:

Poison Bran Mash

Bran, 25 pounds; white arsenic, 1 pound; molasses (cheap blackstrap preferred), 2 quarts. Mix the arsenic

and the bran dry and add the molasses, which has been diluted with water. Add enough water and mix thoroughly to make a dry mash which will broadcast easily.

Citrus Bran Mash

White arsenic, 1 pound; molasses (cheap blackstrap preferred), 2 quarts; lemons (or oranges), 6 fruits; water, about 4 gallons; bran, 25 pounds. Mix the above materials as follows: Stir thoroughly the white arsenic, molasses and water first. Grind the lemons, including the rinds, in a meat grinder, or chop fine, and add to this liquid. Then slowly pour this over the bran and stir thoroughly until an even mixture is secured.

The amount of water to use in the preparation of these baits will vary according to the coarseness of the bran or substitutes. A barely moist mash is preferable to a wet one, because it does not harden under the heat of the sun and remains palatable, while wet mash becomes baked and unattractive.

DESTROY MILK THISTLE NOW

The milk thistle, *Silybum marianum*, is one of our more disagreeable weeds whose control can best be effected at the present season, says the bureau of pest control, California department of agriculture. The milky white splotches along the veins of its leaves from which the common name is derived make it readily recognizable at all stages. The time when this weed can be easily destroyed is quickly passing with the advent of warmer and drier weather. While in most sections of the state the milk thistles have just begun to show themselves, in many places quite large plants already may be found, and occasionally a flowering stem.

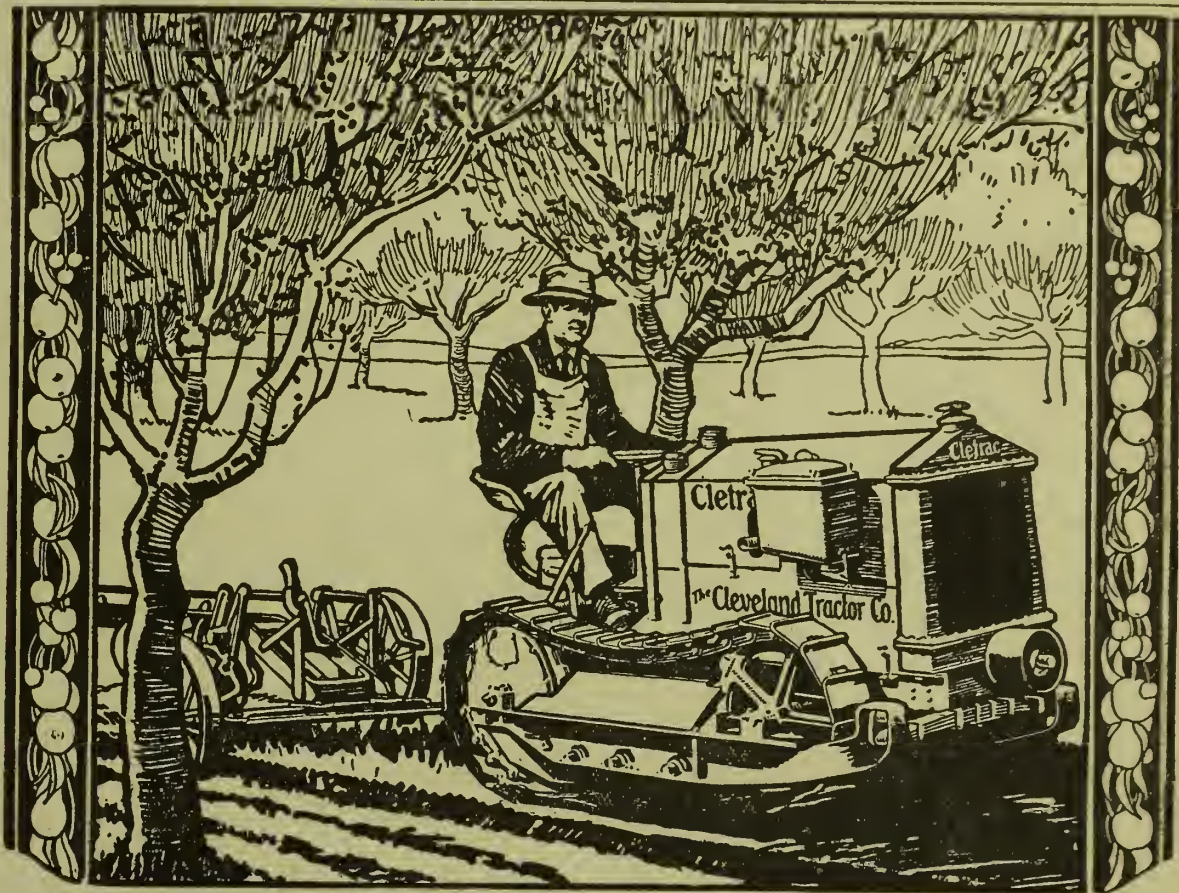
The best tool for destroying is the spud, but a good hoe or a sharp spade will do very well. It is important to cut the plant well below the crown, for although the milk thistle is generally regarded as an annual it possesses the properties of a biennial in its ability to produce new stalks from buds around the crown after the original stalk has been cut off.

BET SUGAR PRODUCTION LAST YEAR

Final report of a beet sugar production of 1,020,489 short tons in this country in 1921, is announced by the United States department of agriculture. This is 68,532 tons less than the production of 1920 which was a record one and was the first to pass the million ton mark. The sugar beet crop of 1921 grew on 814,988 acres, an area that was 56,688 acres less than that of 1920. This report is the result of enumeration and not of estimating.

Farmers received an average of \$60 per acre and \$6.32 per ton, nearly as low as 1916. 92 factories were in operation for 76 days on the average. The fraction of sucrose actually extracted by factories was 13.76 per cent of the weight of beets, as compared with an average of 13.55 per cent for the six years 1915-1920.

Sutter County reports peach buyers busy among the orchardists though prices are still vague. Most of the peach growers are in the association.



Cletrac Is At Home Among The Trees

CLETRAC is low-set and smooth-bodied. It slips in and out among the trees with short quick turns—comes about at the end of the row in less space than a team requires. Standing only 13 hands high—with no projecting lugs to catch low-hanging branches or scrape and bruise the bark—Cletrac is the ideal "orchard tractor."

With a Cletrac to turn under your cover crop, you can work right up close to the trees. This tractor leaves no patches of unplowed ground that so often make orchard plowing a half-power, half-horse job.

After plowing, Cletrac follows through with discing, fertilizing and lime-crushing. Its broad tank-type treads carry it lightly over soft ground without slipping and packing—it gets through with your heavy spraying no matter how wet the soil.

Today Cletrac is the admitted leader in orchard work. More fruit growers every year are using it exclusively. Remember—there's no obligation connected with learning all about Cletrac's proved ability. We'll demonstrate at your convenience.



THE CLEVELAND TRACTOR CO.

"Largest Producers of Tank-Type Tractors in the World"

19077 Euclid Ave., Cleveland

PACIFIC COAST FACTORY BRANCHES

LOS ANGELES, CAL. SAN FRANCISCO, CAL. SPOKANE, WASH.

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4 1/2 cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office

POULTRY

Baby Chicks: When you buy baby chicks the big thing for you to remember is QUALITY. In both the chick itself and the parent stock. By investigating you will find that our chicks are in a class by themselves, for we have absolutely the best equipment obtainable to produce them and very high class stock from which we get our eggs, and then, too, we know how to handle and deliver chicks. We are hatching every week White Leghorns and Anconas that will lay; R. I. Reds and Barred Rocks that are well bred and will produce. Send for our circular and prices and order immediately for 1922 delivery. **ORANGE COUNTY HATCHERY, Santa Ana, California.**

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. County farm advisors, county agents, large, small ranchers, city people have for years bought these 180-290 egg Leghorns, Reds, Rocks, Minorcas, Anconas, Wyandottes, Andalusians, Ducks, Turkeys. They lead many egg-laying contests, are growing in popularity yearly. Why? **ELECTRIC HATCHED,** vigor, growth, winter-laying, profit, guarantee. All feel as this customer writes: "Count me among your boosters." Very low May, June prices. Smallest, largest orders welcomed. May chicks, turks grow quickest into profit. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

White Leghorn

BABY CHICKS

\$10 per 100

May, June, July

STEELE'S EGG RANCH
Phone Gardena Exchange 692
Moneta, California

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.**

Bargain Prices on Purebred, good laying Stock White Leghorn Chicks by insured prepaid Parcel Post, \$10.35 hundred—\$100 thousand. We can fill large or small orders promptly. May and June and please you as to quality. Order direct, or send for interesting circulars. **The Mission Hatchery, Box 27, Campbell, California.**

White Leghorns—Eggs for hatching; 100% fertility guaranteed. Absolutely first class cockerels and pullets ready soon. Finest laying strain. Prices very reasonable. Send for folder "Secret of Success." **Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, California.**

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. **Hargett & Son, Route 2, Box C, Compton, California.**

Baby Chicks during May and June. Prices reduced. Several open dates. Not too late to raise good pullets. R. I. Reds, Barred Rocks, White Leghorns. Write for circular. Brown Leghorn pullets ready for shipment now. **Stubbe Poultry Ranch & Hatchery, Box 67E, Palo Alto, Calif.**

Chicks, Eggs—Hoganized White Leghorns, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. **McDonald Poultry Ranch, King Road, San Jose, California.**

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. **Pebbleside Poultry Farm, Sunnyvale, California.**

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. **Tobener Hatchery, Route 2, Box 306, San Jose.**

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. **Charles H. Voddan, Los Gatos, California.**

White Leghorn Pullets For Sale—400 pullets over two months old. Heavy laying strain and exceptionally well grown. **Piara Vista Ranch, Peris.**

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

POULTRY

Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. **Paradise Valley Poultry Ranch, National City, California.**

BABY CHICKS

Every Day—Ducklings, turkeys, hatching eggs—dogs, cats, birds, rabbits, pullets.

Write for prices.

FANCIERS' EXCHANGE

640 So. Spring St. Los Angeles

For Sale—10,000 Baby Chicks every week from California's finest breeding flocks. This season our chicks are hatching exceptionally well, stronger and larger than ever. Leghorns from the famous Craig breeding flock \$12.50 per hundred. Many leading ranches buy these to get new blood. R. I. Reds and Barred Rocks \$15.00 per 100; Light Brahmas 25 cents each. P. Cook Chick Ranch, 1717 Valley Blvd., Alhambra. We ship everywhere.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. **J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.**

Santa Cruz Chicks: Our Specials are White Leghorns, Buhrman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. **E. W. Archibald, Soquel, Santa Cruz County, California.**

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. **F. & L. Downing, Los Gatos.**

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. **E. W. Ohlen, Campbell, California.**

Reed's Rhode Island Reds—Dark color; fine layers; winners in big shows. Eggs and cockerels. Satisfaction guaranteed. Mating list free. **John L. Reed, Route C, Box 36D, San Jose, California.**

Baby Chicks For Sale—From heavy laying stock. Standard varieties. Chicks give excellent satisfaction in the hands of customers; prices right. **Madera Hatchery, Madera, California.**

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. **Model Poultry Farm, W. C. Smith, Prop., Corning, California.**

Black Minorca Baby Chicks hatched every Wednesday from our own Hoganized stock. L. S. Rogers, Cupertino, California.

"Eastman's Bred-to-lay" Hoganized and trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Thoroughbred R. I. Reds, bred for size, eggs and beauty. Baby chicks, settings. Send for circular. **Cherry Poultry Yards, R. 1, 504a, San Jose, California.**

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

TURKEYS

Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 10-lb. hens. Eggs in season. **Bronze King Farm, Route 2, Box 88A, Merced, California.**

Keys Ranch Turkey Eggs—Mammoth Bronze from \$25.00 per hundred to \$1.00 each. They are getting real turkeys. **El Monte, California.**

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California.

RABBITS

Pedigreed Flemish Giants—No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

CATTLE

For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old mules and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. **Chas. Hubbard, Owner, Riverdale, California.**

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. **C. S. Howard, prop.; Otis Cordell, herdsman Willits, Mendocino County, California.**

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. **Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.**

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. **T. T. Miller, Hollister, California.**

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. **J. W. Snodgrass, Ilwaco, California.**

For Sale—25 young first class graded Holstein cows, bred to excellent pure bred Holstein bull. W. H. Nyswonger, R. C. Box 123, Hanford. Phone 7 F 4.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. **John Lynch Ranch, Box 321, Petaluma.**

Registered Holstein Bulls of various ages for sale. Milbrae Dairy, Milbrae, California.

Herefords—"Veramont Stock Farm," II. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. **BONITA, CALIFORNIA.**

Registered Herefords—Anxiety IV strain. Breeding stock for sale. **Chas. Rule, Duncans Mills, California.**

FARM LAND FOR SALE

\$700 GETS 160 ACRES WITH 12 CATTLE, 24 HOGS, POULTRY. Corn, hay, feed thrown in; big profits here, hogs, cattle, corn, general products; good markets; handy village; 75 acres rich lime tillage, wire-fenced pasture, about 1000 cords wood; 70 apple and peach trees; good cottage, well shaded, 2 barns. Owner called away. \$1400 gets all, half cash. Details page 106 illus. Catalog 1200 Bargains. **FREE, STROUT FARM AGENCY, 831 Iik New York Life Bldg., Kansas City, Mo.**

A NEW DISTRICT FOR YOU
Sutter Basin is a new district with most of the conveniences of an old, established country. The soil, irrigation and transportation facilities are unrivaled. Here is the place for your farm—grapes, fruits, dairying, vegetables—anything you want to grow. Most liberal terms.

SUTTER BASIN COMPANY
304 California Fruit Bldg.
Sacramento, California

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, **Oscar Lehner, 3120 Colton Avenue, San Diego, California.**

Ramona, San Diego County, California, where prices have not been boosted. Land \$50.00 to \$100.00. Health, fruits, vineyards, grain, dairy, stock, poultry. **F. M. Dyke, Real Estate.**

25 Acres Citrus Land, 800 pedigreed navels being put out, plenty water, pumping plant \$7,500. **Oscar Lehner, Owner—3120 Colton Avenue, San Diego, California.**

For Sale—Ranch, 9 miles from town, on highway; 148 acres, house, barn; \$140 acre. **Henry Strobel, owner. Motor Route A, Box 125, Oxnard, California.**

For Sale—Bargain 70 acres near Galt. Alfalfa or vineyard land—50 acres planted to grain. Cash \$2,100.00. **Baker, 809 Meridian Avenue, South Pasadena.**

Florida—Indian River Orange Lands and groves. Booklet and list and local paper 5c. **Goodwin & Baker, Realtors, Ft. Pierce, Fla.**

For Sale—Ranches, Homes, Acres, free list. **Wilson Bros., Santa Cruz, California.**

TREES

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. **Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.**

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. **Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.**

Mexican Avocado Seedlings for Sale—Any number up to ten thousand. **Mathers' Avocado Nursery, Pasadena. P. O. Box 585. Phone Colorado 6044.**

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. **Van Nuys Nursery Company, Van Nuys, California. Phone 12.**

For Sale—Navel and Valencia Nursery stock—not frosted. **W. B. Ames, 9th floor, Merritt Bldg., 8th and Broadway, Phone Pico 1156, Los Angeles.**

SEEDS AND PLANTS

SUDAN GRASS SEED
(The Great New Hay Crop)
First introduced in the United States 1909 from Sudan, Africa. Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, it grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings. Pasture. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnson Grass.

Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$8 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.

BOWMAN'S HDWE & IMP. CO.

721 J St. Sacramento, Calif.
Hubam Clover—Mr. Citrus Grower. Subsoil your orchard, add humus and nitrogen and have a green cover crop growing under your trees in June and July by planting Hubam clover now. The fastest and heaviest growing Legume Seed 99% pure by U. C. test. Prices reasonable. **O. E. Lambert, Route C, Box 226, Modesto, California.**

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery. Jordan and Casey, Box 40, Manhattan Beach. Phone 4951 Redondo.

For Sale—Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams or Southern Queen (White) \$1 per 100. Add 40c per 1,000 for parcel post orders. Ready about March 15. **B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.**

40,000 Rootings—Price down; Emperors, Thompson, Sultan, Muscat, Alicante, Malaga. Write for circulars. **Box 501, Fowler, California.**

California Wonder Corn doubles the yield. Over four pounds, 25 cents; over 24 pounds, 15 cents. **James McKee, Riverside, California.**

Sweet Potato Plants—Yellow Jersey, \$4.00 per 1,000, F. O. B. Shipment by express preferred. **W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.**

For Sale—Banana Squash Seed, 50c per lb. **T. J. Murray, 7050 Kester Ave., Van Nuys, California.**

Sweet Potato Plants—Yellow Jersey. **V. Imbert, Norwalk, California. Telephone Downey 1186.**

Chinese Giant Bell Pepper Plants 20c per dozen; \$1 per hundred—C. A. King, 7028 Saugus Ave., Van Nuys, California.

For Sale: Yellow Sweet Potato Plants, strong stock, \$3.00 per 1,000, F. O. B. Santa Ana. **S. D. Teel, R. D. 3, Box 8.**

Sour Orange Seed, fresh from Florida. Immediate delivery. **Milo Hunt, Whittier, California. Phone 250.**

For Sale—Sweet Potato Plants, 1/2 mile east of Stanton, Route 1, Box 47, Anaheim, California, E. Willard.

MACHINERY

For Sale—Milo surface irrigating pipe. New 3 inch at \$12.90 per 100 feet; 4 inch at \$16.75; 700 feet used 8 inch; 500 feet used 10 inch; 2000 feet light conductor pipe 6 inch but a good buy at \$12.90 per 100 feet. Don't wait till dry weather and expect to find this pipe in stock. **Demmitt Co., 120 North Main St., Los Angeles.**

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. **Moline, J. I. Case and Fitch Four Drive tractors, Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.**

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? **Demmitt Co., 120 N. Main; Yds., 816 Yale, L. A.**

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CITRUS BUD VARIATION

Features of interest shown by the Wase variety of the Satsuma type of orange are discussed from the technical and scientific viewpoint by Tazaburo Tanaka, botanical assistant and translator, in Department Circular No. 206, "A New Feature of Bud Variation in Citrus," issued by the United States department of agriculture. This variety is liked particularly on account of its early ripening habit and its remarkably polished large sized fruits. Its origin was traced to three authentic grafted plants, located at Aoe, where the original budwood for propagation was furnished.

A novelty produced in this way is sometimes of real agricultural worth, as is evidenced by the fact that the Wase orange industry of Japan has grown in 20 years from nothing to a production of 150,000 yen (\$75,000) worth of fruit annually.

In addition to the strains of Wase now cultivated commercially on a large scale in many parts of Japan, Dr. Tanaka has located six other strains in various parts of Japan, of which five were brought by him to this country and are now growing in the greenhouses of the department of agriculture.

The Wase Satsuma originates as a very rare bud variation on branches of the Owari Satsuma, a variety cultivated on a considerable scale in Alabama and other Gulf Coast states. The Wase bud sport ripens several weeks earlier and has larger fruits of equally good quality. Dr. Tanaka finds that the Wase strain reverts rather commonly to the parent variety, the Owari Satsuma, and discusses at some length the scientific and practical significance of this fact.

TOADSTOOLS ON POTATOES

Reports come from time to time of potatoes being attacked by the oak root fungus, *Armillaria mellea*. In Oregon the attacks on potato fields have become quite serious. The trouble is more apt to be serious in sections of constant rains, summer rains being a considerable aid to all fungous diseases.

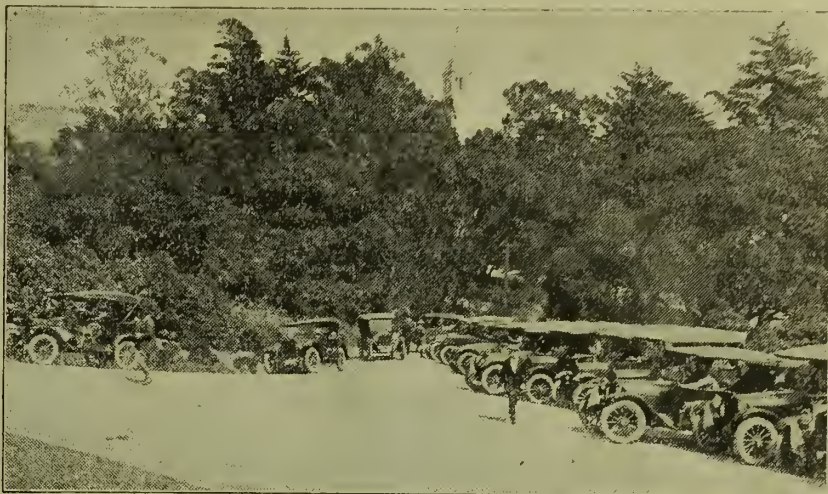
Among the conspicuous needs of the peach industry today are standard grades and more careful attention to the harvesting, handling and packing of the fruit. Each year large numbers of shipments are received in the consuming centers of the country, which, on account of immaturity or improper methods of grading and handling, are sold at prices that represent severe losses to the shippers. The situation is rendered even more serious because the presence of poor fruit on the market weakens the confidence of the consuming public and so affects the sale of the good stock as well.

FEDERAL QUARANTINE NO. 37

(Continued from Page 511.)

When we take into consideration the fact that the annual loss to the horticultural and agricultural interests of the United States from the depredation of injurious pests and diseases, fully half of which were introduced from foreign lands, runs into billions of dollars, we cannot help but be impressed with the necessity for more carefully guarding against such importations.

On the other hand the importers would have us believe that Federal Quarantine No. 37 absolutely prohibited the importation of any plants, seed, bulbs or flowers from other lands and that we were being deprived of many new and rare plants and flowers, as well as economic fruits, etc. This is not the case, for, as stated elsewhere, under proper



Annual Farm Bureau Conference Ready for the Start from Berkeley

Farm bureau conference conducted by the experiment station left Berkeley on the morning of May 3, journeyed by the coast highway to Los Angeles, thence east through Southern California valleys to Redlands and on to San Diego where the conference ended on Thursday, May 11. Really, however, the journey will not end until the various machines have returned to their homes, some having come from extreme northern counties, making the length of the entire trip nearly 1,500 miles. There were 47 automobiles carrying 185 farm bureau people.

restrictions such importations are provided for, and the only articles prohibited entry are those that are being grown here in sufficient quantities to supply our needs.

It is true that American grown plants cannot be produced as cheaply as those from Europe, but it is equally true that the plantsman pays as much or more for the imported goods as is charged for the American grown article, the difference going to the importers or middlemen.

To sum up the proposition, these people are willing to jeopardize the interests of the entire country for the sake of the few dollars additional profit they can make on imported goods produced by cheap labor.

Every fruit grower, nurseryman and florist who has the interest of the industry at heart should make an earnest effort to see that this quarantine is maintained.

PUTTING FIGS ON THE MARKET

Growers of figs in California are very much encouraged over the prospects of disposing of their crops as fresh rather than dried fruit. The industry has been built up almost entirely on the basis of dried figs. These figs are dried in the sun and marketed mainly in bulk for cooking purposes.

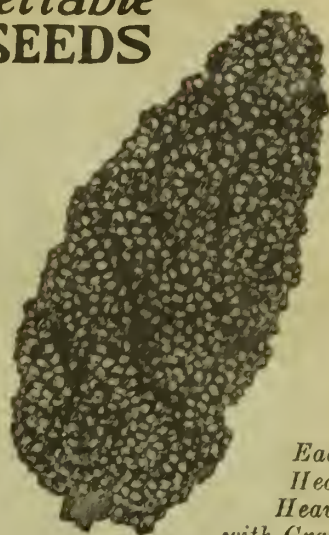
The Calimyrna, Kadota and Mission varieties of fig are admirably adapted for shipping to fresh markets, both local and distant. The first two are especially fine for canning and preserving. The fresh fig is one of the most delicious, palatable and healthful fruits known to mankind. Since the fig cannot be grown commercially in the colder sections of the United States, the California Peach & Fig Growers, which now has 8,500 members, is arranging to preserve the fresh fruit in its original form and flavor as nearly as possible. It is predicted that canned figs put up in syrup will be as common a commodity as canned apricots, peaches, or cherries, and preserved figs put up in a heavier syrup, a delicious dessert which will be available at all grocery stores.

In addition to its two modern plants put into operation last year, the Peach & Fig Growers has under construction a third plant at Dinuba representing an investment of \$105,000 where large

quantities of fresh figs will be handled this season. Both Calimyrna and Kadota figs are of a beautiful golden yellow when ripe and the preserved product in glass presents a very attractive appearance. The quality is even better.

Cooking or preserving the fig does not in any way destroy its laxative properties or detract from its food value. The high food value of figs is mostly due to their sugar content, one of the most valuable of the carbohydrates and certainly the most easily digested and assimilated of all. The fuel value or calories per pound of dried figs is 1395 compared to 1336 for raisins, 1292 for prunes, 1125 for dates 1290 for apricots, 1350 for dried apples and 1,650 for bread flour. The fig ranks second therefore, only to flour in the number of calories per pound.

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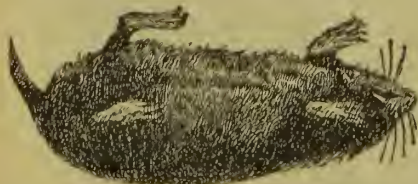
Citrus stock, grown in the frostless belt, free from disease.
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The Care of Ducklings

By Jean A. Koethen



DUCKLINGS are the easiest of all young fowl to raise. They require little heat, little exercise, a very simple diet, and cleanliness means nothing to them. They are far less susceptible to disease than chickens, and it requires only a little knowledge of and respect for their idiosyncrasies for the veriest novice to raise them with little loss. When their idiosyncrasies are not known raising them may be as much of a problem as it has been to the writer of the following:

"On March 20 I purchased four dozen Pekin ducklings. They were delivered to us when they were 30 hours old and appeared to be all right although their legs were somewhat weak. When they were 42 hours old we fed them lightly on bran and grit. We kept them at a temperature of 90 degrees for five days, reducing to 75 degrees when they were two weeks old. They were allowed to run in the sun when they were a week old and protected from drafts as much as possible. We fed them hard boiled eggs and bread crumbs and grit for two days, then baby chick mash and one-third grit and greens chopped fine, what they would clean up in five minutes three times a day. Water was before them constantly. They have died consistently, one, two and three a day, till the last one died today. They gained in size and weight, but could not stand on their feet, would toddle around, then roll over on their backs and die. We held an autopsy on several and found their stomachs full of water as a rule. This is my first experience with ducks but I have heard most everyone say they were easy to raise and required less care than chickens. I have always had lots of chickens and have been very successful with them."

The first experience with any kind of young things is quite likely to be unfortunate and is always illuminating. This writer's fundamental mistake was in supposing that ducklings require the same care as chickens. They are essentially different and demand very different care. The requirements of ducklings may pretty well be summed up in six rules: 1. Very little heat and that at night. 2. Soft feed. 3. Sand with every meal. 4. Greens with every meal. 5. Water only with meals and slightly warm if weather is cold. 6. Shade.

Isn't that simple? No worrying about the little birds' chilling. No fussing with a variety of rations. No dusting or spraying for lice. A little room for exercise, but not much.

I do not know exactly how much heat breeders give who raise their ducklings in brooders, but I do know that most people raise them in fireless brooders without any heat at all. If the nights are very cold a jug of hot water may be given the first week, but it is hardly necessary. Seventy-five degrees at the start would be ample heat and could be done away with entirely after the first week. The coop should be sheltered from sun as well as from wind, and the ducklings allowed in their little yard all day. They must be kept carefully yarded, because they have not the homing instinct chickens have, but a board a foot wide is ample for keeping them in. An Inglewood man whom I visited some years ago was raising hundreds of Pekin ducks for the green duck market in a yard not over 20 feet square. He put them in cold brooders at night, and I believe the first week or so kept the brooders in the house. The yard was divided into small sections for the different ages of ducklings and here they lived and grew to six pounds weight with barely room to move around in. The wind was cold in the shade of the tree which protected their yard, but they minded the cold wind far less than they would have minded the hot sun.

Soft Feed Essential

The duck has no gizzard, and hence cannot easily digest hard grain. All the big duck men stick to moist mash for their ducklings. The first feed, which is given whenever the ducklings want to eat, may consist of bread crumbs or bran served on a board. With ducklings one need not

worry about feeding too soon, for they will not eat too soon. After this first meal, which should always be mixed with clean sand, a simple mash mixture of ground grain and cut green feed moistened with water till it is crumbly, and always with five per cent or more sand added, is given at first four or five times a day, and later on three times a day. At the Hallock Ranch, one of the big Long Island ranches, the ration at first consists of two parts bran, one part shredded wheat, one part corn meal, with a little meat scrap added gradually after the first two or three weeks. Two parts bran, one part middlings and one part corn meal, with sand and greens added, and the whole moistened till it is crumbly, makes a good ration for ducklings after the first two weeks. It is better not to use corn meal too freely at first but it must be added after a little and the amount gradually increased till the mixture is equal parts bran, middlings and corn meal. Beef scrap should not be added till the birds are two weeks old or older and must be used cautiously and the amount gradually increased till it is one-eighth of the whole. Always add cut alfalfa or other greens until the birds are old enough to pick the uncut green stuff just as it is thrown into the yard, and never, never omit sand.

Water ad Libitum

Water to play in or too cold water to drink makes havoc with ducklings. They must have it with their meals, but it is neither necessary nor wise to leave it before them till they are fully feathered. Then a pail or tub to dip their heads in is a great pleasure to them and helps keep them free from vermin. The books say ducks are not troubled with lice and other vermin, and this is ordinarily true, but the first ducks I ever owned came to me with their heads full of stick-tight fleas. They soon washed them off and probably would never have been bothered if they had had water to dip their heads in. Ducklings, however, until their down has turned to feathers, are easily chilled by getting wet, and must be kept dry. Probably the water which was so carefully kept before the unfortunate ducklings in the letter quoted above had no little to do with their sudden deaths, especially as they were kept far too warm at night. It used to be said that cold water, inside or out, gave ducklings cramps.

Shade Always

Because their circulation is slow and their blood temperature low, ducklings cannot bear the hot sunshine and must be kept well shaded in our climate. Cases one hears of, of ducks dropping dead, are probably generally due to exposure to the sun. The natural habitat of ducks is a cool, marshy place and it is probably a little more difficult to raise them here than in the East. For the same reason they are rather less profitable though green ducks often pay pretty well.

Ducklings that are heavily fed are liable to have weak legs, and care must be taken not to let their bodies outgrow their legs. If symptoms of leg weakness develop give them a chance to run once in a while and cut down the amount of corn meal in the mash.

Poultry Queries

Conducted by Jean A. Koethen

Chicks Dying

What can I do to keep my little chicks from dying? I feed rolled oats, chick mash and cracked wheat and milo. They did well till they were four weeks old, then I changed them into the Corning house, and after a week they began to droop and die. I had alfalfa hay on the floor instead of straw. What is best?—Subscriber, Chula Vista.

My guess about those chicks is that there were mites in the house, and as soon as they fairly got to work sucking their blood the chicks began to die. There is nothing in the ration

DR. HESS Instant Louse Killer Kills Lice on Poultry and Stock

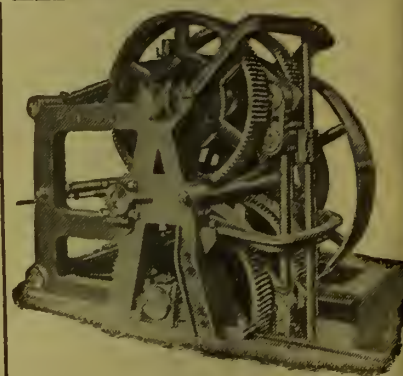
Use it on your lousy hens and chicks—your lousy colts, horses and cattle. You'll get better chicks—bigger, better fowls—more eggs—better contented stock.

Chicks are apt to be lousy now. Give them a chance. Sprinkle Louse Killer into the feathers, about the coops, on roosts, in nests of laying and setting hens. Always keep Louse Killer in the dust bath. For lousy horses and cattle, colts and calves, stroke the hair the wrong way and sift in Louse Killer.

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that would affect them so, though they should have a growing mash instead of the chick mash, now that they are over a month old. Growing mash is frequently given after the first week. Alfalfa hay is better than straw for chicks, so the trouble is not in the litter. Of course, there may be something wrong with the feed that you have not noticed—mold, perhaps, or some poisonous substance mixed with the wheat. You do not mention green feed, but I hardly think the lack of it would be fatal so soon. Even if your houses have been sprayed regularly it is quite possible the work has not been done thoroughly and that some mites have found refuge in cracks or under roosts. If you will go to the house late in the evening and put your hand in among the chicks for a minute or two you will find the mites if they are there, and they will find you.

Liver Trouble

The combs of my chickens turn black. They stand around, don't eat and die within a week. I feed Sure Lay, dry sprouts, barley and as much moist mash as they will clean up in ten minutes in the morning. — Subscriber, Arroyo Grande.

I believe your hens have diseased livers from lack of green feed. The dry sprouts (sprouted grain?) do not take the place of succulent greens, such as alfalfa, barley, kale and clover. Hens that have been forced for heavy egg production during the winter are quite apt to develop liver trouble when the warmer days come, unless their diet is lightened to suit changed weather conditions. It would be a good plan to add bran to the

mash, making it half bran and half Sure Lay, and make the scratch part wheat with a little corn added. It is always best to feed more than one grain. Drop off the moist mash for a time and give all the greens the hens will consume. A dose of Epsom salts all round, mixed in moist mash, allowing ½ teaspoon salts for each hen, may help some, but it is not medicine the hens need so much as a lighter ration.

Dying in the Shell

Cecilia Stahl, Claremont, sends this suggestion in regard to chicks dying in the shell, which we are very glad to publish:

In the poultry department a subscriber asks why chicks nearly ready to hatch die in the shell, apparently drowned with too much moisture, yet none showing on the glass at hatching time. If she will examine them more carefully she will probably find there is no air cell at all. This is due to insufficient cooling of the eggs, which should be cooled each time they are turned till the egg is barely warm to the cheek. There should be no draft, but temperature of room should be about 70 degrees. If the cellar is too damp it can be made less so by burning a large circular burner lamp during incubation, but care must be taken to have plenty of moisture in the air the last week. At hatching time there must be sufficient moisture to show on the glass.

Overheated

Several of my chicks, at about nine weeks of age, began to lose the feathers from neck and head. One has died, but the others seem active as

any of the flock. We were burned out two weeks ago, and since then the chicks have been crowded and have no good roosts. This is my first experience in brooding and I didn't start them roosting as early as I should. Can you give me any suggestions about teaching them to roost? —Subscriber, Arcadia.

As you say, the chicks have been overcrowded. It is likely they were overheated at the same time or possibly in the brooder still earlier. The only thing you can do is to give them a ration which will help new feathers to grow. Give them a mash containing 15 per cent meat meal and a little linseed meal. For the scratch feed give cracked corn and whole wheat, and, if you can, a little sunflower seed. The easy way to teach chicks to roost is to put roosts of lath or other light wood in the brooder house from the first. As it is now too late for that you will have to let them sleep under the roosts till they learn to roost, which will probably not be long. Spread litter on the dropping board under the roosts, and with a broom drive the chicks up an inclined plane or ladder, made of a couple of wide boards with cleats nailed across at intervals. You may have to shut them in at first with boards, but they learn very quickly where to go. You will be surprised to see how soon they go on the roosts.

Feeding Formulas

Please give me the names of grains that would be good for laying hens. I want to grind the grains and feed as a scratch feed. Also what mixture would be best to crack for baby chicks? —Subscriber, Sanger.

Grains are not ground for scratch feed for hens. Barley is rolled and corn is cracked and oats and barley may be hulled, but they are not ground except for the mash. The scratch mixture recommended by the poultry division consists of 100 pounds whole or rolled barley, 50 pounds Egyptian corn or milo maize, 50 pounds cracked Indian corn. The mash to accompany this scratch feed contains 50 pounds bran, middlings and ground barley, 10 pounds soybean or linseed meal, 10 pounds coconut, soybean, linseed or cottonseed meal or ground beans, 30 pounds beef scrap or fish meal, 5 pounds charcoal and 1 pound salt.

The Cornell grain mixture for chicks from 1 to 6 weeks old consists of 5 pounds cracked corn, 3 pounds cracked wheat, 2 pounds pinhead oats or oat flakes. From 6 to 12 weeks the mixture is 6 pounds cracked corn and 4 pounds whole wheat. This latter mixture can be fed to chicks from 3 to 4 weeks old, or even younger, and milo or gyp corn may be added.

OAT HULLS FOR POULTRY LITTER

For some months past the Sperry experimental farm has been experimenting with oat hulls for use as litter for poultry houses. These hulls are obtained in the process of milling oats for table purposes and are clean and free from all objectionable matter. They have proved very satisfactory not only on our own farm but wherever we have placed them with poultrymen for trial purposes. They have the following advantages:

On account of their lightness they are readily scattered around the floor of the poultry house, which greatly eliminates the accumulation of moisture so pronounced in the use of straw.

They readily absorb the droppings, yet do not pack and can be raked when other litters would require a complete change.

They are very desirable for feeding scratch feed because the grain quickly sifts below the surface which does not pack. This compels the fowls to work for their scratch feed and gives them needed exercise.

As a litter for baby chicks they are particularly valuable and eliminate the labor of chopping straw or alfalfa hay for the purpose. They contain a certain percentage of oat groats and when placed about two inches thick on the brooder house floor, the chicks lose no time in scratching for these particles of oats. Searching for feed in such a litter keeps them busy and helps eliminate such vices as toe picking, etc.

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy in Drinking Water Does It—No Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth. For with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 546, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

Moe's Poultry Supplies

Chick Feeders



Use Moe's Good Poultry Yard Fixtures. Practical, Money-Saving Devices. Star Pount 10c. Round Feeder, 6", 15c; 8", 25c. Ask your dealer and write for catalog.

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220 No. Alameda St. Los Angeles, Calif.

AUTOMATIC HITCH

ONE-MAN CONTROL FOR FRESNO SCRAPER

Reynolds Patent



MAKES THE TRACTOR DO THE WORK

The power of the tractor is used to dump, load and set the scraper. One finger will operate the loading rope or dumping lever. Can be attached to any standard Fresno Scraper in thirty minutes. All the tools required are wrenches to tighten six bolts.

Sold everywhere by dealers. Licensed Manufacturers

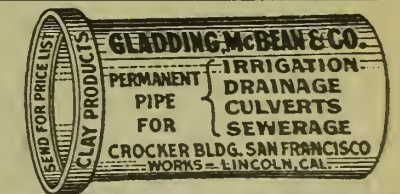
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Headquarters for everything needed in the care of bees. Send for late price list and free booklet.

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PACKERS OF AIRLINE HONEY



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For Every Engine Everywhere

Champion Regulars now 75¢
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Your Dealer has Champions and can tell you why You should buy a full set. .

CHAMPION SPARK PLUG CO. . . TOLEDO, OHIO.

Los Angeles Markets

Los Angeles, May 10, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 37 cents.

Prices extras past week:

May 37 37 37 37 37

CHEESE

Brokers' prices:
California flats, 18@20.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 26½; case count, 24½; pullets, 22½.

Prices extras past week:

May 27½ 27 27 27 26½

POULTRY

Price to producers: Hens, 25; colored, 30; broilers, 32@36; roasters, 38; old roosters, 14; fryers 40; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 25; geese, 25; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 11@15; old, 8.

LIVESTOCK

Los Angeles, May 9—Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 10.75; 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.00; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 9.00; 150 to 175 lbs., 10.75.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 9, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market dull. Stocktons: Burbanks, per cwt, best mostly \$1.90-2.00; poorer, \$1.75; Idahos: Russets, \$1.85@2.00. New Stock: best, locals, \$1.75-2.00; poorer, \$1.40@1.60 per lug.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 70@75. Arkansas: Nancy Halls, 4½@5 per lb.; per bu., mostly 1.85@2.00.

Onions: Demand light, market steady. Quality fair. Coachella & Imperial Valleys: crates Whites, \$2.25@2.50; Yellows, \$1.90@2.25; lugs, Whites, \$1.50@1.60.

Garlic, 7@8c lb. in small lots; some fancy, 10@12c lb.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, May 9, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, fancy, small, 50 @75; best, 1.00@1.25 doz.

Asparagus: Per lb.; Local, best, 11@12; poorer, 9@10; Northern, best 8; poorer, 6@7.

Beans: Wax, 22@24; green best, mostly 20; poorer, 15 lb. Locals: Kentucky Wonder, 30@32 lb.

Bunched Vegetables: Per dozen bunches; turnips and beets, 40. Carrots 60. Radishes and spinach, 20; Parsley 15.

Cabbage: Market strong, quality ordinary. Per field crate, best mostly 3.00@3.25; poorer, low as 2.00@2.50.

Cauliflower: Quality generally ordinary to poor. Per field crate, best mostly 2.50@3.00; poorer, low as 1.50.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.00 @6.00, according to quality. San Diego, mostly 7.50@8.00; few high as 10.00; Northern, small, 6.50.

Eggplant: Mex., 15 lb.; Florida, 25.

Lettuce: Market very weak. Locals: 75@80; ordinary, 40 per field crate.

Peas: San Pedro and San Luis Obispo, best 9@10; poorer, 7@8.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 10@12; Bells, mostly 30 per lb. Mexicans: Bells, 25 per lb.

Rhubarb: Local, best, strawberry, packed box, 1.00@1.10; Crimson, 1.00; poorer low as 75; Northern, strawberry, 1.25 per box.

Squash: Imperial Valley: Summer squash, mostly 1.00@1.10. Italian, 1.50.

Tomatoes: Mexicans: repacked, 3.25@3.50; original lugs, best, 2.75@3.25; loose, per lb., best, 10@12; poorer and overripe low as 5 lb.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

Loquats: Best, 14@17 lb.; No. 2, 10 @12.

Cantaloupes: Mex., pony cr., 5.00@5.50. Strawberries: No. 1, mostly 4.25@4.50; No. 2, 3.50@4.00 per crate.

CITRUS FRUITS

Grapefruit: Market steady. Californians: Northern, packed box, 3.50@3.75; market pack, 3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@3.00; poorer, 2.00; special brands, fancy, 5.50@5.75; choice, 5.00@5.25.

Oranges: Demand moderate, market steady. Navels, market pack, 5.50@6.00, according to size and quality; culls, 1.00 per field box; few best, 1.50; Valencias, special brands, 7.25@7.50.

Tangerines: Market firm, 8@10 lb.

HONEY

Winter loss for the state as a whole is estimated at 5-10 per cent, largely resulting from the severe freeze early in the spring which injured brood as well as bees. Prospects continue favorable for a good crop of honey with normal weather conditions. The new crop is being delayed by the late spring. Few large sales have been made during the past two weeks, as supplies are said to be limited to scattered holdings. In addition to selling practically all of the 1921 crop, a large holdover from the 1920 crop has been disposed of. Rather extensive

exporting during recent months has accounted for part of the movement.

HAY

Alfalfa is in a decidedly unsettled condition, price ranging much the same as ten days ago which was around \$18 for No. 1 Dairy. The rain caused slight injury, the first cutting being largely under cover so that market will not be affected by the storm.

GRAIN

Prices L. A. Grain Exchange, April 25. 1.31¼.

Barley: 1.31¼.

San Francisco Markets

San Francisco, May 9, 1922.

BUTTER

Extras 36½
Prime Firsts 35½

Prices Extras last week:

May 36 36½ 37 37 37

CHEESE

Dairy Exchange quotations:

California Young America, fancy 22½
California Flats, fancy 18½
Oregon Trips 23
Oregon Young America 24

EGGS

Dairy Exchange Quotations:

California Extras 26½
Extra Firsts 25
Extra Pullets 24½
Undersized 18½

Prices Extras last week:

May 28½ 27½ 27½ 27½ 26½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers, 1 to 1¼ lbs., 31@33; 1¼ to 1½ lbs., 38@40; do, colored, 40@43; 1½ to 2 lbs., 40@42 lb.; do, colored, 50@55.

Fryers: 2½ to 3 lbs., 42@46 lb.; do, colored, 50@55 lb.

Young Roasters: 3½ to 4 lbs., 40@42 lb.; over 4 lbs., 36@44 lb.; do, colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.

Colored Old Roosters: 18@28 lb.

Leghorn Old Roosters: 13@16 lb.

Leghorn Hens: 2½ to 3 lbs., 22@24 lb.; 3 lbs. and over, 25@27 lb.

Large Colored Hens: 31@32 lb.

Ducks: Young, 24@26 lb.

Geese: Young, 25@28 lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 18@23 lb.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@4.00 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: No. 1 steers, 7¼@8¼; second quality, 6¼@6½; cows and heifers, No. 1, 5½@6½; second quality, 4½@5½; bulls and stags, 4@5 per lb.

Calves: Light weight, 9@10 per lb.; heavy, 7@8 per lb.

Sheep: Wethers, 8@9 lb.; ewes, 6@7.

Lambs: 11½@12½.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½ per lb.; do, 200 to 250 lbs., 10½ per lb.; do, 250 to 300 lbs., 9½ per lb.; light sows, 9½ per lb.; heavy, 8½ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Modesto, May 3

99 158 10.25

21 155 10.00

22 203 9.50

1 270 9.00

6 282 7.50

3 410 3.50

152 hogs

2 cars, 25 consignors, \$2,557.80.

Chowchilla, May 4

60 164 10.35

92 155 10.30

1 Feeder 130 9.35

33 215 9.35

10 215 9.35

5 215 9.35

1 480 5.00

1 450 20 5.00

203 hogs

2 cars, 20 consignors, \$3,515.54.

Fresno, May 5

47 179 11.10

48 170 10.85

108 146 10.70

13 147 10.15

25 Feeders 77 10.00

3 287 8.15

12 293 7.15

256 hogs

3 cars, 10 consignors, \$4,191.56.

Wasco, May 6

97 177 10.50

97 156 10.50

4 142 10.50

47 217 10.00

10 Feeders 97 9.00

3 283 9.00

7 309 9.00

3 Feeders 47 each 4.00

1 500 2.50

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.75@2.10; Oregon Burbanks, 2.00@2.15; Idaho netted gems, 1.85@2.25; off grades, lower; Salinas, 2.25@2.75 per cwt.; new, 3½@5½ per lb.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: Australian cold storage browns, nominal; green onions, 1.75@2.00 per box; new crop white, 2.25@2.50 per crate; yellow, 2.00@2.25.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 8, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: Choice, 5.00@7.00 per cr.; fancy, 8.00.

Asparagus: 3@5 per lb.; white, 5@7 per lb.; graded, 8@9 per lb.

Beans: Imperial, 15@20 per lb.; hot-house 35 lb.

Bunched Vegetables: Carrots, 55@60 per dozen; turnips, 55@60 per dozen; arley, 30; radishes, 30 per dozen bunches.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 2.75@3.00 sack.

Cauliflower: 75@1.00 doz.

Celery: Cr, 2.00-4.00.

Florida, 2.00@2.50 per half cr.

Cucumbers: Mexican, small, 1.50@2.00 per dozen or 3.00@3.50 per small crate; do, English, 2.50.

Eggplant: Florida and Mexican, 15@25 lb.

Endive: 20@25 lb.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Lettuce: Delano, 1.50-1.75 cr.; Los Angeles, 1.50@1.75 crate; local, 1.00@1.50; Walnut Creek, 1.85@2.00.

Mushrooms: 50@75.

Olives: 5@7 per lb.

Parsnips: 3.25 per sack.

Peas: Pismo, lb. 3-4½.

Peppers: Florida and New Mexico, Bella 10@35; Chilis, 8@12.

Pumpkins: 75@1.00 per 90 lb sack.

Rhubarb: 3@4 lb.

Squash: Summer, 1.25@1.75 cr.; 5@7 per lb.

Spinach: Lb. 3-5.

Tomatoes: Mexican, repacked, 2.75@3.00 per L. A. lug; off grades, 1.50@2.25.

Turnips: 1.75@2.00 per sack.

FRESH FRUIT

Avocados: Tahiti, 4.00@8.00 doz.

Bananas: Best Eastern and Hawaiian, 7@8 lb.

Cantaloupes: Small lug, 2.65@2.75.

Loquats: 15@17½ lb.

Olives: Ripe dry, 8@10 lb.

Pears: Choice, 4.50@5.50.

Pineapples: 5.00@6.00 per doz.

Strawberries: Watsonville and Salinas, 1.50@1.80; locals, 75@90 dr.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack, 3.50@4.00; Arizona, 4.25@4.50 box.

Lemons: Special pack, 5.00@5.75 box; choice, 4.00@4.50 box; Lemonettes, 2.00@2.25.

Oranges: Special pack, 7.00@7.50; choice, 5.50@6.50; culls, 1.75@3.50; Valencias, fancy, 6.50@7.00; choice, 6.25.

DRIED FRUITS

Packers' Quotations—F. O. B. California, per pound in 25 pound boxes, except where otherwise noted.

Apples

Choice 13½

Extra choice 13½

Fancy 15

Apricots

Slabs 18½

Standard 18½

Choice 22

Extra choice 23

Fancy 26

Extra fancy 28

Moorparks, fancy 29

Moorparks, extra fancy 31½

Figs

California Peach and Fig Growers' prices:

White—

Standard (in 50s) .07½

Choice (in 50s) .08½

Fancy (in 50s) .11

Bricks, 12 No. 10s. 1.10

Bricks, 24 No. 8s. 1.80

Bricks, 50 No. 6s. 2.80

Bricks, 70 No. 4s. 2.95

Layers, 10 lb., 4 row. 1.60

Layers, 10 lb., 5 row. 1.40

Calimyrna—

Bricks, 24 No. 8s. 2.05

Peaches

California Peach and Fig Growers' prices:

Slabs (in 25s) .10

Standard (in 25s) .10½

Practically peeled, Standard (in 25s) .11½

Cartons, 30 11 oz., per case. 3.10

Cartons, 60 11 oz., per case. 6.00

Cartons, 24 2 lb., per case. 6.50

Cartons, 10 5 lb., per case. 6.60

Pears

Standard 12@13

Choice 15@16

Extra choice 17@17½

Fancy 19@19½

Prunes

120s up (in 50s, per lb.) @ 5½

California Prune and Apricot Growers' prices:

Basis Price Per lb. in 25 lb. Boxes

30-40s. 10 @10½ 13½@14

40-50s. 8½ @8½ 11½@12

50-60s. 7 @7½ 9½@10

60-70s. 6½ @6½ 8½@9

70-80s. 6 @6½ 7½@8

80-90s. 6 @6½ 6½@7

5.25-8.35, Val. 4.65-8.55, lem. 2.95-4.80.
Boston: 12 or., 1 lem. Nav. 4.00-8.05,
Val. 5.45-7.90, lem. 2.90-4.25.
Cleveland: 8 or., 3 lem. Nav. 5.00-6.90,
Val. 2.35-6.75, lem. 4.75-6.10.
Pittsburg: 9 or., 2 lem. Nav. 4.55-7.15,
Val. 5.40-7.00, lem. 3.50-5.20.
Philadelphia: 8 or., 2 lem. Val. 4.35-
6.25, lem. 3.20-4.55.
St. Louis: 10 or., 1 lem. Nav. 3.90-4.85,
Val. 3.75-6.15.
Cincinnati: 1 or., 2 lem. Val. 4.00-5.50,
lem. 2.85-3.85.
May 9
New York: 11 or., 3 mix., 2 lem. Nav.
4.70-8.35, Val. 6.20-8.75, lem. 3.75-5.00.
Boston: 8 or., 3 lem. Nav. 7.50-8.50,
Val. 4.80-7.85, Seed. 3.25-5.30, lem. 2.90-
4.45, grapefruit 2.90.
Philadelphia: 5 or., 2 lem. Nav. 5.35-
6.80, Val. 4.70-6.20, lem. 3.60-4.85.
Pittsburg: 2 or., 1 lem. Val. 4.65-6.10,
Med. Sweet 5.75, lem. 3.70-3.95.

CALIFORNIA CATTLEMEN'S MARKET REPORT

San Francisco, May 1, 1922: The Chicago market held steady during the past week, with an increase of 8000 head more cattle received than the previous week. This indicates a strong demand and a very healthy condition of the eastern market.

San Francisco market remains about steady, few sales of fat grass cattle being reported because of the lateness of grass. Sales are reported from Tulare County for as high as 8c f. o. b. cars for steers averaging 1225 pounds. A few small lots of fed steers have been sold for approximately the same price during the past week.

Los Angeles market has received very little grass beef so far. Cattleman seem to be holding strong for 7½c to 8c f. o. b. ranch for prime steers. Sales of fed steers are reported in Phoenix, Arizona, at 7½c f. o. b. Phoenix. The veal market continues strong at 10c f. o. b. ranch. Grass-fat cows are reported sold at 6½c f. o. b. ranch.

Read again very carefully the Market Report sent you last week, and do not let the buyers try to give you information to the contrary. Get everything possible out of your first sales this spring, because (1) there is no surplus beef in the state and buyers have stopped eastern buying, waiting to get California grass cattle; (2) the first few sales establish the price for the season, and that price must not be too low. Do not force your cattle onto the market at a sacrifice.

Orderly marketing is the only method of stabilizing our price during the next few months. Study again the calendar sent you, and particularly the ten year pre war average price curve in the lower right hand corner. Half fat cattle always break the market. Sell only prime beef. Sell only f. o. b. ranch or shipping point.

It is the man without accurate and reliable information who sells too cheap. His low sales hurt you. Protect yourself and get him as a member, so that our Weekly Market Report will keep him advised each week. So far during 1922 we have taken in 181 new members. Now is the important time—how many new members can you add during the next two weeks?—R. M. Hagen, Secretary.

CALIFORNIA CATTLEMEN'S MARKET REPORT

San Francisco, May 8: The Chicago market advanced approximately 10c last week over the previous week, in spite of the fact that receipts again increased, being 6000 heavier than the previous week.

The San Francisco market is now buying considerable grass fat beef in California. Grass fat steers are bringing 7½c to 7¾c f. o. b. ranch, sales being reported from San Luis Obispo, San Joaquin, Tulare and other counties at these prices. Cows are bringing from 6c to 6½c f. o. b. ranch with most sales at 6¼c. Veal is still at 9½c to 10c at the ranch, and a shortage of both veal and cows is reported from the San Joaquin Valley.

The Los Angeles market is also materially increasing its purchases of grass fat cattle in California. Sales are reported at 7½c f. o. b. ranch in Imperial Valley and other southern points. Cows are reported sold to Los Angeles packers at 6c to 6¼c, and veal at 9½c to 10c at the ranch.

Northern buyers are already active and purchases in San Joaquin and adjacent counties have been made by them. Within the next week two trainloads of grass fat cattle will be shipped to Portland and Seattle. The fact that the supply of fed cattle from Nevada and Utah is exhausted and that Arizona will have no grass beef, together with the fact that northern buyers are now actually operating here is very encouraging.

Remember that orderly marketing is the only method of stabilizing our market and that this is the most critical time of year. Remember that half-fat cattle always bring a poor price, and always reduce the price paid for fat cattle. Therefore, sell only prime beef. Top your herd, and sell only those which are ready. Sell only f. o. b. ranch or shipping point.

The Tulare County branch of the C. C. A., held a barbecue a week ago Saturday, which was attended by more than 1,000 people. In the one day they secured 4 new members to the association. It is that sort of enthusiasm and work that helps to put the association on the map and enables the organization to be of greater service to its membership. Last week we asked you to help increase the membership. Let's go!—R. M. Hagen, Secretary.

DYNAMITING FROST

(Continued from Page 514.)

will surprise you as to the comparatively small cost of bombing."

This may not sound good to those who would sleep undisturbed, but as a matter of simple accomplishment any suggestion which will lead to the downfall of Jack Frost and do it fairly

economically will be received by the orchardists. One most hopeful feature of this matter is in the offers which Mr. Wilson is now receiving from the largest manufacturers in the world. They write expressing appreciation of the suggestion and offering cooperation on the part of their scientific departments. Besides that we think we may count on the cooperation of all the small boys who dote on a real racket.

SOUTHERN L. A. COUNTY COW TESTING FOR APRIL

Paul Lussman & Co., 3.96 per cent fat; 36.1 pounds fat. Fred De Vries, 4.1; 44.3. L. F. Lammers, 4.1; 38.7. Leo Lammers, 4.2; 44.8. W. Zylstra, 4.0; 39.0. S. W. Boekema, 4.2; 47.6. Smith Bros., 4.2; 45.6. J. Verberg, 3.8; 47.0. J. W. Gains, 5.75; 46.6. R. Palmer, 4.2; 37.3. P. J. Wiesel, 4.91; 28.9. J. Van Ruiten, 3.75; 49.3. R. M.

COMING EVENTS

(Corrections and Additions Requested.)

Days of '49, Sacramento, May 23-28.

Valencia Orange Show, Anaheim, May 23-30.

State Grange Picnic, Monterey County, May 27.

Western Directors Departments of Agriculture, Sacramento, May 29-30.

County Horticultural Commissioners, Sacramento, May 29-June 2.

Federal Horticultural Board, Sacramento, May 31.

California Nurserymen, Sacramento, June 1.

Western Plant Quarantine Board, Sacramento, June 1-2.

California Rodeo, Salinas, July 24-29.

San Joaquin Valley Fair, Stockton, August 16-22.

Sonoma County Fair, Santa Rosa, August 23-27.

Walnut Growers Field Day, Santa Barbara, September 2.

State Fair, Sacramento, September 2-10.

Grape Day, Escondido, September 9.

Tehama County Fair, Red Bluff, September 11-17.

Tulare County Fair, Visalia, September 12-19.

Colusa County Fair, Colusa, September 14-17.

Glenn County Fair, Orland, September 18-23.

Kings County Fair, Hanford, September 20-23.

Fresno County Fair, Fresno, September 25-30.

Shasta County Fair, Anderson, September 28-30.

Ventura County Fair, Ventura, October 1-8.

Kern County Fair, Bakersfield, October 2-7.

Butte County Fair, Oroville, October 2-7.

Pork Day, Turlock, October 4.

Southern California Fair, Riverside, October 10-15.

San Francisco Livestock Show, October 18-22.

Imperial Valley Fair, October 23-28.

Orange and Olive Festival, Oroville, November 28-December 2.

COAST AND GENERAL

National Foreign Trade Convention, Philadelphia, May 10-12.

Plant Quarantine Conference, Washington, D. C.

Rose Festival, Portland, Oregon, June 7-9.

Southwest Washington Fair, Chehalis-Centralia, August 28-September 2.

Interstate Fair, Spokane, Washington, September 4-9.

Washington State Fair, Yakima, September 18-23.

Oregon State Fair, Salem, September 25-30.

Arizona State Fair, Phoenix, October 30-November 3.

Howie, 4.8; 40.1. Paul Taylor, 3.8; 40.2. C. V. Harris, 3.5; 41.6. George Webb, 3.9; 40.5. A. C. Straathof, 3.6; 46.9. J. W. Gains, highest herd test, 5.75. Leo Lammers, highest cow in pounds fat, 85.5. R. Palmer, second highest cow in pounds fat, 80.5. J. Van Ruiten, highest herd average butter fat, 49.3.

KERN COUNTY COW TESTING ASSOCIATION

The Kern County cow testing association tested 883 cows during April. Average pounds milk per cow, 643.9; average pounds fat, 29.5. The three best cows for month were owned by: P. Cattani, Bakersfield, grade Guernsey, 1,413 pounds milk, 67.8 pounds fat. I. J. Lytle, Delano, grade Jersey, 810; 64.8. Peacock & Goode, Bakersfield, grade Holstein, 1,728; 63.9. The two highest herd averages were made by herds of A. V. Bennett,

Wasco, Jersey, 19 cows, 837.4 average pounds milk; 41.6 average pounds fat. C. P. Morgan, Shafter, Holstein, 11 cows, 1,153.2; 42.6.

MERGER OF PACIFIC COMPANIES

Announcement has been made of the merger of the Pacific Guano and Fertilizer Company and the Hawaiian Company of San Francisco. The new company will operate under the name of the Pacific Guano and Fertilizer Co. The names of the officers are: George N. Wilcox, president; E. D. Tenney, first vice-president; Norman Watkins, second vice-president and general manager; G. P. Wilcox, secretary; C. G. Owen, treasurer and Honolulu manager; W. J. Horstmann, California manager; P. L. McCreary, manager Los Angeles branch for Southern California. Directors are: George N. Wilcox, E. D. Tenney, J. Waterhouse, E. F. Bishop, E. Wodehouse, J. M. Dowsett, A. W. R. Bottomley, Norman Watkins, P. A. Drew, Wallace Alexander, Walter E. Buck, A. P. Welch.

These are the two largest fertilizer concerns on the Pacific Coast, and the deal represents the merging of several millions of dollars in capital and vast commercial activities. The California manager will be William J. Horstmann and the sales manager, Weller Noble. The manufacturing plant of the Hawaiian Fertilizer Company at Honolulu will hereafter be the chief mixing plant in the islands, while in California the plant of the Pacific Guano and Fertilizer Company at Berkeley will be used.

The main object of the merger as explained by officials of the company is to give service to the grower and obtain through service and scientific research and investigation, maximum results from the company's products. Wherever fertilizers are used only those shown to be necessary for the crop and soil are recommended.

P. L. McCreary, manager of the Los Angeles office, was connected with the reclamation service and geological survey for four years and for five years was with the University of California in the departments giving attention to soil and fertilizer control. Since 1914 he has been passing on his experience to field men, orchardists and others, giving valuable service to agriculture and horticulture in California in securing maximum results in the application of fertilizers.

With the combined facilities of the two companies the merged companies' annual output will be from 160,000 to 180,000 tons of fertilizers.

HARTSOOK COW BREAKS THIRD WORLD'S RECORD

Miss Aaggie Ormsby Segis, Fred Hartsook's remarkable young cow, who holds the world's record for milk at 2½ years of age with 22,072.6 pounds in 305 days, and another world's record as a senior three year old with 40,938 pounds butter in seven days, has just broken a second senior three year old world's record by making 157.11 pounds butter from 3008.5 pounds milk in 30 days. This is six pounds more butter than the former record holder had.

Field certification work, which is being done this spring in the Yuma valley by the Hairy Peruvian Alfalfa Seed Growers' Association of Yuma, Arizona, is practically completed. This is the first time the certifying of their alfalfa fields has been just at the right time of year. Their maps and notes covering the entire acreage of Hairy Peruvian alfalfa grown there will soon be complete and mean a great deal toward improvement of conditions in marketing genuine Hairy Peruvian seed.

"Keep pace with your day and generation. The man who does not avail himself of modern methods is right at the outset giving himself a handicap that scarcely the wit of Mark Twain, or the genius of an Edison or the ability of a Rockefeller can overcome."

WEATHER REPORT

San Francisco, May 6, 1922.			
Stations	Rainfall		Temp.
	Week	Season Norm.	Max. Min.
Eureka	.04	33.71	43.05 60 44
Red Bluff	0	16.10	23.61 90 48
Sacramento	0	13.62	19.30 86 46
San Francisco	0	19.10	21.52 82 46
San Jose	0	14.26	16.26 86 40
Fresno	0	10.22	9.13 88 47
San Luis Obispo	0	22.57	19.32 82 46
Los Angeles	0	19.01	15.27 72 50
San Diego	0	18.29	9.70 64 53

INSTITUTE OF AGRICULTURE

H. E. Van Norman, president of the World's Dairy Congress Association, has been appointed commissioner of agriculture and delegate of the United States to the general assembly of the International Institute of Agriculture, which is to be held from May 8 to 18, at Rome, Italy.

Other delegates to the general assembly previously announced are Dr. Nat C. Murray, Dr. L. C. Gray, Dr. Perley Spaulding and Dr. H. H. Kimball, of the United States department of agriculture in Washington; E. A. Foley, agricultural commissioner for the department, at London; L. G. Michael, representative of the department at Budapest; Dr. W. H. Stevenson, permanent delegate to the institute at Rome; Dr. J. G. Lipman, director of the New Jersey agricultural experiment station; Mrs. Charlotte B. Ware, consultant in agriculture, Boston, and Francis B. Keene, United States consul general at Rome.

The World's Dairy Congress is expected to attract much attention in Europe, as it will be the first international dairy meeting to be held in the United States, and of broader scope than any similar meeting held anywhere. It was provided for by the federal agricultural act, approved March 3, 1921, which authorized the president of the United States to invite foreign governments to send representatives. The congress, which is to be held in 1923, will continue a week and will be followed immediately by the National Dairy Show. The city in which the congress and show will be held has not yet been selected.

TULARE BREEDERS TURN BIG HOLSTEIN DEAL

What is reported to be one of the largest cash sales of registered Holsteins ever made in private sale in Tulare County was made by F. S. Borrer & Son of Tipton of seven of their choicest bred heifers to P. M. Longan, owner of the Toteco Stock and Fruit Ranch of Tulare. These heifers are all from well bred yearly record sires and some of Borrer's best record and producing cows.

All seven are due to calve to the service of one of the greatest yearly record bulls of the breed, Sir Aaggie Mead, whose three nearest dams have yearly records averaging 1,229 pounds butter in one year. Six of his seven nearest dams have either made world records or produced world record daughters or both. Sir Aaggie Mead is owned jointly by W. J. Higdon of Tulare and F. S. Borrer & Son of Tipton.

The Toteco Stock Ranch is starting right by breeding all its females to this popularly bred bull. One of the heifers, Winnie Walker, has six nearest dams averaging 935 pounds butter in one year, and when she calves and is tested her calf will have 14 dams averaging over 100 pounds butter in one year. Borrer & Son retain this calf and rebreed the heifer to Sir Aaggie Mead. Two heifers are daughters of Sir Aaggie De Kol Acme 2d, whose three nearest dams average 1,191 pounds butter in one year. Two are daughters of Segis Pontiac Abbecker, a 35 pound bull for which R. C. Sturgeon paid \$3,200. Two are daughters of Prince Gelsche Walker Alcartra, the former herd sire of the Borrer herd, that carries the blood of two world record milk producers, Tilly Alcartra and Segis Pieterje Prospect, the present world's record milk producer of all breeds and ages. The heifers are to be given official records and started on yearly record work by Mark L. Borrer, and some creditable records are expected as they are a promising bunch.

Mr. Longan is developing one of the show places on the road between Visalia and Tulare. He has a \$25,000 building program under way at present which includes a modern dairy barn of the finest type. His ranch now is set to alfalfa and young vines and he expects to set 40 acres to prunes next year so that he will have a well balanced diversified farm with his Holstein herd as the central feature. With this type of foundation females bred to Sir Aaggie Mead, Mr. Longan is following the most popular breeding in the state and laying the foundation for one of the greatest producing herds in the country.



There is no severer test of a tire than constant use on the lava rock roads of the Hawaiian Islands where the average mileage for cord tires is between 2,500 and 3,500 miles.

This letter proves that Coast Tires have made good in Hawaii.

CABLE ADDRESSES
"SALESCO"
WESTERN UNION

P. W. MACFARLANE,
PRESIDENT
G. S. PAXSON,
VICE-PRESIDENT
A. P. WILCOX,
SECRETARY
C. W. SPITZ,
TREASURER
J. L. FLEMING,
DIRECTOR



HONOLULU, T. H., Sept. 13, 1921

Coast Tire & Rubber Company,
Syndicate Building,
Oakland, Calif.

Gentlemen:

"Up to the morning of September 10th, a 34 x 4 1/2 Coast Cord had travelled exactly 7,319 miles, on the rear wheel of a Hudson Super-Six Rent Car, which travels daily between Lahaina and Wailuku on the Island of Maui, T. H., a distance of some 22 miles each way, over one of the roughest roads on the Island. (When we say "roughest" we mean that the tire had to travel over seven miles of mountainous road, which is nothing better than loose rock.)

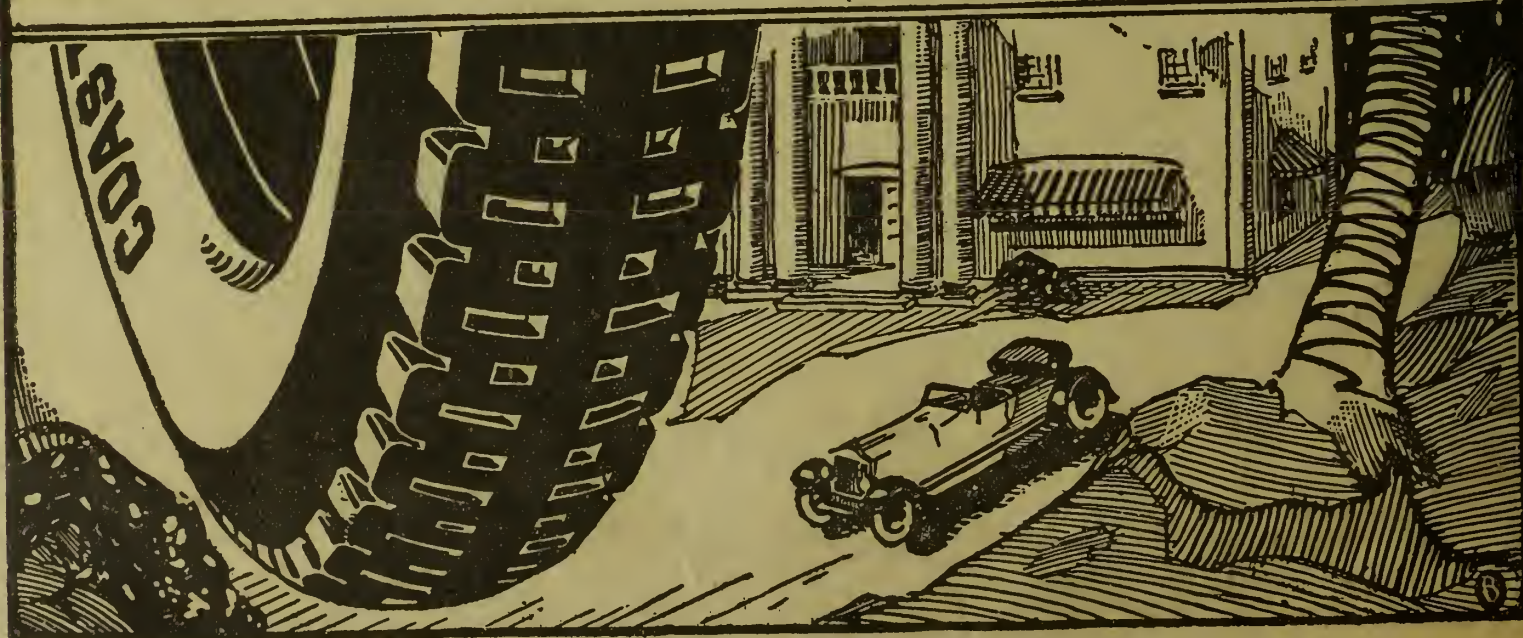
One might say that this is an official test made under the auspices of the Royal Hawaiian Sales Co., Ltd., Territorial Agents for Coast Cords.

Very truly yours,

ROYAL HAWAIIAN SALES CO., LTD.

BY J. B. [Signature]
Tire Department

EVE:AB



CALIFORNIA CULTIVATOR

and *LIVESTOCK* and *DAIRY JOURNAL*

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

May 20, 1922

No. 20

A FARM BUREAU MEETING WHERE NEARLY EVERY COUNTY IN THE STATE
IS REPRESENTED



There is a representative from nearly every county in California in the above group. The photos were taken at the time the Los Angeles County Bureau entertained the visiting delegates during the Annual Conference and trip through the state. A trip followed the meeting of county agricultural agents which was held in Berkeley. The agents were joined by officials or delegates of various county bureaus so that by the time the delegation reached the southern end of the state nearly half a hundred machines were in line and each machine was filled with loyal boosters.

The upper group shows the farm advisers gathered in Adohr alfalfa and endeavoring to look handsome while half a dozen cameras are trained on them. The lower left hand illustration shows the delegates and visitors sampling barbecue and Guernsey milk. The other illustration contains a group of cups in the milk house window. These cups are those offered by the Los Angeles County farm bureau to best performers in the County Cow Testing Association for the year ending June 30.

Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator, 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
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Frank J. Ironmonger, Pres. and Manager
J. H. Yetter, V.-Pres. and Adv. Manager
W. R. Wood, Sec. and Treasurer

C. B. Messenger, Editor.
Ernest Branton, Associate.
Wm. R. Wood, Associate
R. P. Royce, Livestock Editor.
Jack Klein, Livestock Field Editor.
Jean A. Koethen, Poultry Editor.
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Saturday, May 20, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against
loss through dishonesty of any advertiser
in the Cultivator. We do not attempt,
however, to adjust trifling differences
between subscribers and honest, respon-
sible advertisers, nor will we pay the
debts of honest bankrupts. Notice of
complaint must be sent us within 30 days
from date of the transaction, and the
subscriber must have mentioned the Cul-
tivator when writing the advertiser.

If among the more than 40,000
Cultivator's weekly circula-
tion any fail to find any article they de-
sire to purchase advertised in the Cul-
tivator's columns, a special request is
extended you to let your wants be known
to the California Cultivator and we will
place you in touch with proper parties.

EDITORIALETTES

All work and no play might pos-
sibly make the farm adviser less keen
on the job. But fortunately the farm
adviser believes in mixing in a bit
of the play. Likewise other members
of the farm bureau join in the sport.
So they load themselves into the fliv-
vers and do the state or a portion
of it once every year. Nor is it a play
spell entirely for a bit of good grimy
work is mixed with the play, a school
of methods is conducted and the
school room is covered with the blue
sky and extends from Berkeley to
San Diego. Once on the trip, they
stopped long enough to be photo-
graphed and the Cultivator camera
gives a good idea as to how the bunch
look.

The new California Ripe Olive
Growers Association is organized.
Its president is H. T. Miller of Bak-
ersfield, and Mrs. U. Stewart of High-
land is secretary. Capitalization at a
million and a half is expected. Fur-
ther, it is expected that the grower
members will put up the capital. The
boosters who are more responsible
than any others for the building of the
new organization are T. V. McKelvy
and Wm. Glass. The organization
meeting was attended by representa-
tive growers of practically every olive
growing section in the state.

The airplane has been carrying in-
formation as to the Valencia Orange
Show which opens in Anaheim next
Tuesday. Everything is declared to be
ready for the exhibit. It will be en-
tirely in order to have the news of
the formal opening broadcasted and
all of us given opportunity of hearing
the opening program.

The cooperative mutual fire insur-
ance companies of California are send-
ing delegates to the annual convention
to be held in Turlock, Thursday and
Friday, May 25 and 26. These mutual
companies have had a wonderful
growth in this state and they are sav-
ing to farmers of the state many thou-
sands of dollars. The slogan for this
annual convention is "Help Prevent
Fire." This slogan thoroughly burned
into the minds of the delegates who
will attend the convention and carried
to the four corners of the state will
justify the existence of these mutual
companies to say nothing of the econ-
omies made possible.

The livestock outlook offers oppor-
tunity for optimism according to the
most hopeful articles which appear on
third page of this issue. United
States Senator Capper and some of
our best Californians are uniting in
giving to Cultivator readers a hopeful
view of this foundation industry.

STOCKYARDS

Friends of the stockyards move-
ment in the city of Los Angeles now
announce that stockyards and the full
complement of packing houses and by-
products plants are assured. Two hun-
dred and forty-seven acres of land
have been purchased from the La-
guna Land and Water Company. The
land and the improvements will cost
in excess of \$2,000,000.

MAY STILL GAMBLE

Senator Capper's bill, which
made effort to control gambling in fu-
tures in the grain and other ex-
changes, has been given a death blow
by the supreme court. In an opinion
written by Judge Taft it was ruled, in
effect, that this form of gambling has
nothing to do with interstate trade.
Hence its control does not come un-
der the direction of the United States
commerce.

Well, Senator Capper still lives and
he's a come-backer.

ALMOND GROWERS EXCHANGE

This is the closing week of the
almond growers fight to save their in-
dustry. We have no inside informa-
tion but we are going to make the pre-
diction that the growers win. Com-
mon sense and a cooperative spirit
must prevail, and it is unthinkable
that enough growers of almonds
should refuse to sign the contract with
the association to ruin their industry.
The association announced:

"As far as present plans are con-
cerned the almond growers' campaign
for signatures closes next (last) Wed-
nesday as that is the date set by the
directors for a meeting at which they
will total the tonnage under some
1700 contracts in hand. Whether they
will recommend liquidation depends
upon the total tonnage signed under
the contracts received up to that date.
It is the intention of the directors to
call a general meeting of growers as
soon as possible after Wednesday. At
their meeting Wednesday they will de-
cide whether to recall all their field
agents from the work of solicitation.
It is being pointed out to almond grow-
ers by impartial authorities that there
is nothing in the five years agreement
which the grower need fear. The lien
clause does not enable the exchange
or financing banks to place a mort-
gage upon the lands of the farmer,
but only guarantees the payment of
five cents per pound liquidated dam-
ages for each pound of almonds sold
outside of the exchange in violation
of the agreement."

NEXT WEEK

There will be more of interest-
ing material in the next issue. Much
of this will have to do with the live-
stock industry, and it will be worth
reading. Besides, in the fruit indus-
try there is much of discussion these
days as to growing sub-tropicals and

growing them successfully every year.
There have been occasional years like
the present when some orchards have
suffered because of unfortunate
weather conditions. Those who have
tried it say we can control these
weather conditions. One of those who
takes that view is Wm. R. Wood. He
is urging thorough investigation.
Meantime he has written an article on
"Frost Fighting" which will appear
next week. Avocado growers have
also been affected by the cold. They
have a greater number of problems to
study because of variation in resist-
ance of different varieties as well as
locality changes. Wm. Hertrich began
an investigation immediately after
January 19 and continued for weeks
traveling hundreds of miles to get the
lessons which the avocado had to give
after that cold snap. The lessons of
this trip were incorporated in a re-
port made at the convention. It will
also be largely quoted from next week.
Mr. Adams and members of the va-
rietal committee of the avocado grow-
ers have made extended investigations
as to best varieties of avocados and
these were reported at the annual
meeting just held at Pasadena. This
report will be liberally quoted on
next week.

THE AVOCADO GROWERS

A looker in at the Avocado
Growers convention could not help be-
ing impressed by the discussions car-
ried on by a most optimistic bunch of
growers. President Hardin said in his
opening address:

"The California Avocado Associa-
tion has now completed its seventh
year. During this time we have built
up an organization of 450 enthusiastic
members. The avocado industry in
Southern California has had a phenom-
enal growth since the organization
of this association. It is not my pur-
pose to enter into a discussion of what
our association has done in the past,
however, I will say that we have col-
lected valuable data concerning the
different varieties of avocados and
their adaptabilities to the climate of
Southern California. A large amount
of work has been devoted to the task
of selecting from a large list some of
the better varieties for propagation
here. In fact, we have successfully
performed the preliminary work which
is essential to the success of any new
horticultural industry."

Then he said much more having to
do with the necessity for "continually
meeting new and complex problems,"
"continuous and systematic research,"
"improvement of the chemical compo-
sition," "importance of increasing pro-
tein content of the avocado," "bud
selection," and other topics of interest
and great value. Mr. Hardin's address
will be quoted from liberally next
week.

JAPANESE MAY PURCHASE

The California supreme court
decision in effect that Japanese par-
ents may act as guardians of native
born children and purchase real estate
for them complicates the Japanese sit-
uation in California. It is now be-
lieved that until a new law can be
enacted there is no hindrance to any
Japanese with children making as ex-
tensive purchase of real estate as he
may be able to handle. The San Fran-
cisco Chronicle suggests:

"The situation in this state with
respect to ownership of land by Ja-
panese presents some interesting
phases. In the light of the oft re-
peated desire of Japan to maintain
cordial relations with this country it
is difficult for the layman to under-
stand the attitude of Japanese resi-
dents here and the similar attitude
of the Japanese government with re-
spect to this matter.

"Aside from the strictly legal aspect
of the situation one inclines to won-
der why the Japanese insist on own-
ing and controlling land in California
in the face of state wide opposition.
Even assuming them to be within their
legal rights, why do they persist in
seeking to gain a foothold where they
obviously are not wanted as land
owners? If the Japanese are sincere
in their desire to engender more
friendly feeling between themselves
and the people of this country they
are adopting a queer method of show-
ing that desire."

Governor Stephens is asking attor-
neys of the state to draft a new guar-

dianship clause which may conform to
the court's interpretation of constitu-
tional requirements. Certain it is
there will be additional enactments
at the next session of the state leg-
islature.

THE AVOCADO CONVENTION

By Ernest Branton



THE seventh annual meeting
of the California Avocado
Association was held on
May 12-13 at the hotel Vista
del Arroyo, Pasadena, be-
ginning at 1:30 p. m., on the 12th with
an experience meeting in which many
took part in brief discussions of
nearly every phase of avocado culture.

J. M. Elliott and other owners of
orchards on both hillsides and lower
levels were very emphatic in their as-
sertions that pronounced upper slopes
of hillsides are the only safe lands on
which to plant the hard shelled, or
Guatemalan varieties. As has been
stated in past issues of the Cultivator
this means elevation above immedi-
ately surrounding land, not necessarily
high altitudes above sea level. The
air drainage must be good. The ques-
tion of irrigation during blooming pe-
riod brought out the practice of those
present of irrigating at all times
needed, no harm resulting.

William Hertrich, superintendent of
H. E. Huntington's large estate, read
an exhaustive paper on "The Effect of
the Recent Cold Weather on the Dif-
ferent Varieties in Different Locali-
ties. (More another week.)

Friday evening, at 6:30 the annual
dinner was held in the south dining
room of the hotel, there being present
about 275 who enjoyed avocados
served in various ways from cocktail
to ice cream.

Following the dinner Wilson Pope-
noe (of California), agricultural ex-
plorer of the U. S. department of agri-
culture, delivered an address on
"Trails and Trials of an Agricultural
Explorer." The lecture was illustrated
throughout with a fine series of col-
ored lantern slides, many showing
avocado trees in gardens and native
haunts.

Saturday morning the program
started with President Hardin's ad-
dress, which will be given later.

The next was "A Comparison of the
Composition of Standard Varieties of
Avocados Grown in the Same Or-
chard," by C. G. Church, assistant
chemist, Laboratory of Fruit and Veg-
etable Chemistry, U. S. D. A., Los An-
geles. Mr. Church gave analyses of
seven of the Wilson Popenoe varie-
ties: Benik, Cabnal, Cantel, Lamat,
Mayapan, Nimlioh, and Pankay; also
further analyses of the list of "offi-
cial five"; of the Knight varieties and
of several others submitted to the
laboratory. E. M. Chace, chemist in
charge of this government laboratory,
followed with a lucid explanation of
what an enzyme is and what are the
principal enzymes of the avocado.
Prof. M. E. Jaffa of the University of
California gave a talk on nutritional
studies of some new varieties of avo-
cados. He also gave analyses of three
comparatively new citrus hybrids:
tangelo, orange-lemon, and citrange.
He praised the tangelo very highly
and said it should be extensively
grown. It occupies a place midway
between the orange and the pomelo,
having more "snap" than the orange
and less of bitterness than the pomelo.
Knowles A. Ryerson, of the Los An-
geles County farm advisor's staff gave
an outline of possible fertilizer tests
for avocados and expressed the desire
of the office to cooperate with grow-
ers in such tests.

The business meeting occupied Sat-
urday afternoon, President Hardin
announcing his retirement from the
presidency and the directorate but the
maintenance of his membership and
active interest. Three directors were
elected: E. W. Camp, Sierra Madre
(re-elected after short term by ap-
pointment to fill vacancy); T. J. Wal-
ker, San Fernando; C. E. Utt, Tustin.
A resolution was unanimously adopted
requesting the directors to apply for
state or federal aid, or both, in secur-
ing the hybridization and selection of
new varieties as the result of crossing
the Mexican and Guatemalan types to
secure good hardy varieties for wide
planting in California.

The report of the varietal commit-
tee will be liberally quoted from next
week.

The Outlook for the Livestock Industry

What of livestock for the next few years? At the present moment it is looking up and vastly more promising than it was 12 months ago. We recently sent to representative men of the country request for their estimate of the hopefulness of the outlook for the livestock industry. We wrote to Senator Capper, who is perhaps the most able of any of us to take a wide angled view of the entire industry. Others with large vision of livestock affairs on the Pacific Coast were asked to give of their estimates. These are quoted below. We believe these letters contain an invaluable fund of information for livestock men.

By Hon. Arthur Capper, U. S. Senate

NEVER has the outlook for the livestock industry been more favorable than at present. The trend of most products since the beginning of the year has been upward, and that has been especially true of livestock. This has increased the farmers' purchasing power and is exerting a dominant influence in the return of business to normal conditions.

Hog prices are on a sound basis and probably will continue so for some time yet. In fact feeding hogs at the present time is even more profitable than during the war when prices were high. During war times 100 pounds of pork on the "13 to 1" ratio was expected to bring as much on the market as 13 bushels of corn so that when corn was selling for \$2 a bushel pork was supposed to be worth \$26 a hundred pounds. With corn at 40 to 50 cents a bushel, under the 13 to 1 ratio pork should be worth from \$5.50 to \$6.50 a hundred pounds, but the present price is around \$10 or from \$3.50 to \$4.50 more than would have been possible under the 13 to 1 ratio. This means that corn marketed through

hogs at the present time brings the farmer a return of 77 cents a bushel. There is also an added profit in the manure which goes back to the soil and is not shipped away as when the corn is hauled off to a distant market and sold. When hogs are running with cattle the return on the corn will be increased so that a still greater price can be obtained for the feed.

However, we must not lose sight of the fact that the summer hog market may be a somewhat erratic affair. Some market authorities think that there will be larger numbers of fall pigs coming on the market in May and June than was the case a year ago. Again there will be larger numbers of brood sows coming on the market in the late summer than usual because more sows were bred last winter than usual. There will also be the tendency of the market to weaken in expectation of large numbers of spring pigs coming on the market next fall and winter. However, as an offset and a counterbalance to this will be the enormous losses sustained in the present spring pig crop, and the strong demand from the East due to the acute and unusual shortage of hogs in the Eastern states. Nevertheless if packers, farmers, and the United States department of agriculture will cooperate in broadening the outlet for pork both at home and abroad all danger of any serious break in prices next fall may be averted.

A high sheep market it seems to me may be expected all summer on account of the meager supplies now available. There is a general shortage of sheep throughout the country, but it is most acute in the states east of the Mississippi River. Much, how-

ever, will depend on the nature of the permanent tariff which congress will finally pass. If this tariff is made high enough to make it necessary for us to produce at least three-fourths of the wool we consume instead of only one-half as we have done in the past it may be possible that sheep will bring even higher prices than they did in 1899 and 1906. The Capper-French Truth-in-Fabric bill if passed by congress also will help to stabilize the sheep market by creating a bigger demand for wool. However, until the sheep industry is properly safeguarded by national legislation I would not advise farmers who have had but little practical experience with sheep to make any heavy investments in the sheep industry. Later when permanent protection has been provided for our sheep raisers against the cheap wool and mutton of Australia and Argentina sheep will prove highly profitable and satisfactory. Such protection I think may confidently be expected at an early date.

The outlook for the cattle industry is much better now than it has been for some time past. The trend in the market has been upward although there have been occasional recessions. Cattle, however, should sell at still higher levels for we are seriously threatened with a shortage of beef producing animals that would have become acute before now had not the business depression last fall and through the early part of the winter caused an increase in marketing at the same time that it curtailed the demand of the consumers. According to government reports there are now in this country about 380 beef cattle for every 1,000 persons as compared with

410 beef cattle per thousand persons two years ago and 600 beef cattle per thousand persons for the period extending from 1901 to 1907. There has been a gradual shrinkage in the per capita consumption of meat and its products ranging through the last 20 years, and this has a very important bearing upon the present economic position of the producer of livestock and agriculture in general. While the population of the United States has been increasing at a rapid rate the total production of meat has remained almost unchanged. The production of meat in 1907 amounted to 16,003,000,000 pounds while in 1921 it was 16,160,000,000 pounds. From this it will be seen that the production of meat from all meat animals in 1921 only showed an increase of 157 million pounds over that of 1907. With the demand ever increasing and the supply remaining almost stationary it is evident that there ought to be no permanent recession in prices for most meat animals and this is especially true of beef animals.

Recent statistics published by the United States department of agriculture show that beef cattle have been decreasing steadily on the farms of the 27 principal cattle states of the nation. On January 1, 1922 there were on farms in these 27 states 35,250,000 head of beef cattle out of 41,993,000, the total number on all the farms of the nation on the same date. On January 1, 1921 the number of beef cattle on farms in the 27 principal beef producing states was 36,188,000 as compared with 36,966,000 on January 1, 1920. The heaviest producers of the beef cattle states are, Texas, Iowa, (Continued on Page 554.)

Greater Economy in Irrigation

AS trees, having low hanging branches, get older irrigation is complicated. We tried overhead irrigation, sub-irrigation, furrows and basins. The furrow and basin irrigation have been aided by appliances for following the furrower and closing the furrows so as to throw the water between trees and into sections which are not reached by straight furrows. This latter method calls for cross furrows and necessitates sometimes three or four operations to get ready for irrigation. This labor has been somewhat reduced where trees are far enough apart by making a figure

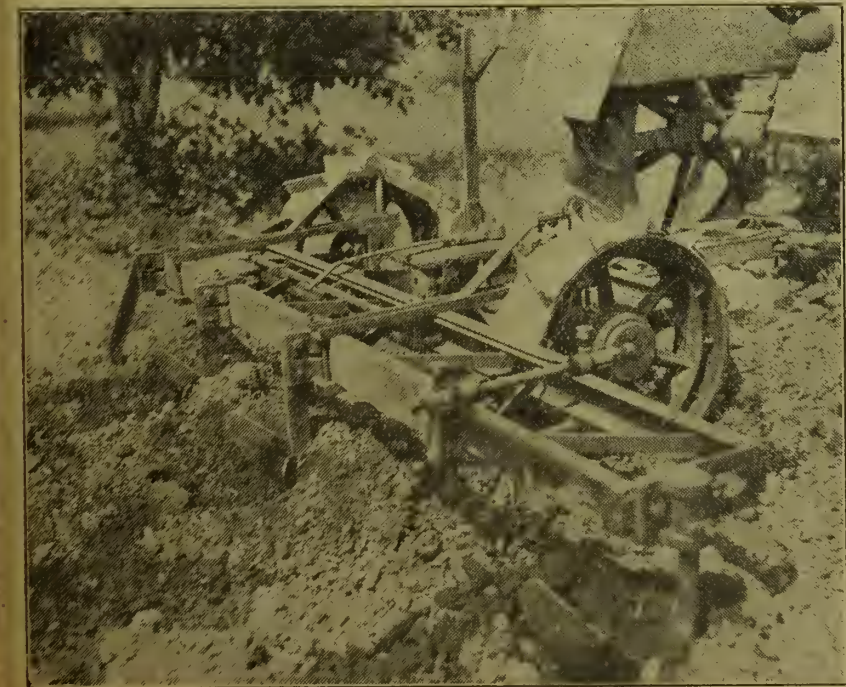
eight about every two trees, but this calls for so much shoveling that it is still an expensive procedure. To overcome this expensive and more or less inefficient work Bingham T. Wilson of Covina has been experimenting during the past few years with an extension furrowing machine. The two photographs on this page give a better idea of its method of operation than is possible by any description. The photograph showing the furrows most plainly gives an idea at first that the tractor was performing some exceptionally eccentric or crooked stunt across the field. Such was not the case, however, for it was making a

bee line and parallel with the row of trees. It is obvious that for young trees these furrows might have better been laid with a straight furrower, but this ground has been chosen to give a better idea of the operation of the machine.

Therefore imagine the trees to be of bearing age with need for water on all four sides. The furrower is passing along the row with the shovel or traveling plow toward the row as close to each tree as is perfectly safe. At the proper moment a cord pulled by the operator, who is also the tractor driver, releases the trip or operating mechanism and the shovel nearest the tree not only goes forward but moves laterally and carries the furrow some two or three feet as desired between the two large trees, thus bringing it within seepage distance of the furrow which has been laid on

the opposite side. The implement does an acre every 20 minutes and puts the furrow down the dry middle, or on every side of the tree, making all parts of the orchard irrigated exactly alike with furrows within three feet of the body of the tree. This machine did over 1100 acres during the season of 1921 and was given a year's try-out before put on the market. The best of it is the job is completed when the machine makes the round of the rows, no cross furrowing or shoveling whatever being required.

The first patent for this machine was issued some two years ago but has had a thorough testing in various orchards of California. It is manufactured entirely of steel and in California. It can be operated by any tractor or can be used with teams if preferred. It has been declared to be practically indestructible.



A Closeup Showing Details

Near the center is gear case with cord attached to trip which makes possible the side motion. Right hand plow has nearly completed side thrust.



How It Works Around the Trees

The Wilson furrower and how the lateral as well as forward motion of the right hand plow or shovel makes impossible "dry centers."

Agricultural News Notes of the Pacific Coast

Northern California

Tractor short course at Richvale, Butte County, May 22-27.

Yuba County farm bureau will picnic at Arboga, August 24-27.

Farm bureau picnic at Paradise, Butte County, today, May 20.

Siskiyou County reports all crops a month late due to cold weather.

Hayward cherry growers have formed a branch of the state association.

Woolgrowers of Tehama County report many sales at 35 cents, some at 40 cents.

Women of Placer County are asking for appointment of a home demonstration agent.

Rice acreage in Biggs district is larger than last year. Sowing is now completed.

A large grain elevator is being built at Lincoln by farmers of western Placer County.

A 2,000 acre tract at Susanville, Lassen County has been planted to Concord grapes.

Farm center meetings in Butte County at Rio Bonito, May 22; West Gridley, 24; Palermo, 26.

Buyers for 1922 dried apricots are already making offers, say growers of Arbuckle, Colusa County.

Horticultural Commissioner Harney of Yuba County has resigned, resignation to take effect June 1.

California produced last year 2,170,800 bags of beans. Sutter County produced 110,160 bags; Yolo, 96,600.

A farm home department meeting will be held at Arcade, Sacramento County, May 23 on garment making.

Farm bureau meetings in Sacramento County: District 1,000, May 25; Franklin, 26; directors, Sacramento, 27.

Modoc County sheep shearing is late this year because of continued cold. Many contracts are reported at 28 and 30 cents.

The Tri-county Wool Growers Association of Colusa, Yolo and Solano Counties is conducting a drive for increased membership.

Sutter County peach growers are organizing to bring in sufficient labor to thin their fruit. Work must be done within the next month.

Central California

The Lindsay farm bureau is considering building a cold storage plant.

Monterey County beekeepers report poor honey harvest because of cold season.

The Clovis Boosters' Club will provide quarters for Indian grape pickers this fall.

A road bond issue of \$1,250,000 is proposed by the Stanislaus County board of trade.

A special train of 50 cars of sheep left Coalinga, April 29. Ten days is the time to Chicago.

Claus orchardists say that in spite of late frosts their apricot crops will be the heaviest in years.

Road control on the Doyle and Camp Nelson roads will be established by Tulare County supervisors.

Orange Cove is sending out three carloads of Valencias a day. Tests show frost damage about two per cent.

Farmers of the Central district in Stanislaus County say they will have to pull off a rabbit drive soon if they are to save their crops.

Entries may be made in the Fresno County dried peach contest until the end of May. Information may be secured from farm bureau.

Considerable damage is being done to young cantaloupe vines in northern Kern and southern Tulare Counties by the striped melon bug.

Experimental plantings of cotton will be made at the station of the United States department of agriculture at Shafter, Kern County.

Hearing on petition to create the West San Joaquin district is set for May 26 at Los Banos; Kern County project, June 3 at Bakersfield.

State Labor Commissioner Mathewson announces that the bureau filled 14,889 positions in April. There is talk of establishing bureaus at Bakersfield and Modesto.

The Di Giorgio Farm Company is said to be prepared to spend \$4,000,000 in the Weed Patch district of Kern County. 27,000 acres have already been planted to vineyards and orchards. A packing house is being built at Magunden Station to handle this year's Emperors.

Southern California

Valencia Orange Show, Anaheim, May 23-30.

A sale of 6,134 bales of cotton has just been made by A. M. Shenk of Calexico at 18.32 cents.

A skimming station will be established at San Jacinto by the Milk Producers of Southern California.

The Riverside district has cleaned up the Navel crop. Season's shipments total nearly 2,500 cars.

The Orange County Beekeepers' Club has resolved itself into a unit of the Orange County farm bureau.

Valley Center, San Diego County, expects to get water for irrigation from the proposed Warner's dam.

Water and power act meetings in Los Angeles County at Del Sur, May 24; Littlerock, 25; Tierra Bonita, 26.

The Independent Fruit Growers is a new organization of Yucaipa Valley apple men formed to handle this year's fruit.

Suggestions are offered for joining Coachella Valley to Imperial County because of geographical unity and similarity of interests.

Last year apricots were shipped from Imperial Valley as early as April 26. This season fruit will probably not ripen for a month later.

Horticultural Commissioner Waite of Imperial County reports receipt by planters this spring of 9,499,200 grape cuttings, 355,674 rooted grape vines.

Ventura chamber of commerce is improving the motor park at Seaside Park, installing gas plates and other conveniences for camping motorists.

Los Angeles County farm bureau meetings: Lankershim, June 1; Whittier and San Fernando, 2; Downey and Glendora, 5; Alhambra, 6; Zelzah, 7.

La Puente Valley Walnut Association has joined the walnut department of the Los Angeles County farm bureau, giving that department a membership of 500.

Opening of the paved highway from Los Angeles to Mojave will be celebrated on May 21 at Mojave by barbecue planned by the Antelope Valley, Inyo and Kern Counties Highway Association.

The Coast and General

Grazing permit for 100 buffalo has been granted in Rainier national forest.

Sugar factories at Burley, Twin Falls and Paul, Idaho, will be operated this year.

First watermelons from Mexico brought 12 cents a pound in Los Angeles markets.

Sheep shearers in Yakima Valley of Washington struck for 12½ cents. They were being paid ten.

The Colorado is running bank full at Yuma. The Pescadero cut is taking care of the present flow easily.

Livestock in eastern Oregon has come through the winter in good condition. Feed is short in some sections.

Fruit growers of Spokane County, Washington, are buying cover crop seed and fertilizers through the farm bureau.

Experimental work on cover crops is being carried on by Washington state college in many Yakima orchards.

A sale of 40,000 fleeces has just been made by a Yakima, Washington, sheep grower to a Boston firm for 27½ cents a pound.

The great Northwest apple advertising campaign will be undertaken on basis of ½ cent per box from growers of Washington, Oregon and Idaho.

The Oregon Growers Cooperative Association transacted a business of \$2,000,000 last year. The association handles fresh and dried fruits and berries.

About 250,000 sheep are expected to cross the Prescott forest of Arizona on their way north to summer pasture. The first shipment of lambs begins in July.

Oregon fruit growers are asking the public docks commission to equip municipal terminals at Portland with refrigerating capacity of 5,000 tons capable of being expanded to 30,000 tons.

The Columbia Basin Irrigation League was organized recently at Spokane, Washington by representatives from Oregon, Washington and Idaho. Headquarters will be at Spokane.



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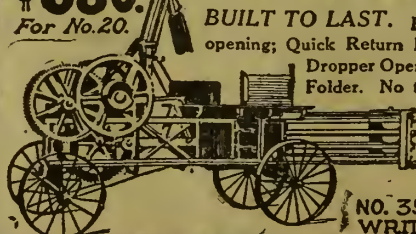


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Practical Results with Heaters in Relation to Prosperity

By C. A. Griffith Before Covina Frost Fighting Convention

IT seems to me that in considering the prevention of frost we must look at it from several different angles. Your chairman, Mr. Crawford, has just reminded you of the grower who has lost only two crops in the last 40 years. Perhaps prior to the year 1913 it was a good deal easier to ship frosted fruit from California than it is now, and I imagine in the old days many hundreds of cars were shipped from California that would not pass muster now. In those days we had a shorter crop, and it was not necessary to make such an extensive campaign of selling throughout the East. But now, the man who buys a dozen frosted oranges is not coming back for a second lot until he forgets about the first dozen.

So let us go back, say ten years, and see whether or not we have a real reason for the protection of our orchards. Ten years ago the Navel crop of 1912 was quite seriously affected by a frost, sporadic in its nature, it is true, but it touched many growers. In 1913 we had a heavy frost, a major frost, which seriously affected this district.

In the year 1914 there was also quite a loss; then in 1922 we had a frost equal in severity to that of 1913, but more far reaching. Our trees in 1913 were in better condition to stand low temperatures than they were this year. This year the frost came in a hurry, without warning, while the sap was running freely in the trees and the trees were in proper condition to be affected seriously by cold weather. In 1913, if you remember, before the frost we had several days of cold weather which prepared the trees for the frost that they had later. So it seems quite obvious to me that if we have in ten years' time, four freezes, there is a real reason for intensive study of orchard heating and I think that if a man expects to invest real money in a grove he is not a good business man in every sense of the word unless he goes farther and in some way does his part to protect the fruit he expects to raise.

If we could think of oranges in terms of money we might look at it differently. You may have \$10,000 worth of fruit on your trees and you go to bed trusting to the Lord to keep the frost away, while, if you had \$10,000 in gold lying out in your orchard most of you would have 20 or 30 men with sawed off shotguns watching that \$10,000 to see that no one came and carried it away. We do not realize that oranges are the same as money. So it seems to me that if we expect to stay in to advantage we must protect ourselves against the weather.

If you will pardon a reference to the properties that are under my di-

rection—because I happen to know more about them and the results of our own methods of protection—I want to say a few words about this. I do not want to say anything about the value of one smudge pot over another. That is a matter outside of the question in hand, but I do want to speak to you on behalf of community prosperity and the relation of the smudgepot to that prosperity.

After the season of 1913 our company equipped the groves with an improved type of heater, with a capacity of seven gallons, and we were in good shape to stand most of the freezes. While taking the best care possible of these heaters, however, there has been a considerable amount of depreciation. We cleaned them and painted them each year and watched over them carefully, and yet our equipment is a good deal smaller today. At that time we had 50 or 60 pots to the acre, but this year we were confronted with the problem of spreading our equipment out as thin as we dared, as we failed to put more money into smudge equipment last fall. You can see then that every heater had to be burned to its full capacity if we expected to save our crop during this last heavy frost.

The value of orchard heating is in heating in a large block. The land lying west of Grand Avenue and including our property is nearly all heated, so we have a solid block of 1000 acres, each acre helping the other, and we were greatly helped by all the smudging on our east. We were rather fortunate in realizing that we lived in a cold section, and that we had to fight the frost. But to return to the large block—that is one of the important facts to consider. An isolated ten acres has a hard fight for it has a large expanse of unheated territory proving a menace to its crop. We had a small equipment but a large surface to cover. We have on our property 30 rows in one of our forties that were inter-set three years ago with small trees. The large trees had not been removed but we wanted to replace them. We could not place pots under these trees and we estimated that the crop hanging on the Navels amounted to 3000 field boxes. We were enabled to take out of that 3000, 350 packing boxes of merchantable fruit. The influence of the heat in adjoining groves kept the trees in good shape, but we lost the fruit.

I bring this before you for this reason: It has been said to me a number of times in the past three weeks that we evidently did not have any cold weather because we could not have

saved our fruit or have our trees look like they do if we had experienced the cold that other districts suffered to the north and south of us.

To give you another instance: It is very hard to get comparative temperatures inside the firing zone and outside, but with a thermometer outside of our pots that showed a temperature of 17 degrees you can see that if we had warmth in some parts we certainly had some cold weather down where we were smudging. A man to be successful in orchard heating must work with intelligence, with diligence, perseverance and downright earnestness. He must be willing to sit up nights and watch his property and work hard and long during those night hours on his proposition or he is doomed.

With the present style of pot one of the greatest drawbacks and the hardest work is refilling on the second day. We had one tank wagon to every 960 pots, which is entirely too much to expect of any outfit. We ran our equipment practically all the 24 hours of the day. The night work was easiest—the lighting. We must look forward to a more efficient pot and general improvement in orchard heating. We must go into it very thoroughly, especially, it seems to me, as to the quality of oil we are burning, no matter what pot we are using, because we are satisfied that through experiments we can improve not only the efficiency, but also get rid of a great deal of soot that injures the trees, the gardens, the homes, and also the merchandise in the dry goods and other stores of the community. I think we have years of intensive study and experiment before us. But the time has come when our orchards must have more improved devices for taking care of cold weather.

Perhaps you will be interested in a few figures that I have gotten together as to the result and effects of frost damage:

Many districts on account of high prices will return as much money as in some other better years, but that money is not distributed evenly; it is confined to a few people, therefore it does not contribute to community prosperity. Unless we can get enough to pay us a reasonable return on our investment, we are not getting the prosperity the community deserves and needs to maintain its position. Therefore, even if we return more dollars this year for Navels it is not spelling community prosperity. During the last four years we have compiled figures very carefully, showing that into the trade channels of Covina has

been poured annually \$3,800,000, an enormous sum. That is the money that comes through the Covina Fruit Exchange, the portion of the San Dimas Fruit Exchange that drifts into the business channels of Covina, part of the A. C. G. that comes through here, and an estimate of the other channels. In all, \$3,800,000 coming into the trade channels of Covina. In making a very careful estimate on the value of the recovery this year as represented by packing house figures we get \$600,000 as the total return of the fruit coming to Covina, or a net loss of \$3,200,000, an astounding sum for a community like Covina to have to lose!

We must consider the far reaching effects. Not only has the fruit been lost and the crop perhaps injured for the next year, but the heart of the tree may be injured in many cases, especially in the case of lemons, and so we have not only lost the money that should have been returned for the fruit, but the care of the orchard for the coming year, and instead of having your money come back from the East to help you in caring for your orchard, you have got to dig down in your jeans for that money or borrow the necessary funds to carry on the care of your grove; so you have lost money for your crop and lost the amount necessary to care for the grove. Therefore it seems to me that when we speak of community prosperity, we are on the right track, for it is very evident that we must have a general prosperity. If we expect to stay in the orange and lemon business we must do our part and show a willingness to investigate every means at our disposal and go to the very limit as far as money, efforts, nervous energy and enthusiasm are concerned, or lose our crops and forget the orange business.

In leaving this question I would say this: that there is a very definite reason for the smudging of our oranges or the heating of our orchards; but we must first make up our minds to do the job thoroughly and not, like many this year, make a half hearted attempt to heat the groves and suffer loss of our crops.

The Covina chamber of commerce should be complimented for its concerted action in calling this convention, looking forward to improvement in the heating smudge pot or other heating device. I hope this convention will develop into great good to California, and that the California Fruit Growers Exchange, or some other organization, will continue in a very definite way to look into the development of better heating devices and the better development of an oil that will not subject our orchards and groves to the soot and smoke that they hitherto had to endure.

Quarantine Conventions

ATENTION of all interested is again called to the specific dates of the five important conferences to be held in the California state capitol building, May 29-June 2. Convention of California County Horticultural Commissioners, May 29-30. County Horticultural Commissioners and Nurserymen, June 1. Federal Horticultural Board, May 31. Fourth Annual Conference Western Plant Quarantine Board, June 1-2. Western Directors of Departments of Agriculture, May 29-30. All of the various state and federal officials interested have accepted and 100 per cent attendance is expected.

The Program

MONDAY, MAY 29

Conference of County Horticultural Commissioners (Senate chamber state capitol)—11:00 A. M. Legislative committee report. Appointment of committee. 1:15. G. H. Hecke, introducing L. O. Howard, chief, U. S. bureau of entomology, and Dr. C. L. Marlatt, chairman, federal horticultural board. 2:00. Nematode problem by Dr. W. A. Orton, federal horticultural board. Dis-

cussion, D. G. Milbrath, state department of agriculture. 3:30. Discussion on plant diseases by H. P. Barss, pathologist, Oregon agricultural college. 7:30. Discussion of quarantine problems by Lee Strong, chief, bureau of plant quarantine.

Western Directors and Commissioners of Agriculture (Room 118 state capitol)—2:00 P. M. G. H. Hecke, opening address. 2:30. Organization of conference, election of officers, appointment of committees. 3:30. Agricultural relations between bureau of markets and state departments of agriculture by Lloyd S. Tenny, assistant chief, bureau of markets. 4:30. Agricultural relations between state and federal government by Miles Cannon, commissioner of agriculture, Idaho department of agriculture.

TUESDAY, MAY 30

Conference of County Horticultural Commissioners (Cont.)—9:00 A. M. Report and discussion of committees. Phylloxera report and discussion of committee on nematode problems by Harry S. Smith, chief bureau of pest control. 10:30. Report on vacuum fumigation in Ventura County by A. H.

Call, county horticultural commissioner, Ventura County. 1:15. Discussion of standardization problems by F. W. Read, chief, bureau of standardization. 2:30. Discussion of dust insecticides by Geo. P. Gray, chief, division of chemistry. 3:30. Discussion of rodent and weed control problems by W. C. Jacobsen, in charge, rodent control.

Western Directors and Commissioners of Agriculture (Cont.)—10:00 A. M. Reports of committees on organization, agricultural policies of West, grading, standardization and shipping point inspection, relations between state departments of agriculture and agricultural colleges. 2:00. P. M. Discussion of committee reports, resolutions.

WEDNESDAY, MAY 31

Federal Horticultural Board—Public Quarantine Conference (Assembly Chamber).—Attended by federal horticultural board, directors of western departments of agriculture, plant quarantine officers and entomologists of Western states, Canada, Hawaii and Mexico, county horticultural commissioners of California, and fruit grow-

ers and farmers of the West. 10:00 A. M. Address of Welcome by Gov. Stephens. Response by Dr. C. L. Marlatt, chairman, federal horticultural board. 11:00. Outline of plant quarantine work in California with particular reference to the Mediterranean Fruit Fly by G. H. Hecke, director of agriculture of California. 11:30. Port inspection and the needs of California in plant quarantine work by Lee A. Strong, chief, bureau of plant quarantine. Mediterranean fruit fly, alfalfa weevil, citrus canker, white pine blister rust, Japanese beetle, European corn borer and Mexican bean beetle. 4:30. Importation of fruit stocks under Federal Quarantine No. 37 by Dr. C. L. Marlatt.

THURSDAY, JUNE 1

Fourth Annual Conference Western Plant Quarantine Board (Senate Chamber).—10:00 A. M. Address of Welcome by G. H. Hecke. Response and annual address by Chas. A. Park, chairman, Western Plant Quarantine Board. 11:15. Quarantine problems by C. L. Marlatt, chairman, federal horticultural board. 1:30. Report of quarantine conditions in Arizona by Don C. Mete, state entomologist.

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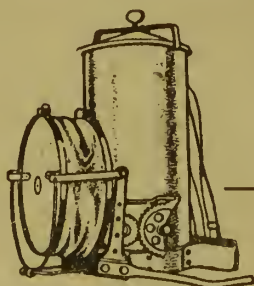
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List, chief deputy state entomologist.
Hawaii by L. A. Whitney, division of
plant inspection. Idaho by W. H.
Wicks, director, bureau of plant indus-
try. Lower California by O. A. Pratt,
federal horticultural board, Calexico.
Montana by W. L. Shovell, chief, di-
vision of horticulture. Nevada by Ed-
ward Records, quarantine officer. New
Mexico by quarantine officer. Oregon
by Chas. A. Park, president, Oregon
board of horticulture. Utah by Heber
J. Webb, state crop pest inspector.
Washington by Chas. L. Robinson,
chief, division of horticulture. Wy-
oming by Aven Nelson, secretary,
state board of horticulture. Califor-
nia by Lee A. Strong. 4:00. Agricul-
tural legislation by R. N. Wilson, exe-
cutive secretary, agricultural legisla-
tive committee. 7:30. Informal Re-
ception, Woodland (G. H. Hecke).

Joint session California Association
of Nurserymen and County Horticul-
tural Commissioners (Assembly Cham-
ber). 1:30 P. M.

FRIDAY, JUNE 2

Western Plant Quarantine Board
(Cont.)—9:00 A. M. Progress Report
on Navel orange worm by Don C.
Mote. 9:30. Present alfalfa weevil in
Nevada by Dr. Edward Records. 10:00.
Plant inspection stations by W. H.
Wicks. 10:30. Mexican bean beetle
by Geo. M. List. 11:00. Canadian
Laws by Leonard S. McLaine, chief,
division of foreign pests suppression,
Canada. 11:30. Parcel Post Inspec-
tion by Lee A. Strong, Edward Mc-
Grath, superintendent railway mail
service, San Francisco. 1:30. Trans-
portation in relation to plant quaran-
tine by C. R. Graham, general man-
ager, American Railway Express Com-
pany, San Francisco. 2:00. Plant
quarantine in relation to nursery ship-
ments by C. A. Tonnerson, secretary,
Pacific Coast Association of Nursery-
men, and C. K. Grady, secretary, Cali-
fornia Association of Nurserymen.
3:00. Vacuum fumigation by D. B.
Mackie. 3:30. General discussion of
alfalfa meal, cleaning and sterilization
of railway cars, registration of out-of-
state nurserymen, certificates of in-
spection, white pine blister rust.

SATURDAY, JUNE 3

10:00 A. M. Public conference cot-
ton quarantine. G. H. Hecke, presid-
ing. (State Department of Agriculture,
11th and K Streets.)

FERTILIZER CONFERENCE

An invitation is extended to regis-
tered fertilizer manufacturers and
dealers of California to attend a con-
ference at the state capitol, Sacra-
mento, Monday, May 29 at 1:30 P. M.
This conference is called for discus-
sion of matters of general interest to
the fertilizer industry and an exchange
of ideas on how the state fertilizer
law may most effectively serve the
interest of both buyer and seller. No
formal program has been arranged but
the state department of agriculture de-
sires to bring up for discussion care-
less labeling, maintenance of guaran-
tees, potash guarantees, and delivery
of fertilizer without tags pending
analysis.

VALUE OF LAST SEASON'S CROP

Total value fruit and fruit products
on farms in 1921 was \$525,000,000, ac-
cording to estimates made by the
United States department of agricul-
ture. This is a drop from \$744,000,000
in 1920 and from \$755,000,000 in 1919.
The decline in 1921 is attributed to
reduced production as a result of kill-
ing frosts early in the season and to
lower prices of apples, peaches and
other orchard fruits. Cheaper raisins
was also an important factor.

Production of apples in 1921 was
only 96,881,000 bushels as compared
with 223,677,000 bushels in 1920.
Peaches dropped from 45,620,000 bush-
els in 1920 to 32,733,000 bushels in
1921. Pears dropped from 16,805,000
bushels to 10,705,000 bushels. There
was a slight increase in production of
oranges at 30,700,000 boxes.

Values of Orchard Fruits

The estimated values of grapes and
grape products on farms for the three
years, 1919, 1920 and 1921, were \$102,-
500,000, \$105,000,000 and \$68,500,000;
orchard fruits \$463,000,000, \$442,000,-
000 and \$271,000,000; small fruits, \$63,-

000,000, \$69,000,000 and \$74,500,000;
and subtropical fruits, \$84,000,000, \$89,-
000,000 and \$87,000,000, respectively.

The fruit products of farms, for
which estimates are made, are grape
juice, raisins, apple cider, apple cider
vinegar, and dried fruits. Their total
value fell from \$100,000,000 in 1919 to
\$66,000,000 in 1921.

Orchard fruits dominate the other
classes of fruits in value. These are
chiefly apples, apricots, peaches, pears,
plums and prunes. The estimated value
of this class of fruits and products in
1921 was \$271,000,000, or 52 per cent
of the value of all fruits and fruit prod-
ucts. The subtropical fruits, chiefly
oranges, follow in order of value with
\$87,000,000, or 17 per cent of the fruit
total; next are the small fruits, mostly
strawberries and cranberries, the es-
timated value of which for 1921 is \$74,-
500,000, or 14 per cent of the fruit
total; and grapes and grape products
estimated at \$68,500,000, or 13 per cent
of the fruit total.

Apple Leads Other Fruits

"The king of fruits," as the apple has
been called, is by far the leading single
fruit in value. The fresh apple crop
of 1921, a poor year for apples and
some others of the orchard fruits, had
an estimated value of \$163,000,000. Be-
low this value is \$64,000,000 for or-
anges, and in declining order are
peaches valued at \$52,000,000, straw-
berries \$41,000,000, grapes, excluding
grapes used for juice and raisins, \$29,-
500,000, plums and prunes \$20,000,000,
pears \$18,000,000, cranberries \$6,400,-
000, apricots \$5,400,000, figs \$1,400,000,
and, at the foot of the list of individual
fruits for which estimates of value are
made, are olives valued at \$800,000.

CALIFORNIA CROP REPORT—MAY 1, 1922

IN the report issued by the
California Cooperative Crop
Reporting Service relating
to crop and livestock con-
ditions as of May 1, E. E.
Kaufman, Agricultural Statistician,
will make the following comments:

Weather Conditions

Temperatures during April were
slightly below normal and the month
was generally considered an unfavor-
able one from the standpoint of the
fruit men. Frosts occurred in differ-
ent sections of the state on the 9th
and 10th of the month and again on
the 16th and 17th; damage, however,
was rather spotted and not very ser-
ious. Rainfall was very light, there
being practically none the latter part
of the month. The comparatively cool
weather has favored the grain crop,
allowing heads to fill fairly well al-
though moisture was lacking.

Good rains occurred in practically
all parts of the state on May 7 and 8
and will be of some benefit to grain
crops.

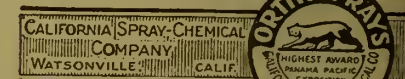
Winter Wheat

The area planted to wheat for the
1922 crop was estimated at about 759,-
000 acres. As of May 1, it is estimated

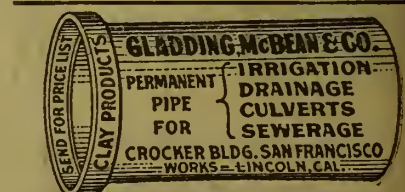
Dusting Sulphur

For mildew on grapes, use ORTHO
DUSTING SULPHUR. Does not ball
or clog. Our improved ventilating
process insures finest dust sulphur
on the market.

Write for Ortho Circular



Address Dept. C



Bee Hives and Supplies

Headquarters for everything needed in
the care of bees. Send for late price
list and free booklet.

The A. I. ROOT COMPANY, Dept. B
1824 E. 15th St., Los Angeles, Cal.
PACKERS OF AIR LINE HONEY

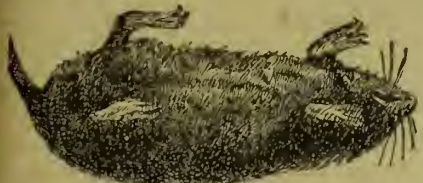
When Writing Advertisers Please Mention the Cultivator.

that 8.7 per cent of the acreage will be abandoned, leaving for harvest about 693,000 acres. The condition on May 1 for the estimated area to be

Wipe Out Every Rat and Gopher

Amazing New Discovery Quickly Kills Them All. Not a Poison.

Rats, Mice, Gophers — in fact, all Rodents can now be wiped out easily and quickly. Imperial Virus will do it. This new discovery is a fluid, true Virus. Entirely harmless to humans, poultry, stock, pets, etc.

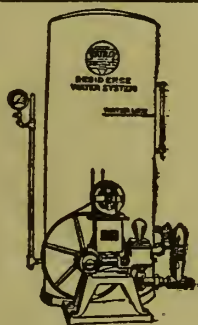


Infects Rodents only. Greedily eaten on bait. Sets up burning fever. The pests communicate it to others, and all die outside, hunting air and water. Imperial Virus is put up in sealed bottles, thus insuring full strength and potency. Only safe, sanitary method to overcome these pests. Protect your Poultry, especially Baby Chicks and Egg Hatches.

YOU CAN GET YOURS FREE

Here's how! Send \$1.00 today (currency, M. O. checks, etc.) and we will give you by return mail, postpaid, two regular, full sized (double strength) \$1.00 bottles of Imperial Virus. Use one to rid your place of these pests, and sell the other to a neighbor, thus getting yours free. Special inducements to represent us.

If more convenient, send no money, just your name and address to Imperial Laboratories, Dept. 435, 2110 Grand Ave., Kansas City, Mo. Pay postman \$1.00 and few cents' postage when two bottles arrive. Guaranteed to do the work to your entire satisfaction within 30 days or your \$1.00 will be cheerfully refunded.



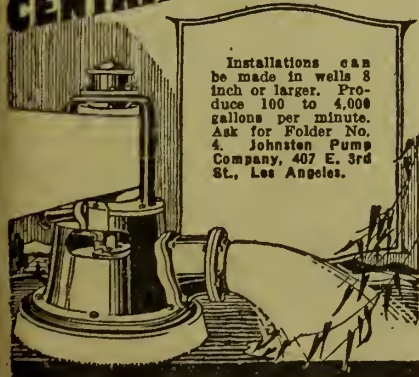
"DURO"

Water Systems

The all-round water system for household use. Supplies the home, grounds, stock, etc., and affords fire protection. Strong, simple, quiet-running, entirely automatic in operation. Send for catalogue and name of nearest dealer.

CALIFORNIA HYDRAULIC ENGINEERING & SUPPLY CO.
72 Fremont St. 420 Third, Dept. H.
San Francisco Los Angeles

JOHNSTON TURBINE CENTRIFUGAL PUMPS



Installations can be made in wells 8 inch or larger. Produce 100 to 4,000 gallons per minute. Ask for Folder No. 4. Johnston Pump Company, 407 E. 3rd St., Los Angeles.

Open Lights Start Fires!



DELTA No. 10 HAND LANTERN

Here is a lantern that burns continuously by the hour. Gives more light than a kerosene lamp. Safe as daylight. Can be used in any place. No matches, oil, grease, dirt or odor. Try it now. Order 275 to Day. Delta Electric Company, Delta Block, Marion, Ind.

harvested was about 90 per cent of a normal as compared with 80 one year ago and a ten year average of 82. On the assumption that at least average conditions will prevail until harvest, a total production of 12,960,000 bushels is forecasted for the crop of 1922. The final estimate of last year's crop was a production of 8,355,000 bushels from a harvested area of 557,000 acres.

For the United States the condition of winter wheat is about 83.5 per cent of normal, indicating a crop of 584,793,000 bushels from a harvested area of 38,131,000 acres. The production in 1921 (December estimate) was 587,032,000 bushels grown on 42,702,000 acres. Hay

As of May 1, the estimated acreage of tame hay is 1 per cent less than in 1921 with no change in the acreage of wild hay. This would give us an area of tame hay to be harvested of about 2,108,000 acres and of wild hay 167,000 acres. The condition of all hay was estimated to be 86 per cent of a normal as compared with 84 last year and a ten year average of 85.

For the United States the condition of all hay was 90.1 per cent of a normal indicating a crop of about 103,579,000 tons.

Pasture

For the state as a whole the condition of pasture was 82 per cent of a normal as compared with 87 last year and a ten year average of 86.

The past winter was rather unfavorable to the stockman. Early rains gave pasture a good start but extremely cold weather for California the latter part of January and all of February held back the growth of grass and much feeding was necessary in practically all parts of the state. The snowfall in the mountains was very heavy, extending well down into the foothills and contributed to a greater loss than usual among cattle and sheep from exposure. Market conditions have improved considerably since the first of the year and with a lower price for hay and lower cost of handling, conditions the past year have somewhat improved from the stockman's standpoint.

There was but little difference in the losses per thousand from disease than in previous years, but on account of harder winter conditions the losses from exposure were slightly greater. Of horses and mules, 15 per thousand died from disease or about 6,420 for the state. Of cattle, 20 per thousand died from disease and 34 per thousand from exposure, making the total loss about 108,650 compared to 58,000 for the previous year. Of sheep, 22 per thousand died from disease and 37 per thousand from exposure, making the total loss about 144,550 compared to 115,000 for the previous year. The loss of lambs from disease and exposure the past year was estimated at 90 per thousand, compared with 57 per thousand for the previous year. Swine losses were about 43 per thousand as compared with 30 per thousand for the previous year.

Honeybees

The number of working colonies on May 1 this year as compared with same date last year is estimated at 93 per cent.

The winter loss of colonies this year is 9 per cent compared with 7 last year and a five year average of 9.

The condition of honey plants is estimated to be 95 per cent of normal as compared with 75 last year and a six year average of 93. The conditions of colonies this year compared with normal health and strength is 88 per cent as compared with 93 last year and a six year average of 93.

IMPORTANT CONVENTIONS

A series of important conventions having to do with agriculture has been arranged by Director G. H. Hecke as follows:

Convention of California county horticultural commissioners, May 29-30.

County horticultural commissioners and nurserymen, June 1.

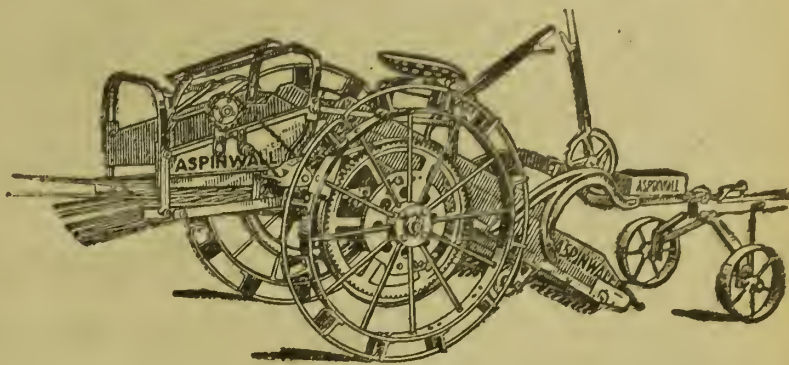
Federal horticultural board, May 31. 4th convention western plant quarantine board, June 1-2.

Western directors of department of agriculture, May 29-30.

All of the various state and federal officials interested have accepted and 100 per cent attendance is expected.

ASPINWALL POTATO DIGGER

"The Machine of Quality"
Built to Stand the Wear and Tear



The name "Aspinwall" stands for all that is most desired in Potato Machinery, DURABILITY, SERVICEABILITY, LONG LIFE, LOW UP-KEEP, COST and LIGHTNESS OF DRAFT. The Aspinwall potato digger is recognized as the most economical digger on the market.

In producing this machine every effort was exerted to produce a finely finished durable product. All essential parts are machined. The Aspinwall is built in 6 and 7 foot sizes, either plain or with platform attachment for engine drive— for horses or tractor.

The mechanical construction includes some very important features, such as, long life bronze bearings, special tempered steel chain, carbon steel specially shaped shovel point, 30 inch wheels with 3 inch face gear driven from both sides. High rigid sides and proper pitch rear rack with high clearance. Easy draw bar connection close coupled to truck.

Call, write or phone for literature.

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The Following Complete Line of Implements
Distributed by L. M. RAILSBACK CO.

Allwork Tractors	KILLEFER IMPLEMENTS
Knapp Orchard Disc Plows	Killefer Subsoil Plows
OLIVER IMPLEMENTS	Killefer Power Lift Cultivators
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Oliver Gang Plows	Superior Drills
Oliver Walking Plows	Blackhawk Planters
Oliver Disc Harrows	Aspinwall Potato Machinery
Oliver Spike Tooth Harrows	Thomas Crown Mowers
Oliver Cultivators	Winona Wagons
Oliver Listers	Towner Cultivators
Oliver Planters	Steel Wheel Trucks
	Scrapers, Wheelbarrows
	Hand Carts, Singletrees, Etc.

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WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

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Speed and Dependability in the Hay Harvest

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HAY machines that bear the above names may always be relied on to put your hay where you want it, the way you want it, in the quickest, most economical manner. *McCormick* and *Deering* mowers can be depended on to cut hay every minute. *International* tedders hasten, and insure, better curing. *McCormick* and *Deering* self-dump rakes are known the whole world over for their quick, clean work and light draft. The *International* combined side-delivery rake and tedder is a saver of time and labor.

Look at the farmer in this picture, pulling two wagons and two *International* loaders with the Titan tractor. He is sure to get his hay out of the way for grain harvest.

International sweep rakes and stackers provide a quick method of getting your hay to the stack.

International power hay presses put the hay in neat tight bales that keep better, are easier to handle, store and feed, and that bring the top price on the market.

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INTERNATIONAL HARVESTER COMPANY

CHICAGO OF AMERICA USA
(INCORPORATED)
92 Branch Houses and 15,000 Dealers in the United States

Auto Owners WANTED!



To introduce the best automobile tires in the world. Made under our new and exclusive *Internal Hydraulic Expansion Process* that eliminates Blow-Out—Stone-Bruise—Rim-Cut and enables us to sell our tires under a

**10,000 MILE
GUARANTEE**

We want an agent in every community to use and introduce these wonderful tires at our astonishingly

low prices to all motorcar owners.

Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

Hydro-United Tire Co.
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Special Engine Sale \$38.50

at 1914 prices, direct from factory. Start Easy Gasoline, for 2 HP. 2 1/2 HP \$45.57
OTTAWA—Kerosene, 3 1/2 HP \$45.50
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Trade Mark **TIZIT** Registered
Tree Spray

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The Premier Insecticide and Fungicide for the Control of
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WAGNER'S Giant Winter RHUBARB

April and May best time to plant. Should return up to \$1000 per acre first year. The California Rhubarb Association could have used the output of 1000 acres this season. Plant now for next Spring's market.

WAGNER'S NURSERY (J. B. Wagner & Son)
1550 EAST VILLA STREET "Originators of the Giant Winter Strain"
Dept. C PASADENA, CALIFORNIA

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CALIFORNIA FRUITS, MAY 1, 1922

By California Cooperative Crop Reporting Service



HE season being from two to four weeks late made it rather difficult to estimate the condition of the various fruit crops as of May 1 as sufficient time had hardly elapsed after the blooming period to note the probable setting of the fruit. Frost occurred April 9 and 10 and again on the 16th and 17th in practically every section of the state, but with the exception of apricots the damage as a whole was rather light.

A light snowfall in Eldorado, Nevada and Placer Counties May 8 caused some concern to the fruit men but reports indicate there was little if any damage from frost.

Almonds

The almond crop seems to be somewhat spotted again this year, reports varying between 50 and 100 per cent of a crop. Butte and Stanislaus Counties report very good crops. Some damage from frost occurred in Yolo and San Joaquin Counties. For the state the condition is 77 per cent of a normal as compared with 58 last year and a ten year average of 69. With average conditions the balance of the growing season, a record production of almonds is indicated this year.

Apricots

Brown rot seriously affected the crop in the Bay counties. Added to this destructive fungus diseases, frosts on the 9th and 10th caused further damage to the "cot" crop, particularly in Alameda and Santa Clara Counties. Southern California, where production has been rapidly increasing, also suffered from frosts, and the prospects in that district are for about 65 per cent of a crop. For the state the condition is about 52 per cent of normal as compared with 45 last year and a ten year average of 68.

Cherries

Early reports indicated a "bumper" crop of cherries. Frost and cool weather have brought about a decreased estimate but prospects still remain fairly good for a larger production than usual. The condition is estimated at 90 per cent normal compared with 66 last year and a five year average of 80.

Oranges

The condition of oranges was estimated to be only 78 per cent of a normal as compared with 92 last year and a ten year average of 93. The bloom was later than usual but apparently about normal on such trees as were in good condition. Those which had been wholly or partially defoliated by the January freeze were putting out leaves and bloom would either be very late or entirely lacking. The condition figure as here given should be construed as indicating conditions at blossom time only.

Lemons

The condition of lemons was estimated as 66 per cent of a normal as compared with 90 last year and a ten year average of 90. Lemon trees in some of the producing districts are in very bad condition on account of the January freeze and no bloom can be expected on trees which were wholly or partially defoliated. The vitality of the trees has been lowered materially and a large production of lemons can hardly be expected this year.

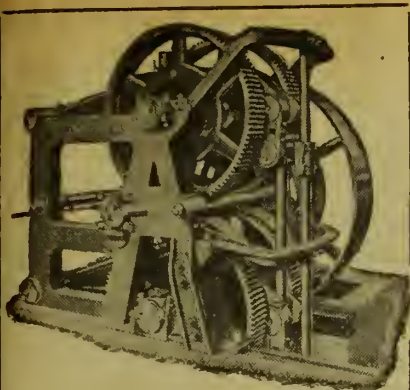
Detailed reports are not generally made until June, but owing to the interest manifested throughout the state in fruit crop conditions a special inquiry has been made as of May 1. No figures are available for comparison for the same date of previous years. All fruit crops have yet to run the gauntlet of the "June drop" and a possible heat wave before July 1. Bugs are not serious at the present time.

Apples

Were reported about 96 per cent of a normal. Practically all districts state that it is too early to definitely report the condition of the crop. Gravensteins in Sonoma County are reported a full crop with late apples somewhat shy.

Peaches

The condition of the peach crop is reported to be 92 per cent of a normal. Sutter, the big cling peach county of



THE POMONA

Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

Pomona Manufacturing Co.
POMONA, CAL.

Manufacturers of the

POMONA Irrigation Gates and Valves

the state, reports a full crop. At the present time a record peach crop is indicated for the state as a whole.

Pears

Have suffered only slight damage from frost, and then only in certain sections. The indications are now for 92 per cent of a normal crop.

Plums

The plum crop is a difficult one to size up at the present time. Placer County, which produces more than 30 per cent of the plums reports only 80 per cent of a full crop.

Prunes

Prospects for a prune crop are very good at the present time. The condition for the state as a whole is estimated to be about 95 per cent of a normal.

Final Orange Estimates—1921-22 Crop

Under date of February 23, 1922, this office issued a special citrus report following the January freeze. At the time of the freeze there had been shipped and placed in packing houses a total of about 4,000,000 boxes of oranges, equivalent to 9,000 cars. Since the freeze and up to May 1, there has been shipped 9,408 cars, of which about 1,000 cars were Valencias. The picking of Valencias early indicated that the damage was greater than expected, and as of May 1, it is estimated that the crop had been damaged fully 50 per cent. It now appears that the total orange shipments of the 1921-22 crop will amount to about 29,000 cars. On the basis of 450 boxes to the car the total shipments will amount to 13,050,000 boxes, which is only 58 per cent of the total orange crop, as estimated December 1, 1921.

The loss from December winds was placed at 5,000 cars and the loss directly attributed to the freeze will be about 16,000 cars, or 7,200,000 boxes.—E. E. Kaufman, Agricultural Statistician.

CROP REPORT

N. E. Mathews, Santa Ana, Orange County

There has been quite a diversity of opinion up to the present time of the apricot growers as to the prospective yield but the majority now set it at about 50 per cent of normal.

AIR DRAINAGE

A fact which the experiences of the past winter has more firmly impressed upon us is the importance of air drainage in the orchard. This is not more necessary in mid-winter than at times of early fall or late spring frosts, for while the former affect mainly the citrus orchards, the extreme season or late and early frosts are the only ones that affect deciduous trees.

Many deciduous orchards escape frost injury while those on adjacent, but lower lands suffer from frozen tips in the fall (walnuts) or from frosted blossoms or fruits in late spring (apricots, etc.) The greatest danger lies in still and cloudless nights. The drainage of cold air to the lower lands and the more pronounced air currents higher up have saved many a crop on comparatively higher lands. The lesson to be learned is to avoid planting orchards on low land, especially close to waterways. When a cold winter comes one feels that citrus trees should never be planted on low flat land. It is not a question of elevation above sea level, but of elevation above the lower lands of the immediate vicinity.

The general offices of the California Co-Operative Canneries have been consolidated and are now located on the tenth floor of the Cunard Building on First and Market Streets, San Francisco. The increasing amount of business handled by this cooperative canning company and its large fruit interest in the San Joaquin Valley as well as in Napa and Sonoma Counties required that the business affairs of the company be handled from a central location.

Old residents of the Oroville district claim that the promise for a wheat crop this season is the best for 25 years. Many fields that in former years lost their crops through excessive water are now promising a large yield, due to the mild winter and better drainage now available.

Here's Good Advice: Relieve Your Fatigue With Sleep. Avoid Stimulants

THERE is nothing in the world so reconstructive as sound, refreshing sleep. During sleep the system rids itself of the fatigue poisons that have accumulated during the day. The finished elements in the food are taken up by the various tissues that require rebuilding nutriment.

It is important that you get plenty of health-bringing sleep. Anything that interferes with your sleep hampers and hinders you—mentally and physically.

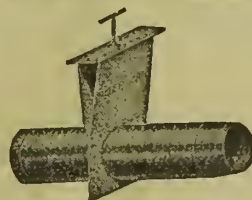
A common cause of physical weakness and mental depression is the reaction following over-stimulation caused by the drug, caffeine, and other elements found in both coffee and tea.

If you have an idea that coffee or tea drinking may be injurious to your health, why not stop it for a week or so, and drink delicious, fragrant Postum instead.

Postum is a rich, golden-brown, pure cereal beverage. It contains no harmful elements of any kind. You can drink Postum as many times a day as you or the children desire a grateful, refreshing beverage.

Your grocer sells both forms of Postum: Instant Postum (in tins) made instantly in the cup by the addition of boiling water. Postum Cereal (in packages of larger bulk, for those who prefer to make the drink while the meal is being prepared) made by boiling for fully twenty minutes.

Postum for Health "There's a Reason"



WRITE US FOR PRICES ON

Tanks, Well Casing, Riveted Water Pipe and Surface Irrigation Pipe with Double Lock Seam

AMERICAN STEEL PIPE AND TANK CO.
354 Pacific Electric Bldg.
LOS ANGELES, CAL.

1228 H Street
FRESNO, CAL.



New 1½ H.P. CUSHMAN

For Light Jobs

A little wonder—regular Cushman quality. Different, better, fewer moving parts. A real no-trouble engine for pumping, etc. Investigate.

4. H. P.



LIGHT WEIGHT 4 H. P.

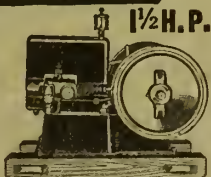
For all power jobs up to 5 H. P. Improved Throttling Governor insures very steady running and less gasoline need.

Saves a Team on the Binder

Besides doing all regular jobs, this 4 H. P. may be mounted on rear of binder to save a team, and in a wet season to save the crop. We supply attachments. This engine is a necessity on every farm.

Ask for book on Light Weight Engines. If interested in Electric Lighting Plants, write for free book. (12)

CUSHMAN MOTOR WORKS
804 N. 21st Street. Lincoln, Nebr.

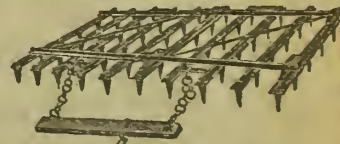


Note design of Patented Tooth

Powerful Daggers of Steel

IT WILL PAY YOU TO SCRAP YOUR OLD HARROW AND BUY THIS

Every Farmer wants this harrow when he knows what it will do. No levers; no parts to get out of fix. Teeth can't fall out. These teeth slice through plowed fields like a knife. Pulls vertically and slanted back.



2-sections—8 feet—60 teeth

WILL OUTLAST THREE OF ANY OTHER TYPE

Write for circular **California Plow Co.** 140 Polhemus St. SAN JOSE, CALIF.

SPECIAL PRICE to introduce
We pay the freight to any Main Line R.R. Point in California. **\$39.75**
WORTH DOUBLE

When Writing Advertisers Please Mention the Cultivator.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pinching Back Malagas

I planted some rooted Malaga vines a year ago and got nearly a full stand. Vines are so large that I have put stakes by them this year and have started the one stump system. I have suckered them and left only one straight shoot going up. Would it be all right to pinch it off when it gets to the top of the stake to stop it from growing any longer and set more brush for spurs next year? The way they are growing they will be at the top of the stakes in four to six weeks. My stakes are three feet high.—R. S., Fresno.

Malaga vines such as you describe in your question may be pinched when the growth reaches a little above the top of the stake. This pinching will promote the growth of laterals and will give you a better selection at pruning time next year.—F. K. H.

Pollenizing Prunes

What plum is considered best as pollenizer for Tragedy? How many per acre should be planted for this purpose? Is Climax good?—Subscriber, Porterville.

Clyman is considered the best for the Tragedy and observant orchardists vary in opinion on how to plant the two varieties. Every fifth row is a practice quite common and brings good results if bees are numerous. In studies made by the state university it was found that rows of two varieties next each other bore more fruit than those five rows apart. By all means keep a few bees in the orchard; a hive to every five acres will prove of great benefit. Climax will not pollinate the

Tragedy, as the former is a Japanese plum and the latter a European and they will not cross pollinate. But Climax is best of all for plums of its class and more self fertile.

Curing Bulbs

What garden bulbs in Southern California after flowering should be lifted and dried for the following season? Does the list include ranunculus, narcissus, (Paper White) etc.?—Subscriber, East San Diego.

It is not necessary that any bulb should be removed from the soil each year if soil and climatic conditions are favorable, for all bulbs grow wild somewhere and are never moved. California bulbs and those from similar climates do not need taking up, and especially the lilies. Many of our native lily bulbs, even though of large size and soon replanted, will not flower the first year after being dug. Anemones, ranunculi, yellow callas the writer has found to perish during winter unless the soil may in some way be protected from excessive rains. During warm dry winters such losses are light, but winters like the one just past are very destructive to bulbs. This is not true of narcissi, especially of the large trumpet varieties, which, after several years in same spot have flowered better this spring than ever before. This is also true of the poet's narcissus and Spanish iris. Good drainage is the chief factor in wintering bulbs in the soil.

Dividing Asparagus

I have a few hills of asparagus which has been in the same location several years. I wish to extend the bed. Can I take these up and subdivide? If I do this may I expect any "grass" for use the first year? Is it better to plant seed or new plants?

What time of the year is best for this subdividing of seed?—Subscriber, Los Angeles.

Old clumps may be divided in the fall but it is really better to set out new plants. In either case there should be no cut taken the first year. Seeds may be sown during the spring to make plants for setting out the following winter.—D. F. R.

New Asparagus Bed

Have planted out a new asparagus bed. Should the first sprouts be cut off or let go to seed, and should I put salt on beds in fall? Also should they be covered deep?—Subscriber, Jenner.

Shoots should not be cut from a young asparagus bed the first year. In setting the roots the crown should be covered about 4 inches and allowed to grow without hilling the first season. After cutting off the growth in the fall, cover with a good dressing of stable manure to be leached in during the early winter. In January ridge up so that the crowns will be covered about 8 inches.—D. F. R.

As to salt it is not often used. It is, however, a mild stimulant releasing potassium and having much the same effect on soils as does gypsum. Applied at the rate of say 500 pounds per acre there might be a slight benefit because of chemical action and possibly some benefit as a soil disinfectant.

"June Drop" in May

Will you tell me why my oranges and lemons drop off when they reach the size of hazel nuts? What can I do to save them?—Subscriber, San Luis Obispo.

We don't know. What is worse, there are many practical citrus growers who can give but little better answer. We are exceedingly sorry to have these fruit drop questions begin this early in the season for it indicates the beginning of one of the fruit

growers' perplexing problems. The drop may be due to a fungus or to bacterial action. More probably, it may be due to abnormal weather conditions, or, still more probably, to lack of vigor and vitality in tree. Subtropical trees have been put to severe test during the past few months, and orchardists will be little surprised if there is a shy bloom and, worse, a heavy drop of recently formed fruits. It is fairly definitely established that a vigorous strong growing tree on soil of perfect tilth and content of fertility will hold its fruit more satisfactorily than will the less vigorous tree. So to prevent June drop in 1923 begin on the orchard this week or next and build up right soil conditions by fertilization, irrigation and cultivation. But to answer the question as to the drop for 1922 we are compelled to repeat "We don't know." If there is a subscriber to the Cultivator who can give us the information, send it quick.

Tomato Blight Infection

I have some racks made of lumber and woven wire which I use to hold tomato vines off the ground. Would the germs of tomato blight or any disease of tomatoes remain on these racks and carry to next crop? If so, is there any spray that would disinfect the racks?

Exposed to sun and air as these have been for months it is probable there would be no infection. However, the disease is so deadly that every precaution should be taken and treatment with boiling water or holding in the flame of a brisk fire for an instant might prove wise. A spray or dip of copper sulphate would doubtless prove effective. We have repeatedly said that plants affected with blight cannot be reached by a spray, but this is because of the infection being in the innermost tissues of the plant and of course not reached by any spray. On the frame of a trellis the treatment should prove effective.

Good Butter

Several times parties have asked regarding strong butter or its not keeping.

In saving cream for churning, from day to day, if each day skimming is stirred thoroughly into the whole and kept cool in an earthen crock over which a wet burlap is kept in warm weather, once a week will be often enough to churn.

In churning, just before the butter forms into a chunk or mass, when it resembles fish roe, or as soon as the buttermilk can be drained without losing butter, drain. Fill churn with cold water, 60 degrees, drain again. Fill again, give churn a turn and drain. If water is not clear repeat. Now pour out butter, salt and work. There will be no buttermilk in your butter and it will keep a long time. It is the buttermilk left in butter that gives it the strong flavor.—Cecil Haskell, Venice.

BONDED WAREHOUSES

The department of agriculture is now ready to receive applications for the licensing of warehouses storing agricultural products, as provided for in the California warehouse act, approved June 3, 1921. A study of the act and the rules and regulations thereunder reveals the added safeguards surrounding agricultural products stored in a bonded warehouse and the receipts issued therefor. The depositor readily recognizes the advantages of storing his products in a bonded warehouse, the warehouseman appreciates the added asset of his warehouse being classified as a California bonded warehouse, and the banker readily recognizes the added security afforded by the handling of warehouse receipts issued by a bonded warehouse. The department of agriculture is anxious to place before interested parties complete information for the classification of California bonded warehouses and the advantages of the same.

Address communications relative to this matter to L. M. Jeffers, Chief Grain and Warehouse Inspector, State Department of Agriculture, Sacramento, California.



ONE of our Western dealers reports: "A traveling salesman was in our office a few days ago. He said, 'I like your Fisk Red-Tops. I have three on my car and the next tire I buy will be a Fisk Red-Top. I travel for a wholesale hardware company and they have tires to sell that I can buy at 15% under the wholesale price, but I find it cheaper in the end to buy Fisk Red-Tops at retail.'"

Anyone who puts his tires to hard usage and who values his time and convenience should buy the Fisk Red-Top—the tire made with the extra ply of fabric and the extra heavy, extra tough red tread.

There's a Fisk Tire of extra value in every size, for car, truck or speed wagon.

Household Department

THE PEERLESS FORTY-NINERS

By A. J. Waterhouse

Dame Nature loved this Western land;
Its beauty lured and charmed her;
Its sun-kissed days and pleasant ways
Of Eastern chill disarm her.
Quoth she, "I need some mighty men,
No sluggards or repiners.
To build my State;" then sent us straight
The splendid Forty-niners.

Chorus:

Oh, here's to brain, and here's to brawn,
To deeds that cheer like wine;
To men who wrote in deathless dced
The utmost word in valor's creed,
The men of Forty-nine.

By mountain pass or wilderness,
Their watchword, "Onward ever!"
Their hearts of cheer knew not a fear
Or surcease of endeavor.
The cruel net that lures to death
Was set by red designers,
But still they strode their chosen road,
The matchless Forty-niners.

Chorus:

Fair is our State, e'er unexcelled
In richness and in glory.
Foundations deep they laid to keep
The splendor of our story.
Theirs was the hand that carved and
planned;
We but the late refiners,
So low we bow unto them now,
Our glorious Forty-niners.

ABOUT TROUBLES

Troubles come,
Right well I know!
But remember
Troubles go.—Detroit Free Press.

When a man is full of himself there
isn't room for much else.

Motor Troubles Ended

New Invention Creates Wonderful Spark
—Doubles Power, Makes Starting
Easy—Stops Oil Pumping—
Eliminates Carbon—Saves
Gas—Free Trial Offer

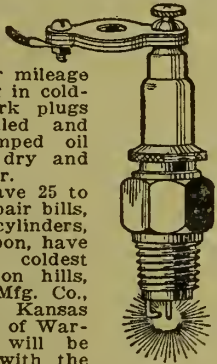
Any car owner who is bothered with a
motor which pumps oil, foul spark plugs,
wastes gas or carbonizes badly can stop
these troubles by using a remarkable de-
vice called Warren Transformers, per-
fected by W. H. Warren, a Kansas City
motor expert.

In two minutes a boy can attach War-
ren Transformers. Then you will be
amazed to see your car go whizzing up
hills on high where
you formerly had
to shift gears. You
will also notice a
big increase in your mileage
and instant starting in cold-
est weather. Spark plugs
that formerly fouled and
cylinders that pumped oil
will be clean and dry and
fire with full power.

If you want to save 25 to
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dirty plugs and carbon, have
a quick start in coldest
weather and pep on hills,
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sent immediately, with the
understanding that they do
not cost you a cent if not entirely satis-
factory.

So confident is the Warren Mfg. Co. that Warren
Transformers will more than delight you that they
offer to send a \$4 set for only \$2. This is a special
introductory offer, good for only a few days, and
readers should take advantage of it immediately.

Send No Money with your order—just your name
and address, name of car and number of cylinders.
Warren Transformers will be sent immediately. When
they arrive merely pay the postman \$2 and postage.
Use them 10 days. If not satisfactory return and your
money will be refunded. Write today. End your
motor troubles. This offer fully guaranteed.



MRS. GRAHAM'S MOTHER

By Ida Charlotte Roberts in Forward



WHEN Mrs. Tate had taken
the last of her possessions
from her trunk and slipped
the last hanger in place,
she shut the door of the
bulging closet and turned to her
daughter with a smile which harbored
not a shadow of weariness. She
had come to spend the winter with
her daughter, Mrs. Judson Graham,
in a bustling Western town where
the young reign supreme and
where the few old folks look on and
marvel. Her daughter expected nothing
else than that her mother would spend
the rest of her days with her.

"Now that you're through with all
this, mother, you'd better rest awhile.
Mrs. Lawrence is giving a tea party
this afternoon, and I'm to take you
without fail. You'll meet most of my
friends there. I do hope you're not too
travel worn to go."

"Travel worn! I'm no invalid, Helen.
Travel always rests me. There's no
place I can rest so well as on a Pullman
or a boat."

"But, mother, though you're not an
invalid, you're not so young as you used
to be, and you must take care of your-
self—or let me do it for you."

At this last statement Mrs. Tate
sniffed and a queer look came into her
eyes. "Bosh! Haven't I taken care of
myself and a few others for more years
than you are old?" she asked.

"Of course you have, you dear, and
that is the reason you should let me
now. I'm going to see that you take
life easier. You need a good rest. See
that you begin by lying down this very
minute," she commanded laughingly
as she left the room.

"If she thinks I'm going to sit around
and be coddled, she's likely to have a
change of mind. Haven't I been presi-
dent of the Benevolent Society of First
Church, president of the Wessington
Woman's Club for two years, and sec-
retary of three clubs, and wasn't I
chairman of the knitting department of
the Red Cross all through the War?
And with all that, didn't I manage my
home and do forty-seven other things?
I'm not going to rest on my oars now,
I'll have that child know," she
grumbled.

Instead of resting she wrote three
letters, read a chapter in the book that
one of her clubs was studying, and
mended a pair of gloves. Then she
dressed herself for the tea.

You look like a different woman,
mother," her daughter said as the two
drove off to pick up a friend to take
with them. "Rest is what you need."

"I'm so glad to meet your mother,
Helen," Mrs. Jensen, the friend, re-
marked on being introduced to Mrs.
Tate. Isn't it delightful for you to have
her with you? I quite envy you." She
addressed all her remarks to Helen,
not to Helen's mother.

"We are going to have a beautiful
time this winter. I'm going to make
her take care of herself. She's an ab-
surdly strenuous person and has worn
herself completely out in Wessington,"
Mrs. Graham said.

That's all in Helen's imagination,"
sniffed her mother. "I'm stronger than
she is this minute and have twice her
endurance."

At the tea Mrs. Tate was introduced
right and left as Mrs. Graham's mother.
"I'm delighted to meet Mrs. Graham's
mother," was the gist of the greeting
given her. "I admire your daughter
tremendously."

Toward the end of the afternoon a
little woman stepped up to Mrs. Tate
and said: "I'm Mrs. Hart. You can't
possibly remember all our names, and
I just wouldn't try. I confess I don't
remember yours, but I know you are
Mrs. Graham's mother and I'll think of
you as her mother."

"Tate is my name," flared the owner
of that name.

"Why, to be sure! I'm just a prodigy
of stupidity," admitted Mrs. Hart.
"Please give me another chance."

At home that evening after mother
and daughter had changed their gowns
and were talking over Mrs. Tate's first
venture into Springfield society, Mrs.
Graham asked her mother how she had
enjoyed herself.

Purity



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them—these are the enemies of choc-
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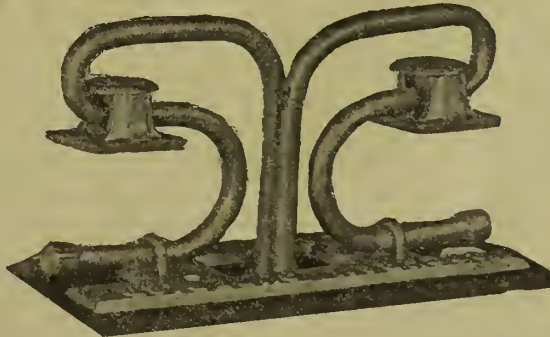
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"Oh well enough! I should have liked it better if only people had got my name straight. Most of them didn't try at all; they called me 'Mrs. Graham's mother.' Tate is the easiest name in the world."

"We think so, but to strangers it may seem a poser. Everyone knows me so well that it is natural they should call you my mother. They simply adore you and said enough pretty things about you to turn your head. I'm sure you made the hit of the season."

"That's just because I'm your mother," she said with an effort to laugh.

"Back home I'm known as your daughter, but here you're quite likely to be known as my mother. But you're tired now and need a rest."

"I'm weary of that word," scoffed the mother, as she picked up a magazine and sat down to read.

There was many a social function in the weeks that followed and at all of them Mrs. Tate was introduced as Mrs. Graham's mother. She was petted and praised and made most welcome by her daughter's friends. Still, Mrs. Tate

noticed that the conversation was always directed to Helen, not to her. It made her feel like a piece of furniture in a corner being talked over.

At the meeting of the various clubs of which her daughter was a member, Mrs. Tate became a regular attendant. She was only a lay figure, however. Never was she asked to take part, that is, not for a long time.

One morning toward spring Mrs. Burton called at Mrs. Graham's home.

"I'm in a peck of trouble," she announced before she had taken a seat. "Mrs. Denny, you know, was to have had a paper on 'The Influence of Modern Novelists' and she's been called to California. Her substitute is down with quinsy. We have simply got to have a good program for the president of the federation is to be our guest. Can't you come to my rescue, Helen?"

"Can't possibly. I'm to have a talk at the Fortnightly Club the day after the West Side Club meeting, and I'd be sure to get my material into a jumble if I tried to do both. If I were not trying to have mother rest I might sug-

gest that you ask her. But she really ought not to undertake it."

Just then Mrs. Tate appeared from a walk, looking hale and hearty.

"Dear Mrs. Tate, don't you want to be a good Samaritan and help me out of a predicament?" Mrs. Burton asked, hardly taking time to say good morning.

Mrs. Tate's eyes brightened. She felt like doing anything for a person who called her "Mrs. Tate."

"I'll be glad to help you. What is the nature of the deed you want me to commit?"

"Just write a paper on 'The Influence of Modern Novelists' for the West Side Club a week from Thursday."

"Even though I've not made a special study of modern novelists, I shall be delighted to make an attempt at the subject."

Mrs. Burton was profuse in her thanks and went on her way rejoicing.

As soon as she had gone, Mrs. Graham began to regret having allowed her mother to undertake the paper.

"But, mother, you were to rest and

get away from all thought of paper and talks and such things," she urged.

"That was all your idea, not mine. Anyhow, I can't refuse to do a favor for one of your friends. Besides, I don't want to get out of practice."

Glad to have something definite to do, Mrs. Tate lost no time in beginning her paper. She delved into her daughter's bookshelves and for days haunted the public library. She labored so zealously that her daughter felt impelled to charge her mother not to overdo, to the evident disgust of that same mother.

On the day of the West Side Club meeting the room was filled because of the visit of the president of the federation. The club president announced that the club would have the rare pleasure of listening to a paper by the mother of one of its own members, Mrs. Graham. "She will now give a paper on 'The Influence of Modern Novelists.' I cannot recall her name, but what does it matter? She's Mrs. Graham's mother to us."

Mrs. Tate flushed uncomfortably under this introduction. She had been thinking that surely her name would be used on this occasion instead of the monotonous "Mrs. Graham's mother." Nevertheless, she arose to read her paper and did it to the admiration of her daughter and to the surprise of her hearers. After the program Mrs. Burton found her way to Mrs. Tate.

(Continued next week)

HOUSEHOLD QUERIES

Strawberry Clabber

Can you tell me how to make strawberry clabber. My father says it is one of the best things he remembers that they had on the farm back East. Maybe it tastes better than it sounds. At any rate I would like to know how to make it for him.—Subscriber, Orange.

Take milk that is just at the point of turning sour and set in the sun or a warm place where it will quickly complete souring. It should get the consistency of baked custard. Set on the ice until wanted. Place cleaned strawberries on serving plates, sprinkle with sugar and cover with the cold clabber.

Coddled Eggs

Are coddled eggs different from soft boiled eggs? I always thought they were the same thing.—Subscriber, Los Angeles.

Coddled eggs are not boiled, but are cooked by pouring boiling water over them, covering tightly and letting stand till both white and yolk are jellied. The ordinary rule is a quart of boiling water to 2 eggs, let stand in warm place closely covered ten minutes. Yolk and white are of an even jellied consistency and the yolk does not run—a feature of the soft boiled egg unpleasant to many people. By the way, eggs poached in this way are far superior to the ordinary "boiled" poached egg.

Easy Way to Wash Windows

Is there an easy way to wash windows? I can get through the rest of the housework, but the windows always seem the last straw.

The easiest way we know is to use wood alcohol. Dampen small cloth and go over windows quickly. No second rubbing or polishing is needed. A little kerosene in clear water is also used by many housekeepers. Where there is dust on outside of windows, wipe off with dry cloth before washing. If kitchen windows are "greasy" rub off first with soft crumpled newspaper.

French Berry Pie

I would like to know how to make the French berry pies served in our cafeterias. They always taste better than mine.—Subscriber, Long Beach.

Bring to a boil three cups sugar and one cup water, remove scum and add 1 quart clean bright berries. Cook four minutes and add one tablespoon cornstarch dissolved in a little cold water, cook until clear, but not long enough for the berries to break or lose color.

Electric Power—

A Servant for the Farmer's Wife

POWER LINES operated by the Pacific Gas and Electric Company, and spreading web-like over much of the state, bring to thousands of farmers' wives the same efficient service that lightens the labors of their city sisters.

Electricity is now the servant of housewives every-

where. Electric washing machines alone have relieved them of a heavy burden. Manufacturers sell these machines on payment plans that are as easy to meet as laundry bills. The power used by an electric washing machine is very low.

What farmer's wife can afford to continue heavy drudgery over wash tubs when such an efficient servant is at hand? What husband would want her to?

Put an electric servant to turning a washing machine for you before the hot months of summer come.



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Cool slightly and pour into baked pie shells. Pile whipped cream on top if liked.

"The Friend"

Would it be asking too much of the Cultivator to reprint "The Friend," a poem which appeared in your columns several years ago? I'm sorry I can't locate it more definitely, but I do want so much to use it right now and it would be a great favor if you could publish it again.—Subscriber, Watsonville.

THE FRIEND

By Charlton Lawrence Edholm

It's not that he's obligin';
Good lookin' or a saint;
Dear God (who made him out of mud)
Knows well that's what he ain't.

He never lent me money;
He never saved my life;
An' he don't like the brand I smoke,
An' I don't like his wife.

He's not so quick an' clever—
That is, not as a rule;
At times (the times we disagree)
He seems a sort of fool.

But still it somehow thrills me
To grip his hearty hand.
I guess the thing that makes us stick
Is that we understand.

I understand the varmint;
Sometimes he savvies me.
An' that's what makes a man your pal
As far as I can see

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

Weighing the child is of the greatest importance, for nothing tells so accurately how well it is thriving." A child should be weighed every week during the first six months and every two weeks during the last six months of the first year; once a month during the second year.

A child should gain from four to eight ounces a week during the first six months. From then until 12 months the gain is less, usually two to four ounces a week. The first week it is apt to lose from four to eight ounces.

Most children gain steadily the first year, although there are periods when no gain is made. This is usually between the seventh and tenth month, when most children are cutting teeth.

A child that gains rapidly in weight, is not always thriving normally, for the prepared infant foods increase rapidly in weight, but not in strength, nor in development in other respects.

A child should hold its head up during the fourth month, and often if the body is supported the head can be held erect during the third month.

A healthy child is usually able to sit erect and support the body at seven or eight months; at the ninth and tenth, to bear the weight upon the feet; and at 11 or 12 months, most children can stand with assistance. The average child is able to run alone at 15 or 16 months. Never urge a child to walk, for just as soon as his muscles and bones are strong enough he is willing to do so.

I am going to give a table showing the average weight, and height, for healthy boys. Girls are about one pound less than boys, but the same in height.

	Weight Pounds	Height Inches
At birth	7½	20½
One year	21	29½
Two years	27	34
Three years	32	37½
Four years	36	40½
Five years	40	43
Six years	46	45½
Seven years	51	47½
Eight years	56	49½
Nine years	61	51½
Ten years	66½	53½

The weights for the first five years are without clothes, and from six years and over are with ordinary house clothes.

HINTS FROM HOUSEKEEPERS

Stewed Rhubarb—Baked Squash

Stewed Rhubarb.—Wash and trim off ends of two pounds tender rhubarb; do not peel. Cut rhubarb in one inch pieces. Put into baking dish and sprinkle generously with sugar, add just enough water to prevent rhubarb from burning. Cover and bake in oven very slowly until tender but not broken. (Slow cooking preserves its color.) One cup of raisins may be cooked with rhubarb. They must, however, be first picked over, stems removed, then covered with boiling

water, drained, then covered again with boiling water and cooked until soft. Arrange a layer of rhubarb in baking dish, then a sprinkle of raisins and sugar and thus continue until all

are used. Finish cooking as directed in the foregoing. Serve very cold.

Baked Squash.—Cut Hubbard squash in pieces for serving. Remove seeds and stringy portion. Put half teaspoon

molasses in each and sprinkle with salt and pepper. Bake in hot oven till tender. Put piece of butter on each portion and serve in shell.—Mrs. W. G. Miller, McFarland.



Bark and Enamel

WHEN you cultivate a young orchard, you take particular care not to scrape the bark off the trees. For when the bark is scratched or broken insects and plant diseases can enter to destroy or decay the tender tissue beneath.

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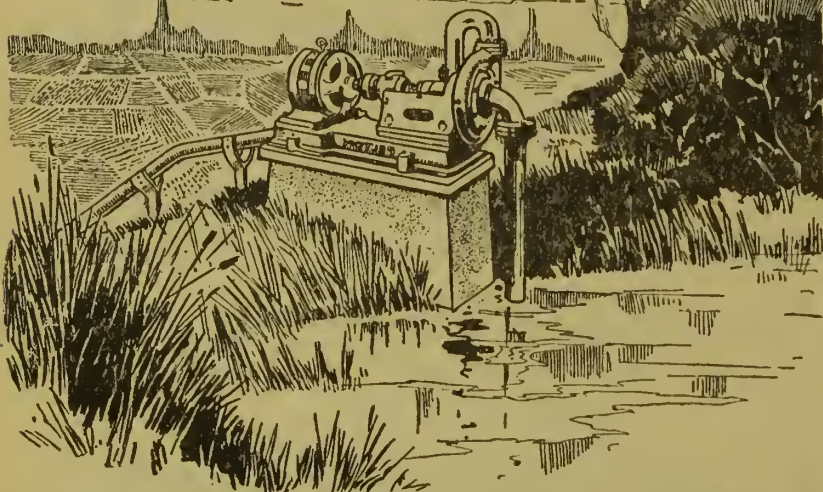
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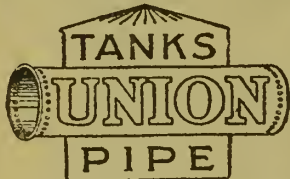
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OUTLOOK FOR LIVESTOCK INDUSTRY

(Continued from Page 543.)

Nebraska, Kansas, Illinois, Oklahoma, South Dakota, California, and Colorado, ranking in the order named.

With a shortage of beef animals that is ever increasing instead of diminishing I believe that I am safe in saying that fat cattle have entered definitely into a profit period. For the experienced stockman who knows how to buy feeders and knows how to feed economically and to the best advantage the present situation is at least as favorable as the average. The faith of the producers in the future of the livestock industry is shown by their active demand for breeding animals. Reports from the West and the Southwest as well as from the Middle West and the Northwest show that the breeding stock of the ranges has been seriously depleted. The outlook for purebred livestock is extremely favorable and especially for those who plan to stay in the game permanently. The day is not far distant when breeders will find it difficult to fill all of their orders. Many of the depleted herds of England, France, Germany, and Belgium and other nations in Europe will have to be replenished from this country. South America, Canada, Australia and other countries likewise are drawing upon our best breeding herds of purebred livestock rather heavily and will continue to do so for sometime in the future.

A striking proof of the reviving confidence and interest in the cattle business is shown by the free movement of stockers and feeders. The March purchases of stockers at the nine principal livestock markets in the United States were 17.20 per cent heavier than for last year. The first three months of 1922 showed a gain of 29.41 per cent. The Kansas City, Omaha and Denver cattle movements indicate that restocking is being carried out on an extensive scale in the territory west of the Missouri River. Recent reports indicate a heavy shortage of yearlings in the Plains Section of North Texas this year and a corresponding shortage of two year olds and three year olds next year and the following year. This is due to the fact that fully two-thirds of last year's calf crop has already been shipped out of that country, and a large number of these were heifers which will further complicate the Texas situation.

Better plans for marketing livestock are being worked out that will prevent gluts and shortages in livestock centers. Our present market system is costly and inefficient. Some zoning system and some method of equalizing receipts over the days, weeks, and months of the year must be worked out and enforced that will stabilize market prices from one season to another. These problems must be solved before the farmer can get a square deal. However, there is encouragement in the fact that the farm bloc in congress and other influences at Washington and elsewhere are working harder than ever before on these problems, and no doubt some very tangible results will soon be apparent.

Considered from every angle it seems to me that the livestock situation is full of promise for a satisfactory and profitable future. So far as I can see the signs of the time point to an increasingly profitable livestock industry that will bring about a widespread and gradual improvement in the nation's agricultural and general trade conditions.

By J. R. Howard, President American Farm Bureau Federation

I have your letter of March 15 in which you refer to the distress and discouragement of the people engaged in the livestock industry, particularly those who are in the beef and hog business. This is hardly the reaction which we are finding in the corn belt states. The prices on hogs have been higher during the past year in relation to the price of corn than they have ever been before. It is safe to count on a one to 12 ratio in the hog feeding game, that is, 12 bushels of corn will produce and usually equal in value 100 pounds of pork. Under favorable conditions it would not take the full 12 bushels.

Corn was down to 25 and 30 cents in the corn belt a few months ago, but at no time were good hogs under \$6.

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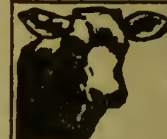
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H. H. Gable Esparto, Cal.

Now corn is up to around 50 cents while hog quotations have been \$11 for the bulk of sales. They are off some now, \$10 per hundred catching the average run on the present markets. The result of this has been the disposition on the part of farmers to keep as many brood sows as possible and with good luck and good weather at farrowing time it is possible that we will have more hogs a year from now than corn. There are some things, however, which make it probable that we can absorb more than the average amount of pork during the next year or two. Statistics show that both beef and mutton are apt to be short. European demand for pork products such as lard and bacon is exceedingly good. They have not yet caught up over there on their fat supplies since the war. The American people seem to be again consuming more meat than they did at any time since the meatless day propaganda of the war.

I am conducting my own personal affairs along regular normal lines with regard to livestock, that is, raising all the corn I can and feeding it all out to livestock on the farm and sometimes buying additional corn. I believe the farmer who is properly equipped to handle livestock and who has the proper appreciation for animals will do well to engage moderately in the enterprise. I say moderately because the great losses have been in the people plunging beyond their resources, and by resources I mean not only financial resources, but the resources of their natural ability as well. The livestock game should never be considered as a get-rich-quick proposition but one which must be consistently pursued year in and year out if success is to be attained.

By John E. Robert, Secretary Zone Five California Cattlemen's Association

Referring to your letter of March 15 will say that there is every reason to encourage any one to go into the livestock business. At the present time there are many reasons for this. You are probably aware of the fact that the number of beef cattle has been decreasing at an alarming rate. For a good many years we have noted a great underproduction. We must realize that the prices that are now being paid for livestock are away below the average exchange level for other food commodities. This simply means that the prices for livestock will either hold their own or go up.

Lambs are at the pre war prices now.

Hogs are up 40 per cent from the low level.

Cattle have not advanced in proportion.

I should be glad to take this matter up with you personally, or if you refer anyone to us personally. The California Cattlemen's Association has accurate and reliable information upon most phases of the industry, and we are willing and glad to furnish this to any member.

By W. H. Walker, President California Farm Bureau Federation

It is difficult to be optimistic relative to the livestock industry. The tremendous loss suffered by livestock producers during the past few years cannot be continued long if the industry is to survive. People must have food and during depressed times producers are driven to the best methods of stock raising, better feeding methods, and more economy in marketing. The last cooperative marketing plans should afford considerable relief if adopted by a large percentage of stock raisers. If the stock raiser in the past two years had received a more reasonable proportion of the price paid by the consumer of milk, meats, or leather, the industry would have a happier memory and a more hopeful outlook.

By Fred H. Bixby, President American National Livestock Association

Your letter of March 15 at hand upon my return from Texas, Colorado and New Mexico. Relative to your inquiry concerning the livestock business, and more especially cattle and hogs, I have only this to say.

1st. If I were not already in the cattle and hog business I would start

in right now.

2nd. If there ever was a necessary industry in the world, it is the cattle and hog industry.

3rd. Without a doubt within the next two years there will be what might commonly be termed a beef cattle famine even in California where ordinarily 25 per cent of the beef killed is "she" stuff. During 1921, 40 per cent of the beef killed was "she" stuff. Great numbers of calves have been slaughtered, in fact all over the United States about the only thing that was saleable was a veal calf. Therefore calves have been sold continually for the last year and a half, that ordinarily would have been grown until two or three years of age before selling. Forced liquidation has caused this unheard of selling of calves and cows.

4th. It is possible now through the activities of the war finance corporation for a man entering the cattle business to borrow money at 7½ per cent; formerly he had to pay from 10 to 12 per cent.

Anyone wishing to begin the cattle business today, if he can show to the inspector that he has feed for cattle, can borrow 80 per cent of the money necessary to invest in the cattle themselves. In short, he needs first to provide feed and pasture, second to advance 20 per cent of the amount of money necessary for the purchase of cattle, and he can borrow the balance at 7½ per cent for a term of three years.

5th. Relative to conditions in California, I have only to point out the fact that the California cattle owners for the last two and a half years have received more money for their cattle than any other cattle owners in the United States.

6th. Relative to the hog business I will say that there is a great shortage of hogs in California. Trainloads have been shipped in from outside states in order to supply pork and pork products to the consumers in California in the last year. Prior to 1921, most of the pork was shipped in, salted.

The hog business if properly run is the surest money maker that I know of in the state of California today.

I am not advising anyone to enter what is commonly called farming with the expectation of making any money, but I am advising the entrance of any economical, thrifty individual into the

cattle or hog business, provided he farms only enough for his own use, and provided that he runs his farming and livestock operations on an economical businesslike basis.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
May 23-24, J. S. Gibson Estate, Williams.
June 1 and 2, Burr Farm, Los Angeles.
Shorthorns
May 25, Caledonia Farms, West Sacramento.
Sheep
June 15-16, Annual Ram Sale, California Woolgrowers' Association, Davis.

Mention has been made in these columns recently of the wonderful transmitting qualities of the great Holstein bull, Toyon Fayne Valdessa, who is at the head of the Agee Brothers herd at Rivera. Bred to an indiscriminate herd of females his daughters are exceptionally uniform as to type and all good ones. They are beginning to freshen with their second calves and are showing great uniformity in production also. Five junior three year olds have been tested recently and all have milked over 525 pounds in seven days and made over 21 pounds butter. All are out of untested dams. Paragon Aaggie of Rock made 30.1 pounds butter from 526 pounds milk in 7 days and 121.6 pounds from 2370.9 pounds milk in 30 days. Paragon Ormsby Segis Valdessa, who is a half sister to Hartsook's three times world's record heifer, made 28.9 pounds butter from 549.7 pounds milk in seven days. Paragon Ormsby Valdessa made 552.5 pounds milk and 24.9 pounds butter in seven days and 103.75 pounds butter from 2367 pounds milk in 30 days.

Riverside is rapidly becoming a center of the Guernsey industry. W. H. Dupee, former owner of the biggest Guernsey breeding establishment in the state at Santee, in San Diego County, is assembling a small but exceedingly choice herd at his new home, Rosemoor Farm, near Riverside. G. T. Drinkwater, another well known dairyman of San Diego County, is planning to move his fine herd of Guernseys to the same vicinity. Within a radius of a few miles are the

herds of Wessels & Mahoney at Chino, W. Rapson at Corona, the Italian Vineyard Company at Guasti, W. P. Hodge at San Bernardino and Geo. De Vries at Redlands. It is rumored that two or three other well known dairymen of the same vicinity are planning to join these men in the Guernsey business and help to make the district the "Waukesha County" of California.

Peter B. Kyne's Sierra Vista Ranch at Perris, which is now being managed by B. H. Wilkinson, is going right ahead with the Holsteins. A recent deal has increased the breeding females to 24 and taken the last bull calf the ranch had for sale. A majority of the cows have excellent official records, and a junior two year old, Rosamaines Fair Tolia, has just finished a seven day record of 20.44 pounds butter from 419.4 pounds milk. These animals were used in the dairy demonstration at the Riverside farm bureau picnic held on the ranch, May 12.

D. J. Bastanchury of the Bastanchury Ranch, near La Habra, and the chamber of commerce will entertain the Southern California Pure Bred Association at the May meeting at La Habra on Saturday, May 27. Quite elaborate preparations are being made for this meeting. The livestock department of the Orange County farm bureau under the direction of Assistant Farm Adviser Floyd Scott is looking forward with much interest to this meeting, and all breeders or prospective breeders of the county are urged to attend. A general invitation is being extended by Secretary W. W. Van Pelt, and those, in addition to the membership, who are interested in pure bred livestock breeding are urged to signify their intention of attending to either W. W. Van Pelt or Mr. Scott, and accommodations will be reserved.

Kenneth Abbott of the Burr farm reports considerable interest in the big herd of Holsteins which will be dispersed June 1-2 at the Burr farm. One of the features of this sale will be nine head of open yearling females, sired by such bulls as Sir Vee-man Korndyke Pontiac, who sired Earl Graham's world record heifer, and King Korndyke Pontiac 20th. This bunch of babies would make someone the finest foundation herd imaginable.

THE HOLSTEIN SALE OF THE SEASON

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FOURTEEN DAUGHTERS OF SIR VEEMAN KORNDYKE PONTIAC, a wonderful group of daughters of one of California's greatest proven young sires.

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SIX DAUGHTERS OF THE 35 LB. BULL, KING SADIE VALE IDYL SEGIS, who already has a 25 lb. junior 2 year old daughter.

FIVE DAUGHTERS OF KING DIAMO, a 29 pound son of Colantha Johanna Champion.

THREE DAUGHTERS OF KING KORNDYKE BESS WREN, out of a yearly record daughter of Sir Pieter Ormsby Mercedes and by a son of a 1235 lb. yearly record daughter of the same sire.

THREE DAUGHTERS OF COLANTHA KING ABBEKERK, a son of Tidy Abbekerk King and a daughter of King Fayne Segis.

TWO THREE-QUARTER SISTERS TO THE NEW WORLD'S RECORD 32 LB. 2 YEAR OLD, PIETERTJE ORMSBY MERCEDES FRISBY.

FOUR DAUGHTERS OF THE 1000 POUND BULL, SIR MANUEL HENGVERVELD, out of good dams.

Besides the foregoing groups a wonderful list of sires is represented by daughters in this sale, including: Matador Segis Walker, King Mead of Riverside, Prince Riverside Walker, Sir Aaggie De Kol Acme, King Pontiac Netherland Segis 3rd, King Korndyke Pontiac, Prince Hiske Walker, Segis Pontiac Crane De Kol, Cedar Lawn Sir Hengerveld Johanna, and others of high quality.

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RIVERSIDE COUNTY FARM BUREAU PICNIC AT SIERRA VISTA RANCH

Over 200 members of the Riverside County farm bureau attended the picnic held at Captain Peter B. Kyne's Sierra Vista Ranch at Perris on Friday. A majority of them were enthusiastic livestock men and women, and the principal feature was a judging contest open to all. Over 50 entered this contest. Each one was required to judge a pen of Duroc gilts owned by the Sierra Vista Ranch, a pen of Hampshire gilts owned by F. A. Langdon, a pen of Berkshire gilts owned by Hall Bros., a class of Holstein yearling females and one of cows, all owned by Sierra Vista Ranch, a class of Jerseys owned by T. N. Watts, one of Shorthorn heifers owned by Hall Bros. and F. A. Langdon and two classes of horses, one of work stock owned by H. B. Martin and the other of pure bred Percheron mares owned by Hall Bros. The animals used in the classes were all owned in the neighborhood and were supplied by some of the best known men in the different breeds.

The most striking class was that of the Holstein cows. It was typical of the herd the Kyne ranch is building up, and it was a fine sight from show ring standpoint alone. The animals were closely matched and it was with difficulty that the amateur judges placed them. All five of the cows had seven day records of considerable merit and four of them have lately finished yearly records. It is seldom that in a small herd one will find so many good individuals of such high records. At the head of the class was placed Juliana Canary Mercedes who made 27 pounds in seven days and 1024.34 pounds from 2621.5 pounds milk in 365 days as a junior three year old. This was the first cow put on test on the ranch and her record would be a credit to any breeder no matter how long he had been in business. The others in the class were Dorothy Pontiac with 30.04 pounds butter in seven days and 1038.32 in a year as a four year old, Rosamaines Novena Netherland, a junior two year old with 22.53 in seven days and 852.31 pounds in a year, Rosamaines Nancy Spofford, a 20 pound two year old who made 813.33 in a year and Aralia Rose, a junior three year old with a 26 pound seven day record. Jack Shillcock, well known Holstein booster and representative of the Globe Mills, placed this class as it should be after the crowd had finished. Harry Nelson, formerly with the Gossard Breeding Estates, judged the horses. A youngster about 14 who proved to be a son of Ed Stalder, the well known Holstein breeder, was the high man and was awarded a Duroc gilt sired by Royal I Am, the boar with which the Kyne ranch carried off every championship in California and at Portland, last year. Another little fellow named E. Pitney was second and was awarded \$2.50 in cash. In the ladies contest Mrs. Kepner of Perris was first and Mrs. Cole of Riverside was second.

After the judging there were speeches by Noel Negley of the U. of C., J. E. Wherrell of Riverside, Harry Nelson, C. W. Lothrop and others.

THOMAS JERSEYS SELL WELL

For the first time in some years the Jersey fanciers of Southern California had a chance to buy pure bred females of their favorite breed at auction when George W. Thomas of Riverside sold his entire milking herd at Hynes on May 9. Mr. Thomas is an old and established breeder and his herd included many choice individuals. A large portion of the offering was made up of first and second calf daughters of Sir Watkins Noble's Raleigh, a grandson of the great Noble of Oaklands and out of the cow Sir Watkins Convent Lass who has a Register of Merit record of 482 pounds butter fat in a year. It was no trouble to sell these heifers as practically all have very fine records, either in the Register of Merit or in the Riverside County cow testing association. Mr. Thomas has never milked his test cows under any other than herd conditions and only twice a day. The average of the herd at the time of the sale was about 40 pounds butter fat a month.

The herd was composed very largely of the big, American type of Jerseys,

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but even so it has been quite successful in the show ring during the past years, and last fall Mr. Thomas won the most coveted prizes, breeders young herd and get of sire, defeating such breeders as J. E. Wherrell and Jim Thorpe at the Southern California Fair.

Another feature that aided the sale was the fact that in years of testing for tuberculosis there has not been a reactor in the herd.

F. R. Bain, president of the Southern Counties Gas Companies, who has a farm at Palms, just outside Los Angeles proper, was the heaviest buyer and took 11 animals including the top of the sale and the three next high ones. The top at \$525 was a beautiful first calf heifer, Noble's Fern of Golden Glen, who is by Sir Watkins Noble's Raleigh and out of Petite Fern who has made 315 pounds fat in 6 months. Her dam and her paternal half sister, brought \$500 each. Mr. Bain has established a fine herd of the yellow cows and at the head has a young bull, Gamboe's Majesty Falcon, one of the best bred males in the West. His purchases in this sale will go far toward rounding out his herd.

George E. Clayton of Glendale and J. E. Wherrell, the premier Jersey breeder of Riverside County, were both large buyers. Ten head of good ones went to various men from Orange County where high testing milk is in demand.

The total for the 45 females was \$11,995 at an average of \$266.50 each. In view of the fact that a heavy rain fell all the night before and during the morning, this was a very good average. Unquestionably, had the weather been fine, there would have been double the number of buyers and the prices would have been correspondingly higher.

The sale was in charge of the old reliable sales firm, the California Breeders Sales and Pedigree Company, with C. L. Hughes, the secretary, as pedigree man and Rhoades and Rhoades as the auctioneers. Given a good offering of cattle this combination never fails to bring the highest returns.

A detailed list of the sale offering follows:

Purchased by F. R. Bain, Palms
Queen Wayno, \$410.
Noble's Vilda, \$500.
Petite Fern, \$500.
Noble's Fern of Golden Glen, \$525.
Dame Vilda, \$425.
Gay Theta, \$225.
Walnut Park Kate, \$190.
Anna of Golden Glen, \$495.
Ora of St. Cloud, \$275.
Mildred's Noble Rose, \$275.
Sultan's Fancy Grace, \$350.

Purchased by J. E. Wherrell, Riverside
Raleigh's Prim, \$300.
Watkin's Ruth, \$210.
Dollie of Golden Glen, \$150.
Noble's Sarah Louise, \$160.
Jolly Daisy of Riverside, \$190.
Raleigh's Lady Flossie, \$165.
Noble Raleigh's Star 2d, \$225.
Jeanette of Golden Glen, \$110.
Eminent's Gold Lady, \$200.

Purchased by George E. Clayton, Glendale
Watkin's Vilda, \$350.
Sir Watkin's Theta, \$300.
Mary Maiden's Pride, \$125.
Erim of Golden Glen, \$145.
Grace's Wild Flower, \$400.
Gracie's Alexa, \$400.
Heifer not cataloged, \$225.

Purchased by Mrs. Carrie Phelps, Burbank
Ditty's Ella of Golden Glen, \$165.
Hebron's Rose Marie, \$200.
Raleigh's Mary Ann, \$160.
Doris Toyo, \$230.

Purchased by Plavan and Stringer, Santa Ana
Noble's Jewel Maid, \$245.
Noble's Rialto Lass, \$195.
Rosebud's Cream Lass, \$275.

Purchased by C. S. Benney, Cudahy
Signal's Pet of St. Cloud, \$210.
Queen of Golden Glen, \$325.
Vilda's Fawn, \$375.
Spotted Melia Ann, \$260.

Purchased by E. A. Sutton, Artesia
Noble's Jewel Girl, \$110.
Jersey Ditty, \$110.

Purchased by Raitt Dairy Co., Santa Ana
Valentine's Jenny, \$260.
Ruth of Golden Glen, \$285.

Purchased by D. E. Huff, Orange
Adeline of Golden Glen, \$105.

Purchased by W. H. Rough, Arlington
Dame Mauks, \$350.

Purchased by M. Babylon, Santa Ana
Heifer not cataloged, \$300.

The goat show at the Southern California fair this year promises to be the biggest and best ever held anywhere. The fair officials are going to do a little more enlarging of the goat pavilion, and after that it will be a case of showing only goats of highest quality. Entries are coming in now, and it is understood that quite a number of animals from the East will be on hand.



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A truer statement was never made. Ask any one of the millions of De Laval users and they will invariably reply, "My De Laval doesn't owe me a cent. It paid for itself in less than a year, and ever since has been making me money."

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There is a De Laval Separator just right for you, no matter if you have one or a thousand cows. Furnished with hand, power, electric or steam turbine drive. See your De Laval Agent now or write us about getting one.

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Sir Aaggie De Kol Mead



Bred in the richest Aaggie Acme-De Kol of Valley Mead cross, he should be one of the greatest young sires of the breed.

Five of his seven nearest dams average:

Butter	2 Years.....	2,040.97 Pounds
Milk	2 Years.....	41,547.20 Pounds
Butter	1 Year.....	1,130.66 Pounds
Milk	1 Year.....	23,096.60 Pounds

His seven nearest dams average:

Butter	7 Days.....	30.47 Pounds
Milk	7 Days.....	627.60 Pounds

His calves are just what we could expect from a long succession of great sires and dams, and in their present state of development fulfill every promise in the pedigree of their great sire.

Good business judgment will eventually prompt you to place at the head of your herd a bull of Aaggie Acme-De Kol of Valley Mead breeding.

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POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. County farm advisors, county agents, large, small ranchers, city people have for years bought these 180-290 egg Leghorns, Reds, Rocks, Minorcas, Anconas, Wyandottes, Andalusians, Ducks, Turkeys. They lead many egg-laying contests, are growing in popularity yearly. Why? **ELECTRIC HATCHED**, vigor, growth, winter-laying, profit, guarantee. All feel as this customer writes: "Count me among your boosters." Very low May, June prices. Smallest, largest orders welcomed. Chicks, Turkeys now grow quickest into profit. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

BABY CHICKS

Every Day—Ducklings, turkeys, hatching eggs—dogs, cats, birds, rabbits, pullets.

Write for prices.

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640 So. Main St. Los Angeles

White Leghorn

BABY CHICKS

\$10 per 100

May, June, July

STEELE'S EGG RANCH
Phone Gardena Exchange 692
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BABY CHICKS

White Leghorns, Anconas, R. 1. Reds. Special prices for May-June-July

THREE MONTH OLD PULLETS
All selected—no culls

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Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 600 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

Bargain Prices on Purebred, good laying Stock White Leghorn Chicks by insured prepaid Parcel Post, \$10.35 hundred—\$100 thousand. We can fill large or small orders promptly, May and June and please you as to quality. Order direct, or send for interesting circulars. The Mission Hatchery, Box 27, Campbell, California.

White Leghorns—Eggs for hatching; 100% fertility guaranteed. Absolutely first class cockerels and pullets ready soon. Finest laying strain. Prices very reasonable. Send for folder "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, California.

Baby Chicks: Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box C, Compton, California.

Baby Chicks during May and June. Prices reduced. Several open dates. Not too late to raise good pullets. R. 1. Reds, Barred Rocks, White Leghorns. Write for circular. Brown Leghorn pullets ready for shipment now. Stubbe Poultry Ranch & Hatchery, Box 67E, Palo Alto, Calif.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week, Black Minorcas, Barred Rock, Rhode Island Red, White Leghorn, Hoganized stock. Safe arrival and satisfaction guaranteed. To-bener Hatchery, Route 2, Box 306, San Jose.

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. Charles H. Volden, Los Gatos, California.

Beautiful Chinese Ringneck Pheasant Eggs \$3.00 per dozen. El Nido Pheasantry, Fair Oaks, California.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

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Filling Orders for White Muscovy Quackless Duck Eggs 35c each. White Wyandotte eggs \$3 and \$5 per setting. Goose eggs 50c and \$1 each. Few breeders for sale. Turkey eggs from Chicago, Madison Square and several coast show winners, 50c, \$1, \$2, \$3 each. Guinea fowl, \$5 a pair, eggs \$2 per setting. White King pigeons \$3 unmated pairs, \$5 mated pairs. Special price in quantities of over 25 pair. S. C. White Leghorns from \$5 to \$10 per setting; utility eggs \$20 per hundred. Partridge Plymouth Rock eggs \$5 per setting. Few fine matured pea fowl, single or in pairs, \$35 and \$50 a pair. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

For Sale—10,000 Baby Chicks every week from California's finest breeding flocks. This season our chicks are hatching exceptionally well, stronger and larger than ever. Leghorns from the famous Craig breeding flock \$12.50 per hundred. Many leading ranches buy these to get new blood. R. I. Reds and Barred Rocks \$15.00 per 100; Light Brahmas 25 cents each. P. Cook Chick Ranch, 1717 Valley Blvd., Alhambra. We ship everywhere.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred heavy laying strain of S. C. White Leghorns, a result of 17 years of the most careful breeding and selecting for laying and standard qualities. April and May delivery at \$13.00 per 100 and \$12.00 per 100 in lots of 300 and more. Correspondence solicited. J. R. HEINRICH, POULTRY YARDS, ARROYO GRANDE, CALIF.

Santa Cruz Chicks: Our Specials are White Leghorns, Buhman's White Wyandottes and "Hill Crest" Reds, but also hatching choice Brown Leghorns, Anconas, Buff, White and Black Minorcas, Barred and White Rocks and Reds, Buff Orpingtons. Interesting folder ready. E. W. Archibald, Soquel, Santa Cruz County, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. E. W. Ohlen, Campbell, California.

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"Eastman's Bred-to-lay" Hoganized and traped Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

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Turkeys—Pure-bred bronze—Goldbank—Copper King V strains. Flocks headed by four famous Madison Square Garden winners, including Goldbank VIII, Goldbank Boy, Goldbank King and Copper King's Boy, bred to 20-lb. hens. Eggs in season. Bronze King Farm, Route 2, Box 88A, Merced, California.

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Choice White Holland Turkey Eggs 50c each; pullet eggs 35c each. A few White Holland toms \$12 each. L. A. Robinson, Hemet, California.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California.

GUINEA PIGS

For Sale: Guinea Pigs, males \$1.50; females \$1.75. Al Kelly, Box 28, Eagle Rock, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

For Sale—Duroc Jersey Boars—Constructively bred Durocs that are line bred Defender Durocs from a long line of big type ancestors. Clarence Scott Estate, Winters, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

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For Sale: My entire herd of milking registered Jerseys. These are of the St. Lambert strain, are large animals and heavy producers. I have been eleven years culling and building my herd. There are 3 full sisters sired by Pansy's Gertie Lad 104963, he by Gertie Lad. Others are sired by Goldie's Altama Interest 151888. All go or all stay. Am short of hay and want a rest. One of above sisters has record of 742 lbs. of fat and will receive a gold medal from A. J. C. C. Have never had abortion. These cattle are in best of condition. D. F. Conant, Route B Box 231, Modesto, California.

For Sale—Three Registered Jersey Heifers. Two daughters and one granddaughter of the famous prizewinning Empress Lass. Empress Iva due to freshen soon with second calf, other two not bred, will be soon. Such high class breeding stock is not often to be had; \$600.00 takes the three. One alone is worth the price to one who can appreciate breeding both for type and production. G. A. Moore, R. A. Box 41, Ripon, California.

For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old mules and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. Chas. Hubbard, Owner, Riverdale, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman Willits, Mendocino County, California.

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

For Sale: Registered Holstein cows and heifers of excellent breeding; fresh and heavy springers; Bred to our (\$5000) sire, Karlay Pontiac Tola Joe. Priced for quick sale. Live Oak Stock Farm, San Luis Obispo, Calif.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

For Sale—25 young first class graded Holstein cows, bred to excellent pure bred Holstein bull. W. H. Nyswonger, R. C. Box 123, Hanford. Phone 7 F 4.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

Registered Herefords—Anxiety IV strain. Breeding stock for sale. Chas. Rule, Duncans Mills, California.

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\$2 ACRE MISSOURI FARM \$2400 WITH HORSES, 14 COWS AND Heifers, bull, equipment included; splendid location for dairying; close village, creamery, handy RR Town; 50 acres rich lime soil tillage, spring-watered pasture; plenty wood, timber; variety fruit; pleasantly situated dwelling, nearly new barn. Busy owner writes "sell for \$2400" part cash. Details page 105. Illus. Catalog 1200 Bargains. FREE. STROUT FARM AGENCY, 831 HK New York Life Bldg., Kansas City, Mo.

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For Sale: 10 Acres on Paved Street, near Arcadia, California. Excellent soil, double water system, water piped in house, yard and barn. One acre bearing walnuts, plenty fruit, 4 room house, electric and water. Barn arranged for dairy. Six acres of fine potatoes and all crop goes \$15,000. Terms. J. A. Moran, R. 1, Box 47, South 6th Avenue, Arcadia, California.

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, Oscar Lehner, 3120 Colton Avenue, San Diego, California.

Buy a Home—Fifteen years to pay. Low rate of interest. Alfalfa, Raisin, Grape, Prune, Figs. Everything grows here. Ask—Williams Chamber of Commerce, Williams, California.

25 Acres Citrus Land, 800 pedigreed navels being put out, plenty water, pumping plant \$7,500. Oscar Lehner, Owner—3120 Colton Avenue, San Diego, California.

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For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale: Good grape land, 20 acres \$225 per acre. No. 27 Shawmut, California.

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SUDAN GRASS SEED

(The Great New Hay Crop)
First Introduced in the United States 1909 from Sudan, Africa. Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre, grows 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings. Pasture. It will yield food for six times as much stock as any other forage with out irrigation. For milk cows and horses there is no better and more abundant pasture than Sudan. It will solve the hay proposition as nothing else can will do in this climate. This seed grown on our farm and is free from John son Grass.

Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$7. 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.

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721 J St. Sacramento, Cal.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jersey, Large White and Red. Ocean View Nursery, Jordon and Casey, Box 4, Manhattan Beach. Phone 4951 Redond

For Sale—Sweet Potato Plants, Jersey Yellow, \$4 per 1,000. Georgia Yams (Southern Queen) (White), \$1 per 100. Ad 40c per 1,000 for parcel post order. Ready about March 15. B. F. Crutchfield, R. F. D. 3, Box 6, Santa Ana, Cal.

Sweet Potato Plants—Yellow Jersey, \$3.1 per 1,000, F.O.B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, California.

40,000 Rootings—Price down; Emperor Thompson, Sultana, Muscat, Alicante Malaga. Write for circulars, Box 500 Fowler, California.

California Wonder Corn doubles the yield. Over four pounds, 25 cents; over 2 pounds, 15 cents. James McKee, River side, California.

For Sale—Banana Squash Seed, 50c per lb. T. J. Murray, 7050 Kester Ave. Van Nuys, California.

Sweet Potato Plants—Yellow Jersey V. Imbert, Norwalk, California. Telephone Downey 1186.

For Sale—Wagner's Winter Amber Rhubarb \$50.00 per 1000. Mrs. W. A. Sewell, 3343 E. Colorado, Pasadena.

For Sale: Yellow Sweet Potato Plants strong stock, \$3.00 per 1,000, F. O. B. Santa Ana. S. D. Teel, R. D. 3, Box 8.

Sour Orange Seed, fresh from Florida. Immediate delivery. Milo Hunt, Whittier, California. Phone 250.

For Sale—Sweet Potato Plants, 1/2 mile east of Stanton, Route 1, Box 47, Anaheim, California, E. Willard.

MACHINERY

For Sale—Milo surface irrigating pipe. New 3 inch at \$12.90 per 100 feet; 4 inch at \$16.75; 700 feet used 8 inch; 500 feet used 10 inch; 2000 feet light conductor pipe 6 inch but a good buy at \$12.90 per 100 feet. Don't wait till dry weather and expect to find this pipe in stock. Demmitt Co., 120 North Main St., Los Angeles.

For Sale—Rebuilt windmills, tanks, pumps, cylinders. Make galvanized tanks, 300, 600, 1,000, 2,000 gal. Our prices will tell. Irrigating pipe, all sizes, for less. Why pay more? Demmitt Co., 120 N. Main; Yds., 816 Yale, L. A.

For Sale—15 H. P. Fairbanks Morse portable gas engine with friction clutch, good condition, price \$250.00 F. O. B. Santa Ana. W. A. Collins, Box 397, Santa Ana, California.

For Sale: Deering Combine Harvester Thresher—nearly new. Price \$1000.00. Address Dr. J. Koch, Box 41, Lancaster, California.

For Sale—Fairbanks 50 H. P. Type N. F. Clarkson, 610 S. Van Ness, Los Angeles.

MISCELLANEOUS

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picoting Attachments fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

3-Pound Box Absolutely Boneless Codfish, fine white, new catch fish, delivered by mail, \$1. Coffin Fish Co., Seattle, Wash.

TREES

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-V.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

For Sale—Navel and Valencia Nursery stock—not frosted. W. B. Ames, 9th floor, Merritt Bldg., 8th and Broadway, Phone Pico 1156, Los Angeles.

WANTED

Wanted: Men With Spare Time to represent established California company selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

A Big Crowd Attends Los Angeles County Dairy Picnic

By Jack Klein

ALTHOUGH nothing much is said about the dairy business in Los Angeles County it is way up among the leaders of the state in this industry. The big city of Los Angeles provides the best whole milk market in the West and it is almost impossible to get enough milk from the immediate neighborhood to supply the demand. In consequence dairying is in the hands of men of education and refinement and men who are eager to adopt any method that will improve the industry. The cow testing association of Los Angeles County is one of the largest in the whole country and one of the best. It continually preaches breeding, weeding and feeding and every year many non-productive cows are sent to the butcher through its efforts. This has tended to raise the average of production per cow and will continue to do so. It also preaches the use of the pure bred sire, not the pure bred because he has registration papers but pure bred because he has a long line of great ancestors and because he is out of a high record cow. With prices as they are now it is possible to buy a high record bull calf for what would have been paid for a scrub a year or so ago, and there is no excuse for any dairymen having a poor bull.

The Los Angeles County Cow Testing Association each year carries on a contest among its members and twice a year a picnic is held at which the results are announced and the monthly or yearly prizes are passed out. The picnic commemorating the end of the first half of the 1921-22 contest was held recently at the Adohr Stock Farm at Van Nuys. This is the place where over 400 grade and a few pure bred Guernsey cows are producing certified milk, and it is the only place in the world where milk grading 100 per cent in a contest has been produced. The 200 or more members of the farm bureau present were augmented by the traveling farm bureau congress made up of the farm advisors from all over the state, and quite a crowd was the result.

Assistant Farm Advisor G. E. Gordon who is in charge of the dairy division presented a number of concrete examples of the use of better sires through groups of animals. He first of all attempted to prove to the crowd

that one cannot pick the best dairy cow by looking at her. He had seven cows lined up with a printed record of the seven over their heads. The catch was that the record did not disclose which cow had made the 200 pounds nor which had made over 600. This was a part of the guessing contest. In a contest like this usually the worst looking cow is the best milker and most profitable one to have but this time the best looking cow was the best milker and nearly everyone got the first place right. Almost none was right on the second choice. The Babcock test combined with weighed milk is the only way in the world that the seven cows could have been given their proper rating on production.

The most interesting group was of four generations of females starting with an old imported pure bred female who in her best year on test made 164 pounds butter fat. Her pure bred daughter stood next to her, the result of a breeding to only a fair Guernsey bull, and she in her best year had made 298 pounds butter fat. Both of these records were made as mature cows. Next to this one was her daughter by a wonderful bull and her record as a two year old was 404 pounds fat and more than three times as much milk as her granddam had given. The last one of the group was this heifer's yearling heifer also by a wonderful bull, whose production is of course an enigma but there is every reason to believe it will be good. Not such a high percentage of increase perhaps because the higher up the record goes the harder each extra pound is to make. The advancement in refinement, individuality and conformation from the old cow to the heifer was so apparent that but little comment was necessary. Other smaller groups were shown to emphasize the same idea.

One of the frequent questions asked through the crowd was why the Adohr Stock Farm after years in the cow testing association would keep a cow whose best year netted only 164 pounds butter fat. First of all that is just about the average production of all the dairy cows of California and while it looks small in a herd where many of the cows average over 500 pounds it is pretty good when compared with others. However, that is not the reason she is there. The demand for the product of this farm is so great that a cow producing only that much can do so at a profit when her milk is sold at 28 cents a quart, and she can feed a number of babies in a year. Guernseys for this herd have come from all over the Union and more are in demand. There is no animal in the herd which has reacted and none from herds where there are more than ten per cent reactors. It is easy to see that cows of this kind are hard to get. It is only a question of time until the herd will be big enough to supply the demand and then culling can begin. Using the great bulls they have the daughters cannot fail to be good ones.

Four of the herd sires for this grade herd were brought out for inspection. At the head of the line was Inspiration of Edgemoor, a well known show bull, whose two nearest dams average 865 pounds butter fat in a year. His grandsire was grand champion of the last National Dairy Show and his dam was first prize A. R. cow in the same show. Incidentally she has a record of 796 pounds butter fat at three years of age. Another good one in the line was Reuben King of Hollow-Hill Farm who was a sensation at all the fairs in 1920 and whose dam is the state champion cow in her class with 747 pounds fat in a year. The average record of the dams of the four bulls was over 650 pounds in a year. There are few pure bred herds that can say as much.

One of the most interesting exhibits was the window full of silver cups which will be given out at the end of the present contest. These cups are the donations of various business enterprises which seek to foster the work of dairying and breeding.

After the barbecued lunch which was a wonder, President Rosecrantz of the farm bureau awarded the ribbons

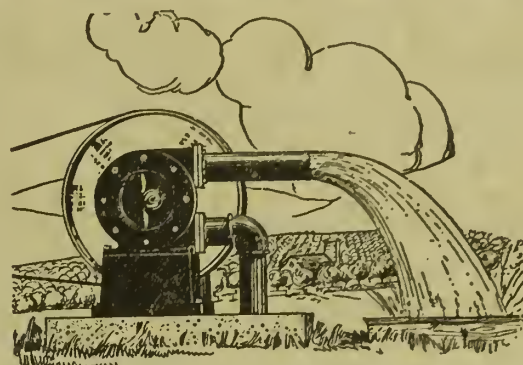
for work done in the first six months of the year. Fred Hartsook has the most first prizes to date with the Maxwell Farms a close second. The Adohr Stock Farm, Harry White, Pellissier, L. A. County Farm and Agee Bros. are also well in the running. The Santa Monica Dairy Company which won the herd prize last year for herds of over 150 head has already won this honor six times this year.

Following the presentation of the

ribbons Superintendent Harriman of the Los Angeles County Farm, who is chairman of the cow testing association, made his semi-annual report in which he said in part:

"It is now four years since the organization of the cow testing association in this county. At that time one tester was employed and the members' herds numbered approximately 900 head. Today three men are constantly (Continued on Page 563.)

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PUMPS

SOME pumps convert only 40% of the power supplied into useful work—others more, some less. The VIKING utilizes over 60%. That is why it keeps power bills down.

The Viking represents the highest development of the Rotary Principle. It is positive in action—each revolution of the impeller draws in a definite quantity of water, passes it through the pump and FORCES it out the discharge—no churning of water in the pump casing—no unnecessary waste of power.

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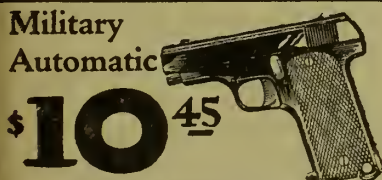
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and Agglutinating signifiers. Made by The Labora-
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scientious endeavor in one line count for something.
The Cutter Laboratory
Berkeley (U.S. License) California

Poultry Queries

Conducted by Jean A. Koethen

Cholera

I have lost hundreds of chicken with cholera since we came to California, in spite of keeping everything clean. Last night I found my big Barred Rock rooster drooping. Droppings of

older fowl are green and white and those of young birds white. We feed whole barley cooked till it bursts open; cannot afford high priced feeds. The young birds have whole wheat. Is castor oil good for the sick ones?—Subscriber, Corning.

Unquestionably it is that diet of cooked barley exclusively that is upsetting the digestion of the birds. Some hard grain is necessary to keep

the digestive organs in condition, and this must be balanced with some ground grain. If a regular laying mash seems too expensive buy a sack of bran and keep a box of it before the hens, adding a handful or so of beef scrap once in a while. Cook up your potato skins, apple parings, pumpkin rinds, carrot and turnip parings, and all kinds of kitchen refuse, and thicken with bran. Feed this once a day at any hour you prefer. Then for grain it would be better to sprout the barley for a time and feed milo or wheat or cracked corn or wheat with either milo or corn. Two grains are always better than one. Your young birds also should have bran. If you possibly can, add a little coarse cornmeal. Corn is an important part of the ration of growing stock. Equal parts bran and cornmeal with 10 to 15 per cent beef scrap added is what they ought to have, but if they are on range they will do pretty well without the beef scrap. If this is really cholera the only remedy is to clean and disinfect the premises thoroughly and add 1-5000 bichloride of mercury to the drinking water, but I believe if you give your birds a balanced ration, with grit to grind it and as much green feed as they will eat, they will get well without other treatment. Castor oil is all right if you change the ration but of little use as long as you continue to feed the wrong food.

Poultry Wanted

A subscriber wishes to know who has Partridge or Buff Rocks.

Ammonia Odor

On several occasions at various intervals perfectly fresh eggs have strong smell of ammonia when boiled. We gather all eggs every day at houses and yards are kept clean and well ventilated with plenty of sunshine.—Subscriber, Mountain View.

Such an odor can get into the egg in one of two ways. Either it is from something the bird ate before the egg was laid or has been taken in through the pores from contact with or proximity to some object with that odor after it was laid. It is generally believed that fish, onions, garlic and other strongly flavored foods flavor the eggs when eaten in large quantities by the hens. Keeping eggs in close cupboard or cellar where such odorous things were stored might have a similar effect. It seems to me possible that an egg might acquire the odor of ammonia by lying for several hours in a warm nest in which there was hen manure. Scratching in horse manure might conceivably, though not very probably, have the same effect. Keeping them in a cupboard which had been cleaned with strong ammonia solution might produce such a flavor.

Thin Shelled Eggs

One of my turkeys lays a white thin shelled egg. Last year she laid a normal egg. Grit and shell are before her and she is on range. Shell is too thin to handle.—Subscriber, Kneeland.

I wonder if she is not fatter than she should be. Overfat hens frequently lay soft shelled eggs. If you are feeding corn, barley or other fattening grain better change to wheat bran and oats.

Do Not Hatch

When I set my Buff duck eggs under hens the ducklings die in the shell. I set 15 duck and goose eggs under a goose and the ducklings died in the shell, also one gosling. The shell seemed to be too hard for them to break.—Subscriber, Stockton.

Both goose and duck eggs need to be sprinkled often with warm water during incubation. When the duck or the goose is sitting under normal conditions she leaves her nest every day to swim, and when she comes back the eggs are wet by her feathers. Eggs under a hen or under a goose which has no chance to swim miss this wetting, and the caretaker must sprinkle them when the sitter is off. They should be sprinkled at least every other day at first and every day the last week of incubation.

About Turkeys

Which is best for young turkeys, eggs or cottage cheese? How old should turkey hens and toms be when mated? When is a hen too old to be a profitable layer?—Subscriber, Covina.

Hard boiled egg is more generally used as a nursery feed than cottage cheese, possibly because egg would seem to be the natural food for young fowls. I met a turkey breeder of long experience recently who uses both egg and cottage cheese in her nursery mixture. Others feed the egg, mixed with stale bread or cereal and young onions or onion and alfalfa, but keep sour milk before the poults. At the Rhode Island station the egg mixture is fed at first but cottage cheese or curdled milk is set before the poults after ten days. The mating of yearling hens with two year old toms is favored by many breeders. If young toms are used they should be mated to two year old hens. Hens are not generally kept after two years. The breeder referred to above markets every hen the first of June and depends entirely on yearling hens for breeders, but she uses no young toms.

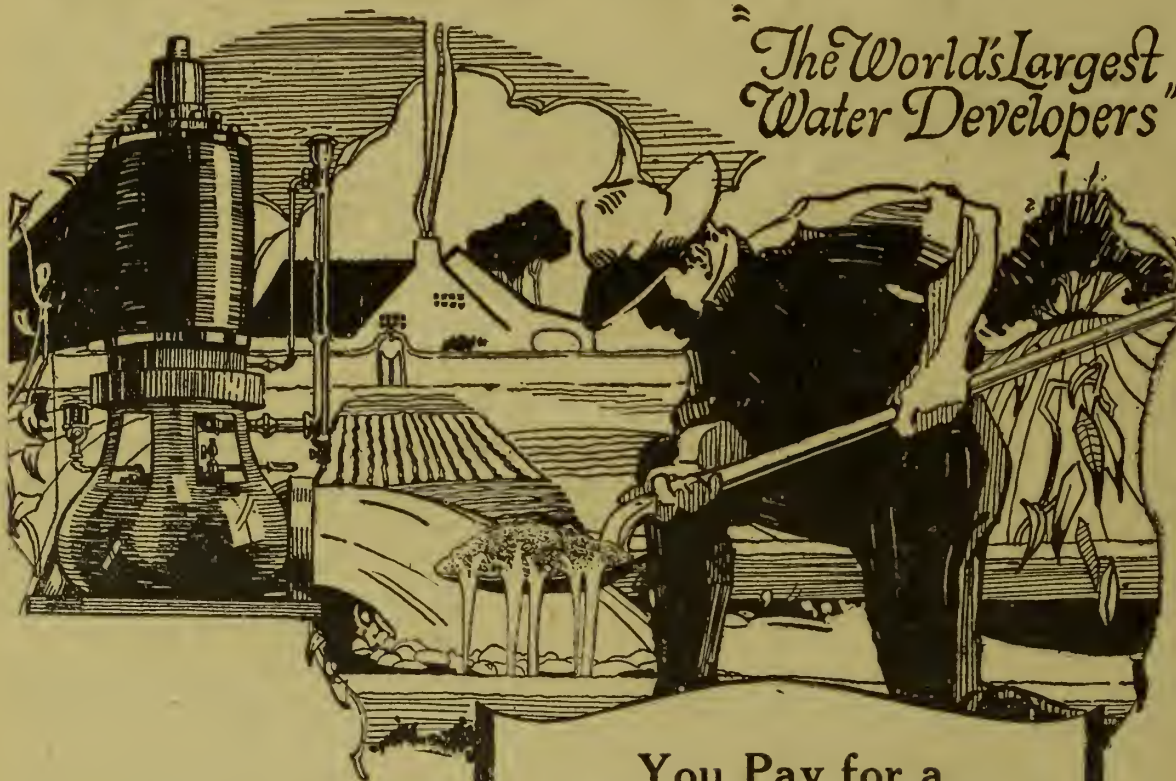
Poultrymen Attention!

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Mail Orders Promptly Filled

HAUSER PACKING COMPANY
LOS ANGELES



Construction Notes

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- Direct motor-driven Heads.
- Combination belt and motor-driven Heads.
- Special bearing construction.
- Capacities—180 to 4500 G. P. M.
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- For 10" wells or larger.
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- Full floating shaft.
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- Perfectly-balanced runners.
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- Bowls can be lowered to reach receded water level if necessary.

REQUEST LITERATURE

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Pumping equipment is too important to experiment with. As an Irrigator you are paying in the end for a good pump so why not have one? A cheap pump costs more to operate and keep in repair than a Layne & Bowler. Our records prove it; your neighbor's pump proves it; the judgment of Consulting Engineers concedes this fact. By selecting a Layne & Bowler Pump you have assurance of steady, faithful, year-'round service, low operating costs, immediate factory service and the protection of the manufacturers. You remove the hazard of water shortage. Get protected. The initial cost will be returned many times over in increased crop profits. Consult with us.

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900 Santa Fe Ave. Los Angeles

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 2, 1922.—The hens in the egg laying contest at Storrs have now finished the first half of the year and according to the records which have accumulated in the past contests the birds should lay about 44 per cent of their total production for the year during the first six months. Using this as a basis the hens in the present contest, if they continue to lay as heretofore, should have a total production at the end of the contest of 172,552 eggs or an average of 172 eggs per bird. The total to date for the birds in the present contest is 75,923 eggs, or a yield of 41 per cent. The total production for the week was 4,650 eggs, or a yield of more than 66 per cent. This is 74 eggs more than last week and 186 eggs more than the seven year average and the total to date is 6,608 eggs more than the expected yield for the first six months.

The best pen in the contest for this week is a pen of Barred Rocks owned by Merritt M. Clark, Brookfield Center, Connecticut. These birds laid a grand total of 63 eggs.

The four leading pens in each of the principal breeds are as follows:

Plymouth Rocks

Harry G. Culver (Barred), 1,032; S. Bradford Allyn (White), 966; Seven Hills (Barred), 956; Purdue University (Barred), 936.

White Wyandottes

Frank P. Matteson, 1,140; Woodbridge Orchards, 1,135; Clemens J. Diemand, 1,022; Walter Bradbury, 1,006.

Rhode Island Reds

The Orchards, 1,002; Applecrest Farm, 1,001; F. S. Chapin, 967; F. H. Sampson, 962.

White Leghorns

Goshen Poultry Club, 996; J. Frank Dubois, 963; Hollywood Farm, 947; L. E. Ingoldsby, 907.

NEW YORK BRANCH OF PACIFIC EGG PRODUCERS

The New York branch of the Pacific Egg Producers is now established at 139 Reade Street, New York City, an excellent location on one of the best streets in the butter and egg trade district of New York. We occupy there the main store floor, and basement, with ample office accommodations and a large refrigerator compartment which will hold five carloads of eggs.

Earl W. Benjamin, who has been engaged as manager of the New York branch, was formerly professor of marketing in the poultry husbandry department of the New York state college of agriculture and in that capacity made a thorough scientific study of the production and distribution of eggs and other poultry products. For some years he engaged in practical egg business during the long summer vacations while still connected with the college, and a year ago was engaged to manage the egg department of M. Augenblick & Bro., one of the largest egg houses in the East, becoming recently the manager of their New York branch. Mr. Benjamin is a young man of pleasing and vigorous personality. He is popular with the New York egg trade and is recognized as having considerable business and executive ability, while his industry and integrity are unquestioned. A small but sufficient office and sales force has been engaged to assist Mr. Benjamin in handling the business. This will be added to whenever the business requires it. All employees in responsible positions are being placed under bonds.

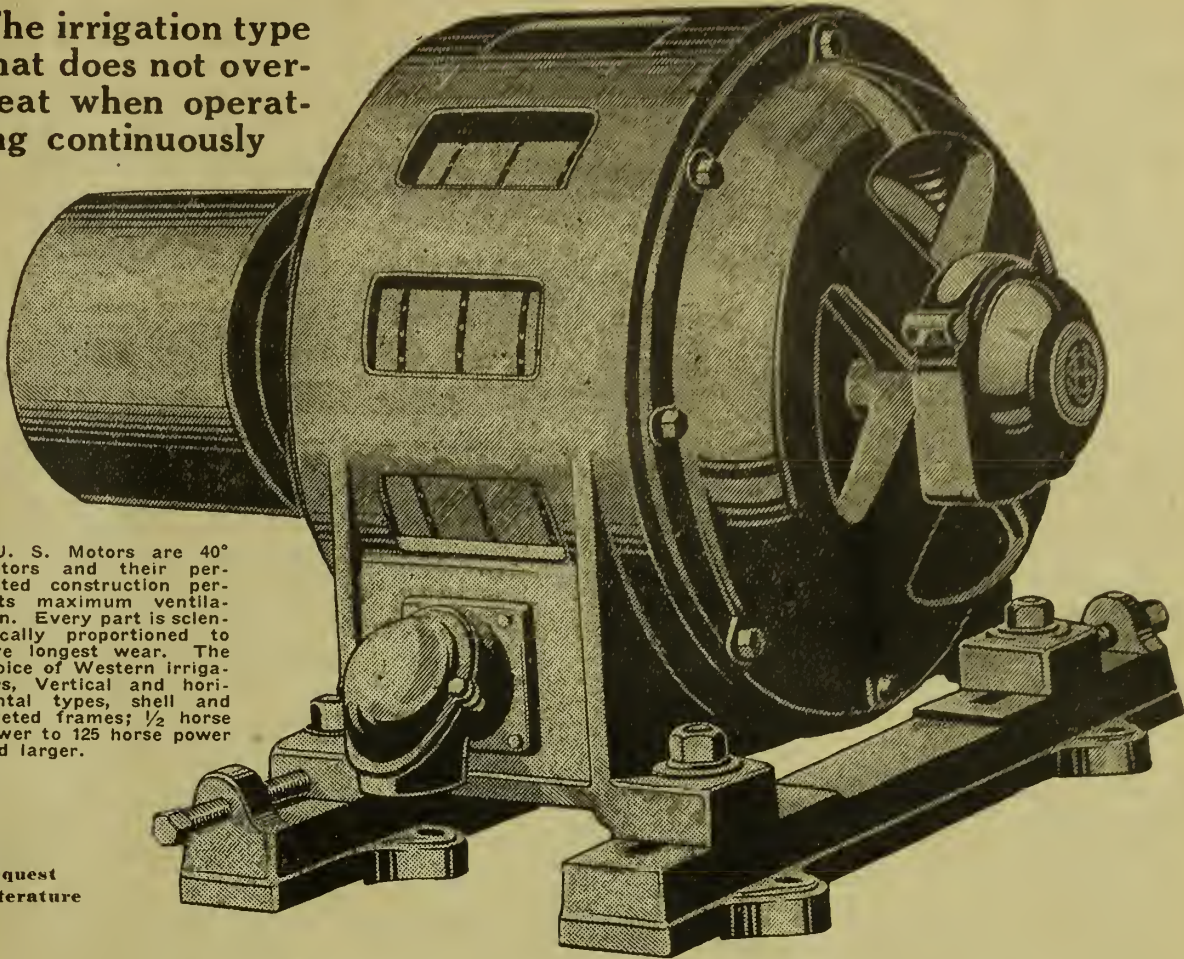
Just now the business of the New York branch is confined to the shipments of our own association, because the Oregon association will not be free from its present contract in New York until June 1 and the Washington association not until November 1. The Los Angeles and San Diego associations are free to ship to the agency, but they are making no shipments at this time of year, as all their surplus eggs are going into storage.

Figuring, however, on the probable amount of business that will be handled this year by the New York branch for each association during the time that each will be shipping, it is estimated that there will be a saving of at least \$20,000 over the best commission proposition that was offered

(Continued on Page 563)

U. S. MOTORS

The irrigation type that does not over-heat when operating continuously



U. S. Motors are 40° motors and their perfected construction permits maximum ventilation. Every part is scientifically proportioned to give longest wear. The choice of Western irrigators, Vertical and horizontal types, shell and riveted frames; 1/2 horse power to 125 horse power and larger.

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Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy In Drinking Water Does It—No Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 568, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

Sicilian Buttercups

EGGS—CHICKS—STOCK

No other fowl combines so many desirable characteristics. Adapted to farm-yard or backyard.

Descriptive circular and price list on request. A. L. CAVANAGH Sawtelle, California

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GERMOZONE will rid your chickens of roup, colds, canker, sore head, chicken pox, skin disorders, cholera, indigestion, bowel trouble and such ailments—and keep them healthy. For over 80 years the dependable remedy. Get GERMOSOL, also famous LEE'S EGG BOOK L273, at drug or seed stores. If no dealer, order by card. Postman will collect. 75c and \$1.50 sizes. No extra charge. GEO. H. LEE CO., Dept. F-30 Omaha, Neb.

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Engines for Binders, Potato Diggers, Headers, Sprayers, Shops, Mines, Light Plants, etc.

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Two Chances at Gopher

Enclosed find check for one dozen Double Catch Gopher Traps. Have used every advertised gopher trap but have thrown them all in the scrap pile but the Double Catch. — F. B. McKay, Standish, Calif., 3-31-22.



Young Gopher

CATCHES GOPHER ANY SIZE OR AGE



Old Gopher

E. J. CHUBBUCK CO. 731 Market St.

DEPT. A Manufacturers San Francisco, Calif.

When Writing Advertisers Please Mention Cultivator.

Los Angeles Markets

Los Angeles, May 17, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 39 cents.

Prices extras past week:

May	11	12	13	15	16
	38	40	40	38	39

CHEESE

Brokers' prices:
California flats, 18@20.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 26; case count, 23; pullets, 21.

Prices extras past week:

May	11	12	13	15	16
	27	27	27	26	26

POULTRY

Price to producers: Hens, 23; colored, 30; broilers, 26@32; roasters, 38; old roosters, 12; fryers, 32; ducks, old, 30; ducklings, Pekin, 3½ up, 30; others, 25; geese, 20; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 11@15; old, 8.

LIVESTOCK

Los Angeles, May 16—Weighed and delivered off cars without food or water:
Hogs (hard grain fed), 125 to 175 lbs., 10.75; 175 to 225 lbs., 11.00.

Cattle (on foot gross weight): Steers, good, 8.00; medium, 7.00; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 9.00; 150 to 175 lbs., 10.75.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 16, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement moderate, market dull. Stocktons: Burbanks, per cwt. best, mostly 1.85@2.00; poorer, 1.75. Idahos: Russets, 1.85@2.00. New stock: Best, locals, 1.75@2.00; poorer, 1.60@1.70 per lug. per lb.; per bu., mostly 1.85.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 70@75. Arkansas: Nancy Halls, 4½@5 per lb.; per bu., mostly 1.85@2.00.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, Whites, 1.75@1.35; Yellows, 1.65@1.75; lugs, Whites, 1.35.

Garlic, 7@8c lb. in small lots; some fancy, 10@12c lb.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, May 16, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, fancy, small, 50@75; best, 1.00@1.25 doz.

Asparagus: Per lb.: Local, best, 11@13; poorer, 9@10; Northern, best 7@8; poorer, 5@6.

Beans: Imperial Valley green best, mostly 16@18; San Pedro wax, 13@14.

Bunched Vegetables: Per doz. bunches: Turnips, 40@45; beets, 40@50; carrots, 50@55; radishes and spinach, 20; parsley, 15 nary. Per field crate, best mostly 2.50@2.75; poorer, low as 2.00.

Cabbage: Market strong, quality ordinary. Cucumbers: Hothouse best, 2.00 doz.; local, 3.75@4.00.

Cauliflower: Quality generally ordinary to poor. Per field crate, best mostly 2.50@3.00; poorer, low as 1.50.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 4.00@6.00, according to quality. San Diego, mostly 7.50@8.00; few high as 10.00; Northern, small, 6.50.

Eggplant: Mex., 18 lb.

Lettuce: Market very weak. Locals: 75@80; ordinary, 40 per field crate.

Peas: San Pedro and San Luis Obispo, best, 6@7; poorer, 5.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 12@15; Bells, Fla., 25@30. Mexicans: Bells, 15@20.

Rhubarb: Local, best, strawberry, packed box, 1.00@1.10; Crimson, 90@1.00.

Squash: Market steady, 4-basket crates summer squash, mostly 1.10@1.20; Italian, 1.40@1.50; lugs, summer squash, 1.40@1.50.

Tomatoes: Market firm. Mexicans, repacked lug, 3.75@4.00; original lugs, best, 3.50@3.75; loose, per lb., best, 12@15; poorer, 8@10. Imperial Valley, 4-basket crates, 3.50@4.00, according to quality.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

These are actual prices obtained May 16 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: No. lb., 35/.

Blackberries: Cr., 6.50.

Cherries: Lb., 40@50.

Loquats: Best, 14@16 lb.; No. 2, 10@12.

Raspberries: Cr., 8.00@9.00.

Strawberries: No. 1, mostly 4.00@4.50; No. 2, 3.50@4.00 per crate.

Watermelons: Lb., Mex., 6.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock this morning by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.25@3.50; market pack, 3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 2.25; special brands, fancy, 6.00@6.25; choice, 5.25@5.50.

Oranges: Demand moderate, market steady. Navels, market pack, 5.00@6.00, per field crate; few best, 1.50; Valencias, special brands, 7.00@7.50.

Tangerines: Market firm, 8@10 lb.

HONEY

Winter loss for the state as a whole is estimated at 5-10 per cent, largely resulting from the severe freeze early in the spring which injured brood as well as bees. Prospects continue favorable for a good crop of honey with normal weather conditions. The new crop is being delayed by the late spring. Few large sales have been made during the past two weeks, as supplies are said to be limited to scattered holdings. In addition to selling practically all of the 1921 crop, a large holdover from the 1920 crop has been disposed of. Rather extensive exporting during recent months has accounted for part of the movement.

HAY

Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00

Barley 18.00@22.00

Old alfalfa practically cleaned up.

Prices quoted f. o. b. L. A. to producers are:

Rabbit Alfalfa 18.00@20.00

No. 1 Alfalfa 15.00@17.00

Standard Alfalfa 12.00@14.00

GRAIN

Prices L. A. Grain Exchange, May 16.

Barley: 100 ton lots May Del., 1.35.

San Francisco Markets

San Francisco, May 16, 1922.

BUTTER

Extras 39½

Prime Firsts 38

Prices Extras last week:

May 36½ 38 38 38½ 39½

CHEESE

Dairy Exchange quotations:

California Young America, fancy 24½

California Flats, fancy 20½

Oregon Trips 22

Oregon Young America 24

EGGS

Dairy Exchange Quotations:

California Extras 26

Extra Firsts 25½

Extra Pullets 23½

Undersized 18

Prices Extras last week:

May	11	12	13	15	16
	27½	26½	26½	26	26½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs., 32@34 per lb.; 1½ to 1¾ lbs., 36@38; do, colored, 38@40; 1¾ to 2 lbs., 38@40; do, colored, 48@52.

Fryers: 2½ to 3 lbs., 42@46 lb.; do, colored, 50@55 lb.

Young Roasters: 3½ to 4 lbs., 40@42 lb.; over 4 lbs., 36@44 lb.; do, colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.

Colored Old Roosters: 17@19 lb.

Leghorn Old Roosters: 14@16 lb.

Leghorn Hens: 2½ to 3 lbs., 21@23 lb.; 3 lbs. and over, 24@25 lb.

Large Colored Hens: 31@32 lb.

Ducks: Young, 23@25 lb.

Geese: Young, 25@28 lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 18@23 lb.

Squabs: Live, fancy, 48@50 lb.; common, 3.00@3.50 doz.

Old Pigeons: 2.50@3.00 per doz.

Guineas: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
Weighed off cars at our yards in South San Francisco:

Steers: First quality, 7@7½ per lb.; second quality, 5½@6¼; cows and heifers, No. 1, 5@6; second quality, 4@5; bulls and stags, 3@4 per lb.

Calves: Light weight, 8@9 per lb.; heavy, 5@7 per lb.

Sheep: Wethers, 6½@7½ per lb.; ewes, 4½@5½ per lb.

Lambs: 10½@11 per lb.

Hogs: Hard, fat, grain fed, weighing 125 to 200 lbs., 11½ per lb.; do, 200 to 250 lbs., 10½ per lb.; do, 250 to 300 lbs., 9½ per lb.; light sows, 9½ per lb.; heavy, 8½ per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Corcoran, May 8

82 176 10.05

110 183 10.05

24 216 9.05

2 315 7.05

218 hogs

2 cars, 14 consignors, \$3,991.40.

Tulare, May 9

43 feeders 92 10.50

97 162 10.20

79 194 10.20

81 192 10.20

70 161 10.15

95 160 10.05

36 239 9.05

25 325 7.05

1 boar 10.50

527 hogs

6 cars, 50 consignors, \$9,203.53.

Visalia, May 10

30 200 10.45

93 166 10.30

100 173 10.30

102 155 10.15

37 125 10.00

2 280 9.95

15 264 9.45

1 stag 330 1.20

1 stag 520 2.15

408 hogs

5 cars, 26 consignors, \$7,057.69.

Hanford, May 11

30 feeders 79 11.00

81 179 10.55

80 155 10.50

13 211 10.05

3 263 9.50

2 475 7.50

226 hogs

3 cars, 24 consignors, \$3,781.53.

Totals for the week: 1,379 hogs, 16 cars, 114 consignors, \$24,034.15.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.50@2.00; Oregon Burbanks, nominal; Idaho netted gems, 1.75@2.10; off grades, lower; Salinas, 2.25@2.75 per cwt.; new, 3½@5½ lb.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: Australian cold storage browns, nominal; green onions, 1.75@2.00 per box; new crop, white, 2.15@2.35; Coachella Valley, 4.00 per cwt. in sacks; yellow, 2.00.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 15, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00@6.00 per cr.

Asparagus: 4@6 per lb.; white, 5@7 per lb.; graded, 8@10 per lb.

Beans: Imperial, 17½@20 per lb.; hot-house, lb., 40.

Bunched Vegetables: Carrots, 55@60 per dozen; turnips, 55@60 per dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: 2.00@2.25 per crate, 2 per lb., 75@1.00 per doz.

Carrots: 2.75@3.00 sack.

Celery: River, 2.00@4.00 cr.; Florida, 2.00@2.50 per half cr.

Cucumbers: Mexican, small, 1.50@2.

per dozen or 3.00@3.50 per small crate.

Eggplant: Florida and Mexican, 16

25 lb.

Endive: 20@25 lb.

Garlic: 4@6 per lb. for medium grade

poorer quality, less.

Lettuce: Delano, 75@1.25 per cr.; L.

Angeles, 1.00@1.25; local, 50@1.00; Wa

nut Creek, 75@1.25.

Mushrooms: 50@1.00 lb.

Olives: 5@7 per lb.

Parsnips: 3.00@3.25 per sack.

Peas: Lb., 3½@4½.

Peppers: Florida - New Mexico, Bell

15@22½; Chilis, 8@10.

Pumpkins: 75@1.00 per 90 lb sack.

Rhubarb: Box, 1.35@2.00.

Squash: Summer, 1.00@1.25 cr.; 5@

Spinach: Lb., 2@4.

Tomatoes: Mexican, repacked, 4.00

4.50 per L. A. lug; off grades, 2.50@3.5

Turnips: 2.00@2.50 per sack.

FRESH FRUIT

Avocados: Tahiti, 4.00@8.00 doz.

Cantaloupes: Small lug, 2.00@2.75.

Loquats: 15@17½ lb.

Pineapples: 5.00@6.00 per doz.

Strawberries: Watsonville and Salina

1.65@2.00 cr.; do, poorer, 1.30; locals, 1

@90 dr.

CITRUS FRUITS

Grapefruit: Cal. fancy, special pack

3.50@4.00; Arizona, 4.25@4.50 box.

Lemons: Special pack, 5.00@5.75 box

Choice, 4.00@4.50 box; Lemonettes, 2.00@

3.25.

Oranges: Special pack, 7.00@7.50; choice

5.50@6.50; culls, 1.75@3.50; Valencia

fancy, 6.50@7.00; choice, 6.25.

BEANS

California Bean Growers.

Large Whites 6.5

Small Whites 6.5

Pinks 5.7

Mexican Reds 4.6

Red Kidney 8.0

Cranberries 8.0

Bayos 6.0

It Opens Tuesday

California Valencia Orange Show

Anaheim, May 23-30, Inc.

The greatest Exposition of the Valencia Orange ever conceived.

A wonderful display of features, a treat to those who love the beautiful.

A great instructive display of Valencia prize winners, avocados and other citrus fruits.

An industrial exhibit showing every kind of machinery and accessories used in orange culture.

A child welfare department—radio demonstrations—vaudeville, orchestras—automobile display—art display, etc.

More than 100,000 feet under canvas.

Open daily from 10 a. m. to 10:30 p. m.

Allis-Chalmers 6-12 Tractors



A universal tractor for California orchards, vineyards and fields.

Priced right.

H. V. Carter Motor Co. 52 Beale St. San Francisco

(Also distributors of Beeman Tractors, Warner Drag Saws, McKay Disc Plows, Lawn Mowers.)

Dusting of Trees, Vines, Etc. Bleaching, Etc.



ANCHOR BRAND SUB-LIMED VELVET FLOWERS OF SULPHUR, also EAGLE BRAND and FLEUR DE SOUFRE, packed in double sacks, are the FLUFFIEST and PUREST sulphurs that money can buy.

The fine light SNOW-FLAKE-LIKE particles float to every surface and crevice of the plant.

Do not adulterate these sulphurs with any inert material such as lime or Kaolin, etc. Coating the sulphur particles with an inert material PREVENTS the FUMING ACTION caused by the sun's rays.

Send for Circulars 6, 8 and 10 about our "Toro" Brand Agricultural Compound and booklet, "The Truth About Sublimed Sulphur," also price list.

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BIG SAW SALE \$64.50 AND UP

F. O. S. Factory, On Newest Improved Model at lowest prices ever made. Full Trees.

OTTAWA LOG SAWS Saw Limbs. Lightest built. Easy to use. Cash, Easy Terms. Guaranteed Free Book. Write.

OTTAWA MFG. CO. 2742D Wood St., Ottawa, Kan.

AT THE AUCTIONS

May 11

New York: 7 or., 5 mix., 1 lem. Nav. 5.80@9.05, Val. 5.15@9.35, St. Mike 4.40@5.25, grapefruit 3.90.

Boston: 5 or., 2 lem. Val. 4.60@7.80, Med. Sweet 5.85, Seed. 5.90@6.00, lem. 4.20@4.95.

Philadelphia: 9 or., 2 lem. Nav. 5.85, Val. 4.00@6.55, Seed. 3.10@4.25, St. Mike 4.00@4.90, lem. 3.55@4.50.

Pittsburg: 3 or., 1 lem. Val. 4.35@6.90, Seed. 5.00, lem. 4.80@5.15.

May 12

New York: 7 or., 4 mix., 1 lem. Nav. 5.10@9.10, Val. 4.45@7.20, Med. Sweet 5.55@6.45, St. Mike 4.20, grapefruit 2.35, lem. 5.25@5.75.

Boston: 4 or., 2 lem. Nav. 5.15@8.85, Val. 5.70@8.25, grapefruit 3.20@4.35, lem. 3.80@5.30.

Philadelphia: 3 or., 1 lem. Val. 3.70@5.85, lem. 4.10@5.40.

Pittsburg: 2 or., 1 lem. Val. 5.25@6.55, lem. 5.10@5.20.

Cleveland: 3 or., 3 lem. Nav. 4.75@6.20, Val. 4.45, Sweet 5.00@5.70, lem. 4.85@5.90.

St. Louis: 2 Val., 3 lem. Val. 3.80@5.15, lem. 6.20@7.60.

Cincinnati: Val. 4.85@6.50, lem. 6.00@6.90.

May 15

New York: 23 or., 5 mix., 1 lem. Nav. 5.70@9.35, Val. 3.45@10.00, St. Mike 4.00@4.40, lem. 4.75@5.85.

Boston: 12 or., 2 lem. Nav. 6.15@9.00, Val. 5.15@8.25, lem. 6.05@6.25.

Cleveland: 4 or., 3 lem. Val. 5.20@7.35, lem. 4.15@6.65.

Cincinnati: 1 or., 3 lem. Val. 5.00@6.85, lem. 4.35@6.60.

St. Louis: 4 or., 4 lem. Val. 3.60@6.86, lem. 3.20@7.30.

Pittsburg: 5 or., 3 lem. Val. 4.65@7.15, lem. 4.05@5.90.

Philadelphia: 9 or., 1 lem. Nav. 6.75, Val. 4.00@7.20, Seed. 4.75@5.10, lem. 4.65@4.80.

May 16

New York: 13 or., 3 mix., 1 lem. Nav. 8.60@10.25, Val. 4.70@9.70, St. Mike 2.65@3.90, Ruby Blood 4.70@5.65, grapefruit 2.60@3.10, lem. 5.60@6.25.

Boston: 9 or., 1 lem. Val. 4.40@7.15, lem. 4.05@4.90.

Philadelphia: 5 or., 2 lem. Val. 4.25@8.00, lem. 4.80@5.95.

Pittsburg: 3 or., 1 lem. Val. 4.75@6.25, lem. 4.90@5.35.

A BIG CROWD ATTENDS LOS ANGELES COUNTY DAIRY PICNIC

(Continued from Page 559.)

in the field and we hope to have another after July 1. The 47 member herds include over 4300 cows, the number actually milking and tested last month being 3631. At the beginning the average production was 28.5 pounds fat per cow per month. Now it is a third higher, which means that by advanced methods this number of cows is now being made to produce \$400,000 per year more than when this work was begun.

"This association is now probably the largest in the country and the production attained in members herds has attracted national attention. Our members won a large proportion of the monthly and yearly awards in the state dairy cow competition and have been quoted regularly in the western branch, dairy division of the U. S. department of agriculture for the high association, herd average, or individual production compared with all other such associations west of the Rockies. Some months ago we had the pleasure of reporting to the department of agriculture the five highest producing cows ever reported by one association in a single month. These cows averaged 112 pounds fat each for the month. During the past month we have again exceeded this figure with five cows making a total of 577.4 pounds fat. During the month of April, 1183 cows have exceeded 40 pounds fat, 207 made over 60 pounds, and 4 over 100 each, or more than double the proportion of high producers in other large associations.

"In order to furnish permanent records of this work the records of the monthly tests on each cow are entered and signed by the tester in a loose leaf book, each leaf being made in the form of a certificate of production. It has been proven that such records have a very substantial value in selling the stock, the certificate being transferred to the new owner as absolute proof of the quality of his purchase. This form of record, which was devised for our own use, has proven so well suited to the purpose that it is being widely copied throughout this state and elsewhere.

"During the past year this department has also held a number of meetings at different dairies for the discussion of subjects important to the industry. Improved methods and equipment were studied and cattle judging contests and other demonstrations given. Exceedingly practical programs were provided covering feeding, production of clean milk, tuberculosis con-

trol, sterility and abortion by men who were competent authorities. The meetings were well attended and the interest shown was very gratifying.

"In our study of dairymen's problems we have not neglected the conservation of the farm's most important product, our boys and girls. In cooperation with the Holstein Breeders Association and the county club leader our committee has assisted in judging entries in the calf club contest and in preparing the rules under which the contest will be conducted. The calf club members were also guests at the Annual Guaranty Sale of Holstein cattle and the two day sight-seeing trip which followed. They have been supplied with reading matter which should further their interest in good cattle and help them in feeding and care of their entries. We try to make them feel our very real interest in each of them. We sincerely believe in the value of this kind of work."

STALDER HOLSTEINS GO AT BARGAINS

May 11 was bargain day for Holsteins in Southern California when Ed Stalder dispersed his herd. Many of the animals had faced the auctioneer before and brought much higher prices than they did this time. Also there were a number of young calves and about 20 young bulls which brought the average down. The fact that the herd was sold without being subject to the tuberculin test was a prominent factor in keeping the price down.

The high cow was Partheneia Netherland Pontiac who has a record of 27.5 pounds butter in seven days, who brought \$330.

GUARANTY SALE COW BREAKS ALL STATE RECORDS

Norma Korndyke Cornucopia, the 38.42 pound cow bought by Fred Hartsook in the last Guaranty sale, has just finished a seven day record in which she made 42.8 pounds butter from 886 pounds milk. She was bred at the time of the sale to Sir Aaggie Mead, the great bull owned by W. J. Higdon and F. S. Borror and Son and dropped a fine bull calf. This is the second cow in the Hartsook herd to make over 40 pounds and they did this less than six weeks apart. Norma's performance breaks all records in the state for seven days butter and is thought to be the second highest for milk.

CALIFORNIA VALENCIA ORANGE SHOW

Anaheim is ready for the Valencia Orange Show which will open its gates, May 23, remaining open to visitors till and including May 30. In addition to competing displays of Valencia oranges there will be grapefruit, lemons and avocados in both commercial and feature exhibits.

PACIFIC EGG PRODUCERS

(Continued from Page 561.)

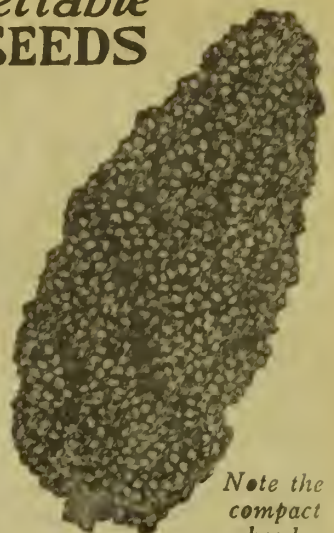
us. Besides this, with our own people in New York working for us, directly under our instruction and supervision, we shall be able to get a marketing service such as no commission house could be expected to give. We shall also be kept much more closely informed on eastern market conditions than has been possible hitherto.

Personally, I believe that this is the most important step that has been taken since our association was first organized. It is a step that we have been looking forward to for some time, and it is now taken under circumstances which give it every promise of success.—J. H. Barber, General Manager.

The fourth vessel to leave Los Angeles harbor loaded with food and clothing for starving Armenian children is scheduled to depart next week. Thursday, May 25, is "Bundle Day," and everyone who can do so is invited to send something for these unfortunates to the nearest "bundle station" or notify some boy scout or mail by parcel post to Relief Warehouse, 510 South Molino Street, Los Angeles.

Already it is getting late to thin apricots. Some of them need it, and badly. Better get busy.

A&M reliable SEEDS



Note the compact head

A&M Selected Dwarf Milo Maize

In heading Maize you experience a feeling of satisfaction when you grasp a large, well-filled, heavy head; one after the other all the same height from one end of the row to the other. It counts in the profits, too, and the cost per acre for seed is a mere trifle.

A & M Selected Strain Dwarf Milo produces fields of this description.

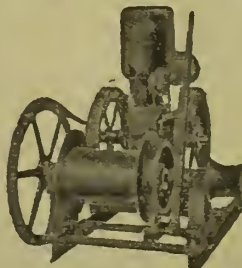
Packed in even weight, branded, 100-pound bags.

Ask Your Dealer

Aggeler & Musser Seed Company

622 So. Spring St. Los Angeles Calif.

Novo Hoists for the Ranch In Stock



Novo "Handy" Hoist

Called "Handy" because they're the handiest thing on the place. COME AND SEE THEM or write for details.

SMITH-BOOTH-USHER CO.

Machinery, Industrial and Contractors Equipment, Supplies

SAN FRANCISCO LOS ANGELES

SANTA ANA NURSERY

Citrus stock, grown in the frostless belt, free from disease.

Association Buds prices on application. Phone 1746

Third and Bush Sts., Santa Ana

"what's on the tag is in the bag"

Net Weight 100 lbs.
Surelay Egg Mash
Manufactured by
SPERRY FLOUR CO.
STOCKTON, CALIFORNIA

Contains: Flour, Middlings, Shorts, Bran, Mill run,
Corn Grits, Corn Middlings, Meat Meal, Whale Meat,
Charcoal, Coconut Meal, Soya Bean Meal, Ground
Barley, Ground Rye, Ground Rice.

Minimum per centum of Crude Protein	20.00
Minimum per centum of Crude Fat	4.00
Maximum per centum of Crude Fiber	7.00
Maximum per centum of Crude Ash	10.00



ON EVERY bag of Sperry Feed is a tell-tale tag. This tag tells you plain-as-day what's inside. Yet the most important "ingredient" in this sack of feed—the thing that makes all the other ingredients count—is not to be found on this tag. For this all-important ingredient is CONFIDENCE.

- confidence in our practical, hard-pan knowledge of poultry problems.
- confidence in the Sperry formula and the seasoned experience back of it.
- confidence in our daily laboratory tests that make each batch of feed measure up in net feeding value.
- confidence in our ability to produce, at the lowest manufacturing cost, a prime quality feed that does what it's made to do.

You can never go wrong on SURELAY because we make it our business to see that everything goes right in the blending. We take guess-work out of your feeding by keeping it out of the feed.

SURELAY is always the same—always uniform. That's why you should always specify SURELAY in the yellow-striped bag when ordering from your dealer. Then you'll never be in doubt as to how the feed will turn out; for "what's on the tag is in the bag"—always!

The new edition of our guide-book to poultry profits—"Makes Hens Happy"—tells why Sperry Feeds mean more eggs and more dollars to every poultryman. Send for it today—mail the coupon now!

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STOCKTON, CAL.
Please send me, without
obligation, your booklet
"Makes Hens Happy."

Name _____

Address _____

SURELAY

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CALIFORNIA CULTIVATOR

and *LIVESTOCK* and *DAIRY JOURNAL*

Los Angeles

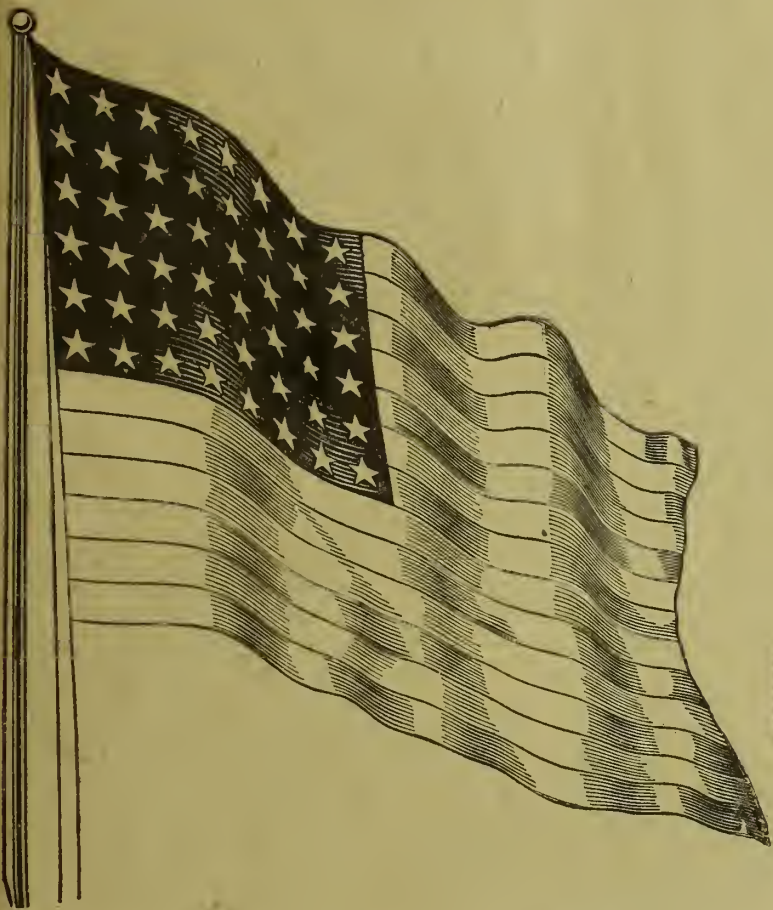
An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

May 27, 1922

No. 21



In Flanders' Fields

(The Veterans of Foreign Wars and the American War Mothers have requested that all will wear on Memorial Day the Flanders Poppy, the Inter-Allied Memorial Flower.)

In Flanders' fields, the poppies grow
Between the crosses, row on row
That mark our place; and in the sky
The larks, still bravely singing, fly,
Scarce heard amid the guns below.
We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders' fields.

Take up our quarrel with the foe!
To you, from falling hands, we throw
The torch. Be yours to lift it high!
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders' fields.—Lieutenant-Colonel John McCrae.

Memorial Day

THERE is no other day in all the world like our own Memorial Day. No other people has set apart a day of remembrance on which the whole nation goes forth to beautify with the blossoms of spring the graves of the men who gave or risked their lives in battle for their country. That may be because no other modern nation has until now faced, as the United States faced half a century ago, an armed threat against its very existence; it may be because there is among Americans a vein of sentiment that expresses itself with unusual frankness and spontaneity. For there is no misjudgment more grotesque than that which accuses America of materialism. There are materialists among us, as there are in every country; but beneath and beyond all we are incurable idealists. We have never followed any leader who did not feel and nobly express the spiritual aspirations of a free democracy. We have never fought willingly except in defense of those aspirations.

For Memorial Day has always been an occasion not only for memories but for consecration. To the gray-haired men, every year fewer in number, who actually bore the heat and burden of our war of reunion it is perhaps chiefly a day of memories. But for the rest of us it cannot be that; if it is to have vital meaning for us, it must have root in our own experience and in our own present needs. The sight of the bent and aged men who in their youth and strength made it possible for this republic to come forth from its travail free and undivided and great, the simple and beautiful commemoration service, the half-masted flags, and the graves heaped with flowers—these things touch with momentary feeling even the most thoughtless. But if that is all, the day has failed of its noblest mission. If it does not rouse in us all—men, women and little children—a fresh understanding of all that our country means to us, if it does not kindle anew our devotion not only to our native land itself but to all the principles of human liberty on which our government is founded, if it does not make us glow with a living desire to be of service each in his own way to the cause of freedom and justice among mankind, then we have lost the message that the patriots who instituted the day meant it to carry.

If we have, some of us, taken this day too lightly, if we have thought of it rather as a welcome holiday than as a solemn day of consecration to the nobler ideals of national life, let us not make that mistake this year of all years. The world is being remade about us; it is not too much to hope that, in Lincoln's mighty phrase, all mankind is under God to have a new birth of freedom. In this great crisis of the race America is to have a part. On this most hallowed of days let us pledge ourselves and all we have to making that part not only honorable but glorious. Let each of us see to it that through him the republic is not hindered in the path of service.—Youth's Companion.

Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL
A Journal of Horticulture, Agriculture and Livestock
Rural Californian, Established 1877,
Combined with California Cultivator, 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916.

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Saturday, May 27, 1922

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EDITORIALETTES

Nothing more beautiful than California poppies can be used in memory of our soldier dead. Returned overseas service men are united, however, with British, French, and others of our allies in choosing Flanders poppies to be used in official observance of Memorial Day. We believe the idea is that all over the world where the heroes of the World War lie buried the Flanders poppy shall be used.

In order to supply the flower little grown in this country artificials are being recommended for this year. Headquarters at Washington sends this information: "The poppies used in the official observance of Poppy Day are made by our own disabled soldiers or shipped direct from France, the handiwork of the women of the devastated areas. The proceeds of the Poppy Day sales will be used by the Veterans of Foreign Wars as a relief fund for ex-servicemen to meet especially the distress occasioned by the present economic crisis."

The older "boys" in blue or veter-

ans of '60-'65, for whom Memorial Day was first designated, will so far as they are still with us unite in observance of the day by placing small flags and masses of all kinds of flowers on the graves of Civil War veterans. Beside the boys of the Civil War and the boys of the World War there are also many graves of the veterans of the Spanish American War. None will be forgotten, for even in most remote sections Memorial Day will be observed.

Modern life becomes more and more complex. If our pioneers of tallow candle days could look in and see us using electric lights, telephones, phonographs, radiophones, and other necessities of modern life they might well wonder as to whether we are of their same race. Take the matter of insurance. 'Tis but a few years since vessel owners gathered together and agreed to protect each other in case one of their vessels went down. From marine insurance was developed fire insurance, and at first this was classed with the lightning rod as a needless addition to the ways of spending money. Later came life insurance, and now we insure our feet, our fingers and thumbs, our eyes, even our future income.

We insure our automobiles against loss by fire, by theft; we protect ourselves against loss which the other driver may inflict upon us and against the injury which we may do by driving our machines into others. So because of these numerous protections required the various premiums we are compelled to pay are becoming exceedingly burdensome. For the protection against fire we have had the burden lightened somewhat through cooperation. Mutual companies have solved the question only in part. Under the present state law certain classified favorable risks may be gathered together in one pool, and after a period of 25 years trial it has been found that the people who can agree to protect themselves can do so at about one-half the cost which is made necessary by insurance in the "old-line companies." Further, in California it has been proven that the protection is even stronger than in the companies which carry large cash reserve.

The mutual companies are, however, in addition to the personality of their membership, adding other protection in a small reserve. This does not in any way lessen the security given by the assessing power which is made possible under the state law.

Fire and life insurance are much simpler, at least the problems have been better worked out, than those of automobile accident insurance. Some change in state laws will be necessary before a satisfactory plan can be evolved. However, those of us who are carrying full auto insurance are hoping for relief as soon as possible.

Next week will be a busy one in Sacramento. County, state and federal officials are gathering and will discuss cooperation in protection from the introduction of insect or fungous pests. Quarantine officials from the seven coast and mountain states will attend.

Regarding this service Director Hecke writes: "A cooperative agreement between the federal horticultural board of the U. S. department of agriculture and the California state

department of agriculture is maintained and has been in force since the passage of the federal plant quarantine act of August 20, 1912, in order that quarantine orders promulgated under this act might be carried out at California ports of entry. At that time the federal authorities recognized the efficiency of the California quarantine service and appointed our men as their collaborators to enforce the federal quarantines rather than to send separate officers into the state to duplicate the work. In this way California is better protected from the entrance of insect pests and plant diseases at our ports of entry because of the added authority given by this cooperation. A cooperative service is maintained by the bureau of entomology of the U. S. department of agriculture through the appointment of Harry S. Smith, chief of the bureau of pest control of the California state department of agriculture, as collaborator in certain work carried on in California by that bureau."

DAYS OF '49

California's capital is declared to be "the center of a human vortex" this week. Everybody is wearing whiskers, but those who have seen them declare "they ain't much" although "they say" there are at least two real sets of whiskers there. These are some seven or eleven feet long—according to reports. In any case there were great doings in the "digin's," and the celebration extended all the way from Coloma, Placerville and other old time placer sections down to Fort Sutter.

STOCKYARDS

We are now assured that the stockyards will soon become a fact in Los Angeles. Small stockmen seem to smile and accept the situation with a fair degree of grace. The larger, especially the big cattle owners, are objecting most strenuously. The California Cattlemen's Association is opposing it with all its power. Secretary Hagen writes:

"The California Cattlemen's Association can see no good reason why the livestock producers of California should be forced to change their system of marketing to their disadvantage, and with no beneficial result to the consumer. California livestock producers have enjoyed the best market in the United States during the past 13 months, and livestock producers in the Midwest are endeavoring to avoid making purchases and sales at stockyards, which system of centralized marketing decreases the return to the seller and increases the cost to the buyer, which increased expense must naturally be borne by the consumer."

To us it appears the smaller cattleman has cause for rejoicing in the coming of the yards.

NURSERYMEN'S ANNUAL

The 12th annual convention of the California Association of Nurserymen will be held in Sacramento Thursday, Friday and Saturday of next week, June 1-3. Thursday's forenoon and afternoon sessions will be given up to the usual reports of officers and committees, the forenoon at the Travelers Hotel, the afternoon at the assembly chamber of the state capitol. The afternoon session will be a joint conference between the nurserymen and the county horticultural commissioners. The evening session will begin at 6:30, at which time dinner will be served at the Del Paso Country Club.

Friday's topics are florists, seedmen, grading of fruit trees, sub-trop-

ical fruits, especially bud selection; landscaping, credits and credit principles. Saturday morning's session will be to an extent executive and that time election of officers will take place, and final reports be made. Saturday afternoon will be given up to "doing" Sacramento by automobile.

THE VALENCIA SHOW

One of the prettiest little shows ever staged is on the boards at Anaheim this week. The number of feature exhibits is not as great as last year. This is due in part, perhaps, to weather conditions of this season. The communities which have installed exhibits have done themselves proud and there is a showing of beauty of features as well as of quality in the commercial pack. The most striking view inside the first great tent meet one as he enters. The manager has arranged the main entrance so that everyone coming in is compelled to walk up an incline to an elevation which gives a magnificent view down the entire length of the tent. The tents spread over 100,000 square feet and under them are displayed not only the oranges, lemons, avocado and other sub-tropical fruits but a fine art exhibit, merchandise, orchard implements, power machinery, and an automobile and truck exhibit which for size and attractiveness is equal to that of many automobile shows.

TURNING BACKWARD

In one respect it seems to us that the country, even California, is failing to advance its development as it should. This is in the matter of transportation from remote districts. We have voted millions for improving our highways in order that transportation may be facilitated. The state railway commission is, however, taking the position that highways should not be permitted to jeopardize the investment of railways. While it is true that the development of this country has been made possible because of the railways, and while they should be protected in their investment as far as possible without jeopardizing the country's advancement, we still believe that the denying of permits for truck transportation will result most seriously in the development of some districts.

Commenting on this the Yucaipa News has said:

"The campaign being waged by the railroads against competing motor lines, with the public utility commissions of the various states is beginning to bear fruit, and a recent decision by the public utilities commission of Colorado denying the application to operate an auto truck and bus line enunciates principles which carried to their logical conclusions will seriously hamper, if not entirely prevent, the further development of the country. Not only this, but by inference these principles would do inestimable harm to such communities as Yucaipa which are entirely dependent upon truck and bus transportation. Public utility commissions should recognize that railroads have practically ceased to build new lines, and that unless the state has been developed to its fullest extent, care should be exercised not to prevent the development of other means of transportation, for transportation is the life of any country and without it no development can take place. Moreover, the burden of transportation on agriculture is one of the causes of business depression throughout the country. When transportation costs are so high that farm products are left to decay in the fields it can hardly be said that the transportation facilities of that particular farm community are "adequate" from the standpoint of the shipper or consumer.

WITH the effects of the January freeze still in evidence all around us and a good many of the citrus growers wondering just how they are going to properly care for their groves until another crop is ready for market, or perhaps still wondering whether they will even be fortunate enough to have a crop in 1923, we naturally hear all kinds of arguments regarding the merits of the different methods of frost fighting.

Those who escaped serious injury either through being in locations where the cold did not strike or where the strong air currents carried the frost away, are not so much interested now and are inclined to advise their less fortunate neighbors to move to warmer localities or plant crops that are not susceptible to extreme cold weather. However, those of us who have watched frost conditions in Southern California for the past 30 or 35 years know that there are very few absolutely frostless sections here, and while certain locations escape more often than others there are hardly any but that get some damage now and then. In these favored localities the danger of severe cold is perhaps so slight that growers would not be justified in going to the expense of installing expensive frost fighting equipment, but from the experience of the past winter it would seem that these favored localities are becoming more limited, and we are beginning to think that the advice given by a certain authority shortly after the 1913 freeze, when he recommended 100 fire pots to the acre in ordinary locations and 200 to the acre in so-called frostless sections, was about right. It is true that citrus trees in these favored locations will not stand as much cold as those growing in colder sections, and therefore need more protection when a cold snap does come. This is due to the fact that those growing in sections where the temperature during the late fall and early winter often drops to or almost to the freezing point, become more nearly dormant, while the

Frost Fighting

By W. R. Wood

higher temperature in the more protected locations tends to keep the trees in a growing condition and therefore much more tender.

That nearly all of the citrus growing sections need more or less frost protection I think is admitted by most growers after the experience of the past winter, especially those who also experienced the effects of the 1913 freeze.

The question now, as in 1913, is how best to protect the grove. The writer remembers quite well the first attempts made along these lines when it was thought that a heavy smudge was the all important factor in preventing frost damage, but of late years we find that while smudging may be of some advantage in light frosts it will not save either the fruit or trees after the temperature drops below a certain point. During extreme low temperatures there must be sufficient heat created to warm the air strata throughout the grove, and as the tendency is for the warm air to rise and the colder air to settle toward the earth, we have the problem as we have often heard, "of trying to warm up all out doors." At certain times when there is some slight movement of the air it is not difficult to keep the heat well distributed through the grove, but unfortunately our coldest weather usually comes when there seems to be absolutely no movement of the air and it is difficult to keep the heat where it is needed. This condition prevailed in most sections during the January freeze, and no doubt accounts for the unsatisfactory results obtained from the fire pots in some sections. There seems to have been more lack of uniformity in results from heating during the past winter than during the 1913 freeze, at least

the results were not what they should have been or what was expected from the improved fire pots. In the writer's opinion this was due largely to air conditions, and the next freeze (which we hope will not come for some time at least) may, and very likely will, upset all the theories and lessons deduced from the experiences of the past.

It would seem that the question of whether it was best to use "tall stacks" or "low stacks" or no stacks at all, is a matter dependent on air conditions at the time of or during the freeze, and as that is an unknown quantity it remains for some inventive genius to construct a fire pot with a stack that can be adjusted to meet the air conditions during the time the pot is in use or to devise some means of creating an artificial current of air throughout the grove that will hold the heat where it is needed.

At the present time there are all kinds of suggestions and some devices being offered to try and overcome the unsatisfactory results obtained the past season.

In looking over the Cultivator files for the year 1913 it is surprising to note how similar the articles on frost fighting at that time were to those being offered at the present. Especially is that true with regard to the necessity of some method of frost control, and as a result, we find that the factories manufacturing fire pots were hardly able to meet the demand in time for the winter of 1913-14. A few mild winters, however, caused growers to soon forget the danger, and excepting in the more exposed localities the fire pots were either discarded or not put in the groves during the winter, and we again hear the idea advanced that cost of fire pots,

oil, storage and equipment is so heavy a carrying charge that the growers could better afford to lose a crop now and then rather than maintain this expensive equipment. This no doubt was, and still is true in some localities and perhaps in others where the equipment was not properly cared for and allowed to rust out either in the fields or in the storage sheds. However, there is no excuse for this rapid deterioration if the owner will take the proper care of his fire pots the same as he would or should of any other farm implements.

Once more we are talking frost protection fully as sincerely and even more determinedly than in 1913. Will we forget it again as the effect of the past winter gradually dims in our memories? We certainly should not; at least there should be some concerted movement by the growers, either through the California Fruit Growers' Exchange or otherwise, to establish experimental heating plants at different points, these plants to be under the supervision of competent men who will test out the different heating devices that give promise of having some merit. These tests should be carried over a series of years so as to determine the action of the devices under the different air conditions. In this way the reason for the failure of certain devices or equipment to give satisfactory results could be quite definitely determined, also equipment best suited to the conditions prevailing in the different sections. It would seem that information thus obtained would be of immense value to the citrus industry in seasons like the one just passed, and the expense would hardly be felt if assessed against the entire output of fruit. A fraction of a cent per box each season would raise sufficient funds to carry on quite extensive experiments, and who is there among the orange and lemon growers who would not give a quarter or half a cent per box on their output to gain some definite information on this all important subject.

Problems Which the Avocado Industry Must Meet

AN INDUSTRY can look forward to an indefinite period of prosperity without maintaining a department for systematic research. This is especially true of horticulture. It is not desirable or even possible for any horticultural industry to remain permanently in any definite and fixed condition. The horticulturist is continually meeting new and increasingly complex problems. The improvement of varieties, the maintenance of soil fertility, the study of plant diseases, insect pests and injurious fungi, and the adjustment of conditions to ameliorate the hazards due to climatic changes must always occupy a prominent place in any successful horticultural industry. Continuous and systematic research is the only means whereby such problems can be successfully met and solved. The time has arrived when this industry should be operated on a strictly scientific and business basis.

One of the most important problems with which horticulturists are concerned is the improvement of varieties. No field offers greater opportunity for scientific research and no field has yielded more interesting and valuable results. An immense amount of work has been done to improve other fruits and vegetables, and remarkable results have been obtained. In the case of the avocado, however, one of the most important foods in the world, practically no effort has been made to improve the existing varieties. This work will be undertaken some time, and it seems to me that our association should inaugurate its movement now. It is in line with its progressive policy.

In order to improve the avocado here are many points to be consid-

By W. L. Hardin, President California Avocado Growers' Association. Annual Report

ered, such as the size, shape and color of the fruit; nature of the skin; condition of the pulp; size and condition of the seed; character, precociousness and prolificness of the tree; keeping qualities of the fruit after being picked; length of time the fruit hangs on the tree; susceptibility of the fruit and tree to soil and climatic conditions; and the chemical composition of the edible portion.

The improvement of the chemical composition of the avocado is one of the subjects to which I desire to call your special attention today. As an example of the change in the chemical composition of an agricultural product by long systematic work, reference might be made to the sugar beet. Nearly a century ago a German chemist analyzed the ordinary garden beet and found that it contained from 4 to 5 per cent of sugar. By a long process of careful analysis of beets and selection of seeds, the percentage of sugar was gradually increased till in 1918 the sugar beets of Southern California averaged about 19 per cent sugar. In other words the sugar content of the beet has been increased four fold, and the whole beet sugar industry has been made possible by this scientific work on changing the chemical composition of the beet.

Analysis of the avocado shows it to be rich in fat, protein and mineral salts. The fat content in the better varieties is all that can be desired. On the other hand, it is especially desirable to increase the content of protein which is also one of the essential articles of diet.

The comparatively few analyses which have been made of the avocado by Mr. Chace and Professor Jaffa show a wide variation in protein content, not only in different varieties, but in different fruits of the same variety, as shown in the following table:

Variety	% Protein
Sharpless	1.13 to 1.92
Spinks	1.50 to 2.70
Fuerte	1.25 to 2.32
Puebla	1.62 to 2.30
Lyon	2.12 to 4.37

Other varieties show similar results. The maximum variation in these few analyses amounts to nearly 400 per cent, while the maximum variation in any one variety is more than 100 per cent.

The question arises as to how the protein content may be increased. Bud selection is the most feasible and the quickest method. There is no doubt that the size and condition of seeds, as well as the size and quality and the chemical composition of fruits and vegetables can be controlled to a large extent by bud selection.

In regard to the avocado there is abundant evidence of bud variation. The variations in the shape of the fruit, size of the seed and condition of the pulp in any variety are probably due in a measure to bud variation. The large variations in the protein content of any variety as well as large variations in the fat content are probably influenced by bud variation. Mr. Rideout reports a Ganter tree which always bears fruit black in color on one of its limbs. This is evidently a true bud mutation.

A very careful and exhaustive investigation should be made of the avocados in Southern California to determine the extent of bud variation and to determine how far these variations are due to environmental conditions and to what extent the variations are inherited, in order that some comprehensive plan for the improvement of the avocado may be inaugurated. If these investigations show that the variations in the chemical composition are due to bud variations and that these variations can be reproduced by bud selection, then the U. S. department of agriculture should provide a competent chemist to accompany Mr. Wilson Popenoe to points in Mexico and Central and South America where the better varieties of avocados are to be found, in order that similar investigations may be made at these points.

This suggestion is not made with a view of criticising in any manner what has already been done. Mr. Popenoe's explorations represent a magnificent and colossal piece of work, which will be of inestimable value to the avocado industry in Southern California. It would have been unwise to undertake a systematic and extensive chemical investigation of avocados in these countries until the better varieties had been definitely located. In order to reap the full benefit of Mr. Popenoe's extensive work by bud selection, however, it may be necessary, not only to analyze the different varieties, but to analyze the fruit from different branches of the same tree. The most desirable strains of the different varieties can be determined only by such investigations.

Before leaving the subject of increasing the protein content of the

(Continued on Page 587.)

Agricultural News Notes of the Pacific Coast

Northern California

Shasta County expects the largest prune crop in years.

The first carload of 1922 cherries was sent east last week.

The Sutter Basin Company is planting asparagus near Hinsdale.

Price of San Quentin grain bags was raised from 7½ to 8 cents May 22.

The recent farm federation picnic at Ahl grove in Colusa County reports attendance of 3,500.

Cherry crop this year is light, estimated by California Fruit Distributors at 65 per cent of normal.

Dr. Barrows has resigned as president of the state university. The regents have not yet selected his successor.

Canners and driers are both cleaned up on fruit stocks so that demand from these sources will this year cut down Eastern shipments of fresh fruit.

The first Western Sonoma-Marin Dairy Cattle Show will be held at Valley Ford, June 10-11. There will also be exhibits of other livestock and poultry.

Sutter County now has 10,500 acres planted to peaches, mostly canning varieties. 2,467 additional acres were planted in the first three months of 1922.

County Horticultural Commissioner Harney of Yuba County says peaches and prunes will run 110 per cent of normal this season; apricots, 65 per cent.

Florin, Sacramento County, will soon be sending out carload shipments of strawberries. Strawberry root worm has been giving some trouble to growers.

The class in citriculture from the state college of agriculture visited groves in the Fair Oaks and Orangevale districts of Sacramento County this week.

Contract has been let by the state highway commission for the section of the Tahoe-Ukiah highway between Upper Lake and the west boundary of Lake County.

The Eden Township Farm Products Show will this year be housed in its own buildings if plans launched at a recent boosters meeting at Hayward are carried out.

The highest testing cow in the Petaluma unit of the Sonoma County cow testing association for April is owned by L. Petersen. Her record was 79.2 pounds butterfat.

Practically all wool in the Livermore and Stockton districts has been sold at prices ranging from 31 to 36 cents. Heavy shipments of sheep also are being made.

Dr. E. H. Walker of Willows, Glenn County, president of the California farm bureau federation; has been made general manager of the California Farm Bureau Exchange.

A pigeon branch of the Alameda County farm bureau is proposed. Hayward claims to produce one-third of the squab output of the United States during the fall and winter months.

Articles of incorporation of the California Prune and Apricot Growers' Association, marking the completion of the organization under the new seven year contracts executed with grower members a year ago, were filed at San Jose, May 3.

Central California

Kern County agricultural fair at Bakersfield, October 2-7.

Work is being pushed on the Knights Ferry-Yosemite highway.

The three creameries in the Tulare district paid out \$117,000 for April butterfat.

Stock feed in Tulare County is said to be better than since 1906 because of rainy season.

The Monterey Pomona Grange will hold basket picnic at Sherwood Park, Salinas, May 27.

Vineyardists of McFarland appraise damage to Thompson Seedless from ten to 20 per cent.

A collection of date palms will be planted at the Shafter experiment farm in Kern County.

Farm center meetings in Kern County: Shafter, May 22; Arvin, 26; directors, Bakersfield, 27.

The Wawona road from Yosemite to the big trees at Wawona was officially declared open to automobiles May 14.

Horticultural Commissioner Brann of Tulare County says, apples, berries, figs and pomegranates will be a normal crop; prunes and grapes, 95 per cent.

Farm home department meetings in Kern County: Kern Delta, May 22; Edison-Fairfax, 23; Wasco, 29; Delano, 31; Arvin, June 1; project leaders, 2.

Members of the California Growers & Shippers Protective League met at Fresno, May 16, to initiate a campaign in the San Joaquin Valley for lower rail freight rates.

Members of the Tulare County Cooperative Poultry Association will receive 23 cents per dozen for No. 1 eggs for April. The month's egg shipments totalled \$12,400; poultry, \$4,000.

Organization of the Richgrove Jasmine Citrus Association has been completed. Frank Daybell has been chosen president; O. T. Stephens, vice-president; E. G. Washington, secretary-treasurer.

A number of small stockmen near O'Neals in Madera County have for two years cooperated in handling their cattle on summer pasture in the Sierra and are now planning to purchase winter feed together.

The Kern River Livestock Association held its annual meeting at Isabella the first week in May and planned an extensive squirrel poisoning campaign in cooperation with the horticultural commission.

The All American Fruit & Berry Growers Exchange has been incorporated by farmers in the Arcade, Del Paso and Hagginwood sections. The association will market through the California Fruit Exchange.

Kern County cow testing association tested 883 cows during April. 151 produced more than 40 pounds fat. The average was 29.5. Highest record made by Guernsey owned by P. Catani of Bakersfield, 67.8 pounds fat.

Secretary Miot of the Tulare County board of trade reports crops for 1921 valued at \$32,153,123, citrus leading with \$9,783,330 value, raisins second with over \$6,000,000, shipping grapes third with nearly \$4,000,000. Poultry and eggs nearly reached the million mark.

Southern California

Blythe, Riverside County, is making carload shipments of lettuce.

Many ranchers at Indio Heights are setting out grapefruit orchards.

Escondido expects to receive irrigation water from the proposed Warner's dam.

R. B. Peters says San Bernardino County's crop of peaches and apricots will easily reach 50,000 tons.

Apple growers of Yucaipa Valley have concluded that practically no damage was done to setting fruits by the frosts. Stone fruits suffered.

R. L. Wilson of Beaumont has been appointed a member of the pear and apple marketing committee of the Southern California farm bureaus.

The Southern California Purebred Livestock Association will hold a meeting at La Habra, May 27, in connection with the chamber of commerce and farm bureau.

Ventura County had 70,000 acres planted to beans in 1921; production, 630,000 bags; average yield per acre, 9 bags; value, \$3,528,000; average value per acre, \$50.40.

Bee Inspector De Sellem of Los Angeles County says that strong colonies are not getting over 25 per cent of nectar they should normally because of cold and retarded season.

Potato growers of the Los Angeles County farm bureau are making plans for their annual field day in June at which particular attention will be given to the nematode problem.

A. C. Hardison of Santa Paula has been appointed by Governor Stephens a member of the Committee on Agricultural Education to fill vacancy left by the death of G. Harold Powell.

The parent Navel orange tree in the grounds of the Mission Inn at Riverside has died and will be removed. The other parent tree at the head of Magnolia Avenue is in good condition.

At the annual meeting of the Yucaipa Apple Growers Association the secretary reported the year's sales totaled \$225,247.63. F. H. Gilmore was elected president, C. H. Smith vice-president.

Planting of Lima beans is nearly completed; Baby Limas, still being seeded. The association estimates the coming crop of Limas at 1,350,000 bags as compared with 700 to 800 thousand the past two years.

Riverside bee men say yield of orange honey will be very short because of injury to orange trees and also because of heavy sage bloom many beekeepers will not move stands to the orange groves.

This year's date output from the Coachella Valley is estimated at between 100 and 125 tons. The Valley Packing Association is making plans to pack its fruit in El Monte, Los Angeles County, in order to secure more stable labor conditions.

At a meeting of irrigation interests of Southern California at Santa Ana, May 4, Mayor Evans of Riverside, Bacon of San Diego, Stark of Anaheim, Coulter of Fullerton, Cuff of Brawley and Mitchell of Santa Ana were appointed committee to assure sending of delegates to Washington to a hearing on the Boulder dam project.

The Coast and General

Shipments of Mexican tomatoes totaled to May 1, 964 cars.

Experimental work with cover crops is being carried on by Washington agricultural college in several Yakima orchards.

Some 1,000 acres of potatoes in Canyon County, Idaho, have been pooled and the crop will be marketed through the farm bureau.

The Oregon Cooperative Hay Growers has joined other producers and consumers of hay in complaint filed against high rates for transporting hay.

Nyssa, Oregon, reports sale of 160,000 pounds of pooled wool for 35 cents a pound. Sales from 32 to 38 cents are reported from various parts of the state.

There is a movement to induce all cooperative marketing associations in the Rio Grande Valley, 28 in number, to amalgamate with the Texas Farm Bureau Federation.

The fruit yield of the Yakima Valley of Washington is estimated at over 18,000 cars by Northern Pacific officials. Apples are the largest shippers, placed at 13,000 cars, pears next at 2,500.

Honey crop said to be much lighter than last year in Porto Rico but good in Cuba. Heavy shipments extracted continue to Holland from Cuba at 53 cents per gallon, including cost and freight.

The Pacific Wool Growers Cooperative Association will pool again at Portland, Oregon, and ship by way of the Panama Canal to Boston. Many of the state associations are reducing their handling charges a quarter of a cent.

At the annual meeting of the Oregon Growers Cooperative Association held at Salem, April 25, Kenneth Miller of Sheridan was elected president. General Manager Paulus reported that the association in 1921 transacted nearly a \$2,000,000 business.

The Columbia Basin Irrigation League was formed last week at Pasco, Washington, of representatives from Oregon, Washington and Idaho to secure federal development of the Columbia Basin project as recommended by Gen. Goethals.

That the ranges of Idaho, Oregon and Washington contain fewer sheep than at any time in 10 years is the statement of Miles Cannon, Idaho commissioner of agriculture, who predicts that it will take a number of years for the sheep industry to get back to where it was in these states 10 years ago.

Most of the sour oranges exported from Seville and Cordoba Provinces in Spain go to England for marmalade, but because of uncertainty of sugar prices this season there will be less marmalade made, much of the fruit being retained in Spain and made into orange pulp. Pulp export to the United States is steadily increasing.

The state wool pools of Iowa, Kansas, South Dakota and Illinois have recently renewed their contracts for the cooperative marketing of the 1922 pools with the National Wool Warehouse & Storage Company, a growers selling agency. This selling agency is owned and controlled by about 700 wool growers and operates on a cooperative plan.

HAVE just read the report of the committee of the Los Angeles chamber of commerce published in your issue of April 8 relative to a central livestock market. I am very much averse to entering into any controversy with anyone through the press, but I cannot refrain from calling to your attention some of the erroneous statements made in that report.

To begin with, the insinuation to the effect that the big cattlemen are opposed to union stockyards, and the smaller producers are anxious for them is not so. I am enclosing resolution passed on March 25, 1922 at a convention of the beef cattle producers of Southern California which is self explanatory. This resolution was carried unanimously. Not a single vote or a single word was recorded for the stockyards.

The stockyards committee, which is a sub-committee of the committee of agriculture of the chamber of commerce of Los Angeles which handed you this report, consisted of Dr. Clement, Mr. Platt, and Mr. Nicholls. Dr. Clement is not a meat producer, Mr. Platt is a dairyman, and Mr. Nicholls is a member of a hay, grain and feed firm. I might say right here that I have respectfully suggested to the president of the chamber of commerce that it would be advisable in any livestock matters to appoint on committees men in the livestock business.

The report states that the market conditions are unsatisfactory. In refutation of this I wish to state that for over two years the California cattle producers have received more money for their cattle than cattle producers have received in any other state in the Union, also that for the last several months fat hogs have brought in the neighborhood of 11 cents in California. Trainloads of hogs have been shipped in from Kansas City, Fort Worth, and even Chicago, and these trainloads of hogs were bought at a price to enable the packer to lay them down in Los Angeles and San Francisco in the neighborhood of 11 cents. Therefore

Why Stockyards?

By Fred H. Bixby

it is a fact that the hog producers of California have received more money for hogs in the last several months than hog producers have received in any other state in the Union.

I wish to call to your attention the fact that every week the California Cattlemen's Association mails a market report to every member of the association, giving them all the details of the market conditions, and therefore there is no more ignorance of the situation among the members of the State Cattlemen's Association. I am of the opinion that the hog associations are contemplating the inauguration of a similar plan of informing the hog producers of California of the actual market conditions.

Why should the livestock producers of California saddle themselves with the conditions existing in other states, which conditions are known to be onerous, unfair and almost unbearable.

Why should the chamber of commerce of Los Angeles insist upon boosting for stockyards when they know that this proposition has been tried three times before, and in each case the result was absolute failure?

When the livestock men of California want any assistance in the handling of their business, they will ask for it, and as yet we are not asking for any philanthropic aid from outside interests, and especially we suggest that philanthropy by people having an axe to grind is not very beneficial to the recipient.

Resolution

Whereas, the matter of stockyards in California has repeatedly been brought up before the California Cattlemen's Association for consideration, and on date of February 11, 1922, the

subject of stockyards for Los Angeles has again been brought up for consideration by the Los Angeles chamber of commerce in the following resolution:

"Whereas, the chamber of commerce after an exhaustive study of the subject found that a centralized marketing plan for livestock, properly organized and operated, would be of great economic value to Southern California and the city of Los Angeles, and

"Whereas, it now comes to the notice of the chamber of commerce that some movement has been started in opposition to the working out of such a plan without knowledge of those who are conducting such opposition as to the merits of the proposed plan,

"Be it resolved, that this committee appoint a representative of the chamber of commerce to confer with the executive committee of the California Cattlemen's Association, duly advising said committee of the findings of the chamber of commerce after giving the fullest consideration of the best interests of the livestock producers, and to request that judgment be suspended and adverse action avoided at least until the principals of the marketing plan have had an opportunity to perfect and present their plans and views for the consideration of the members of the association, and further expressing the conviction of the chamber of commerce that the subject is in the hands of competent persons in whom the chamber has full confidence to believe will safeguard in every way the interests of the livestock producers."

And whereas, complying with the request contained in the above resolution, asking for a conference with the executive committee of the California Cattlemen's Association, and

Whereas, such a meeting was ar-

ranged for March 8 and canceled by the Los Angeles chamber of commerce on date of March 7, and a second proposed meeting for March 24 was canceled by the Los Angeles chamber of commerce on March 11, and

Whereas, for the last several years the California Cattlemen's Association has been investigating the marketing problem and has thoroughly and carefully studied the advisability of establishing stockyards, and since it has been insinuated that stockyards have been largely opposed by a few large cattlemen for selfish reasons, and since the California Cattlemen's Association, which is composed of approximately 2,500 cattlemen of California owning an average of 200 head of cattle each, still remains strongly opposed to the establishment of stockyards, therefore

Be it resolved, by the California Cattlemen's Association in convention assembled in the city of Los Angeles on March 25, 1922, that we are opposed to stockyards for the following reasons:

1. Conditions governing the marketing of livestock on the Pacific Coast are not comparable with conditions at eastern points, where stockyards are established and where livestock may be diverted in transit, or after arrival, from one market to another if conditions are not satisfactory at the market to which livestock is originally consigned, thereby enabling the shipper to take advantage of several large markets without any material increase in shipping charges.

2. California market points are on dead ends of transportation lines and do not provide the producer with the opportunity of taking advantage of more than one market point. For example, the Los Angeles market has the ocean on the west, the desert on the east, and must confine its purchases to the demand for immediate consumption, since there is no possibility of developing an export trade because it is impossible to compete with the source of supply from South American and Australia.

3. There is no feeding territory im-

(Continued on Page 580.)

White Coal on the Farm

By J. Howard Blake

LIGHT and power are as essential on the successful farm as hard work and good seed.

If any farmer doubts that let him forsake his power plant and go back to the days of hand milking when all of the barn work was done by the aid of lanterns swinging haz- ardously from the ceiling rafters. He will soon be convinced, and his conviction will be shared equally by his wife who would be just as unwilling to revert to the dark kitchen, the hand churn and all of the numerous household appliances that now start by the touch of a button.

It has been largely this relief from numerous and laborious operations that has established white coal on the farm so universally and rapidly. But out of the total number of farmers who have invested in power plants of one kind or another during the past few years there are a few who are dissatisfied with the return on their investment and blame the equipment for much that is really their own fault. Too many have made their investment under the false impression that "a lighting system" was all that they wanted. In most cases that was what they ordered. No previous plan, including the primary essential of required power, was made, or if so, it was left too much in the hands of an agent or salesman whose first interest was to sell some particular type of equipment.

There are still other homes in all parts of the country where economy was too much of a factor when the lighting equipment was bought. When the salesman was at the farm the only thought was lighting, and the power

requirement was figured on the basis of so many lights in so many buildings with possibly enough surplus to run the pump back in the shed for water supply. After it was installed a hundred and one uses for white coal appeared and the equipment was overloaded, resulting either in serious damage to the generator or batteries or to the temper and disposition of the farmer.

In such cases, instead of blaming the system, the buyer ought, really, to blame himself for not having made a proper estimate of the capacity of the system needed before ordering.

Experience gleaned from a large number of farms has taught the wisdom of installing equipment large enough to take care of any reasonable demand that might be put upon it. To tax it beyond its theoretical limit will result in damage nine times out of ten, and then the repair bills will more than equal the original expense of installing a larger system.

Lights, of course, are one of the primary uses of white coal on the farm, next comes the heavier power such as the operation of water systems, and then, in order, comes a long list of accessories some of which are now considered essential and others are still in the luxury class. Using this chronology the power required for operation may be tabulated about as follows:

	Hours per Day	*Watts	Hours Watt
Residence lights..	4	600	2,400
Barn lights	3	1,500	4,500
*Water system	5	256	1,250

*Average load from October to April when lights are needed.

The energy required for the above uses is approximately ten k. w. hours per day.

To this must be added the following equipment which is usually desired on most farms:

	Hours per Week	Watt Hours
Washing machine	5	1,280
Electric iron	10	6,000
Vacuum cleaner	4	512

There is, therefore, added to the first mentioned standard equipment more than seven k. w. hours per day, which is usually overlooked when original plans for a lighting system are made.

Some complaint has also been brought against lighting systems because of trouble with the storage batteries. In most of these cases the trouble has been the almost inevitable result of lack of information as to giving batteries proper care. While it is true that batteries have been developed during the last few years to a remarkable degree of efficiency, it does not follow that they will run along indefinitely without attention. There are all sorts of conditions that can wreck the best battery made in a comparatively short time. Overcharging them is one; letting them run along without water is another. And it would pay any buyer to spend what time is needed in studying the operations and requirements of his batteries before actually operating his system.

Proximity of the batteries to the power plant is of much less importance than having them placed where the temperature variations are within the proper range. A battery should be neither too hot nor too cold. If placed in a frame shed which is unheated they cannot do their best work, especially in winter when the temperature will probably get much below freezing at frequent intervals. The cellar of the average house is usually as good a place as any for the batteries, it being cold enough there and yet not often below freezing.

As to type and cell size, many farmers have been led into trouble by unscrupulous salesmen whose first in-

terest is to sell their own particular type. Opinions of experts differ as to actual requirements, but it is of interest here to note findings recently made. It has been found that, as a rule, increasing the cell size increases the convenience to the owner and prolongs the life of the battery to an amount which warrants the higher cost. With a larger battery, danger of injury through overcharging is lessened, the load on the battery is more easily carried and the engine and generator operate less frequently.

Since most farm requirements are measured in terms of horsepower the following table will be helpful in translating horsepower into watts and lightage:

H. P. of Motor	Corre- sponding No. of Watts	Correspond- ing No. of 25 Watt Lamps
1/8	93	4
1/4	186	7
3/8	373	15
1/2	559	22
3/4	746	30

Note—1,000 watts equal one kilowatt, i. e., a 1 1/2 k. w. outfit is 1,500 watts.

From this it may be seen that a one-half horsepower motor draws from the battery 373 watts or the same power as do 15 25 watt lamps. With small batteries it is unsafe to operate any motor of over 1/4 h. p. or an appliance of over 186 watts unless the engine and generator are running. This is especially true in overloading, for it is possible to tax a motor or an appliance so that it uses many more watts than is indicated on the name plates.

A little care in installing systems with particular attention to the kind and type of battery used, being careful to use the advertised makes, will overcome most of the objections brought against power on the farm. The great majority of systems are doing their work well and have demonstrated to thousands of farmers in every section of the country that farming with white coal is a much more pleasurable and profitable job than farming by hand.

Susceptibility of Avocados to Frost Injury



Of all those who are enthusiastic in the culture of avocados none have given the same study and investigation to the results of the recent cold weather as Wm. Hertrich, manager of the San Marino Ranch of Henry E. Huntington. After the freeze Mr. Hertrich spent weeks in going from one avocado section to another and studying results on various varieties and conditions in different sections. These investigations were summarized in a report made at the annual of the California Avocado Association. We regret that we are unable to give it entire. We quote this week from Mr. Hertrich's report that portion referring to his work on the San Marino Ranch.

Wm. Hertrich

First of all I will give you the experience I had with a ten acre avocado orchard at San Marino Ranch, located in the city of San Marino, along

the eastern city limits of Pasadena, elevation 520 feet. These ten acres were planted under my supervision in 1910, the stock being Mexican seedlings. The distance between trees was 25 feet.

In 1911 I budded them to large fruiting varieties with good results, and after nursing them for two years carefully, the buds had grown to trees from four to six feet in height.

The cold weather of 1913 destroyed every one back to and including the bud union. After this my interest in growing avocados was somewhat checked. However, the root stocks of the Mexican seedlings began to sprout out again very vigorously and by 1917 most of them were big trees having from two to five stems three to four inches in diameter.

In the spring of 1917 I top worked the whole orchard to the following varieties: Fuerte, Spinks, Sharpless, Taft, Lyon, Dickinson, Murietta, Knight, Linda, Queen, Reys and some

others which looked promising at that time. Most of them had made a wonderful growth by 1922. Some had tops ten to 15 feet in height by as many feet in width. The cold spell of 1922, when the temperature at the ranch dropped to 22 degrees on January 20; 24 on January 21; and 26 on January 22, left very little of 12 years of patient work.

The following varieties were killed back to the trunks: Taft, Sharpless, Lyon, Dickinson, Knight, Linda, Queen, Reys, Murietta. The Spinks appeared to be harder than any just mentioned. Most of the wood and some of the foliage on a few tall trees was retained, the Fuerte proving the hardiest of the collection. Some trees in the lowest part of the orchard lost their leaves entirely but others retained most of them, except along the young tender growth which froze back all over the orchard. In this connection I would say, there are some seedlings planted on the lowest and coldest end of the orchard which proved to be considerably harder than the Fuertes planted next to them. The seedlings

appear to be natural hybrids between the Mexican thin skinned and some larger thick skinned varieties, of which, however, I have no record as to their parentage. The few fruit that ripened on them last year in March are of a rich and nutty flavor, weight 14 ounces. The skin was less than one-sixteenth of an inch thick but leathery.

Seedlings

In another plot were planted about 25 seedlings, the seeds of which were put in in May 1920. The plants stood from four to five feet high.

The varieties from which seeds came were Linda, Knight, Queen, Fuerte, Lyon, Spinks, Sharpless and other large fruited non-named varieties. Among the 25 were five which were practically not affected by the cold at all, even in their young sappy stage.

In another section I had planted ten seedlings in a row, four of which came from the United States department of agriculture. These four, I understand, were grown from seed sent in by Wilson Popenoe from Guatemala for propagating purposes. Having an over supply, the department distributed the rest to different growers to plant and see what they could get out of them. Two of the seedlings were from Queen, two from Linda and one from Fuerte. The Queen and Linda came from Mr. Knight's place, the Fuerte from Mr. Wheedon's, all of which were planted in 1919, except the Guatemalan, which I think were older.

The cold weather killed all of the seedlings grown from seed sent in by Mr. Popenoe from Guatemala. Two of the Knight varieties were frozen severely, two others only back to the trunk. On the Fuerte seedling, only the tender leaves were affected. This in my mind proves that a large number of the so-called thick skinned varieties are hybridized through some source with the Mexican harder type, and a certain percentage of the hybrid seedlings retain the hardness of the Mexican parent. In a good many cases the foliage will indicate this presumption so far as being hybrids is concerned.

Perhaps it would be in order to mention at this time a few words in regard to "water-logged" soil. The summer irrigation which was practiced in this last orchard of young trees was the basin system; the size of the basins was about 10 feet in diameter with about three inches of mulch on top to save hoeing the basins after each irrigation. The nature of the soil was heavy loam (ideal avocado soil in my opinion). However, there was not sufficient drainage in some places on account of heavy clay subsoil. I neglected to break up the basins before the heavy winter rains began last December, consequently the basins that had impoverished subsoil held the water too long, which most likely soured the soil and the trees died very quickly. In ordinary winters this might not have affected them so quickly as was the case of the two weeks continuous rain of last December.

Mr. Hertrich follows the above with reports of findings in other communities from San Diego to Santa Barbara. These were so extended it is impossible to give. The report closes with the following summarization:

* * *

I would like to say a few words to express my honest opinion about the future of the avocado industry in California.

The California Avocado Association should at once educate all of its members who have not had the sad experience some of us had during last January but who are intending to plant avocados in the near future, along the following lines:

All of the varieties recommended by the California Avocado Association, as well as all of the promising varieties, some of which have been on the recommended list as well as some that would have gone on the recommended list in the near future, cannot be planted with safety below the frost line unless the orchard can be equipped with a sufficient quantity of first class orchard heaters.

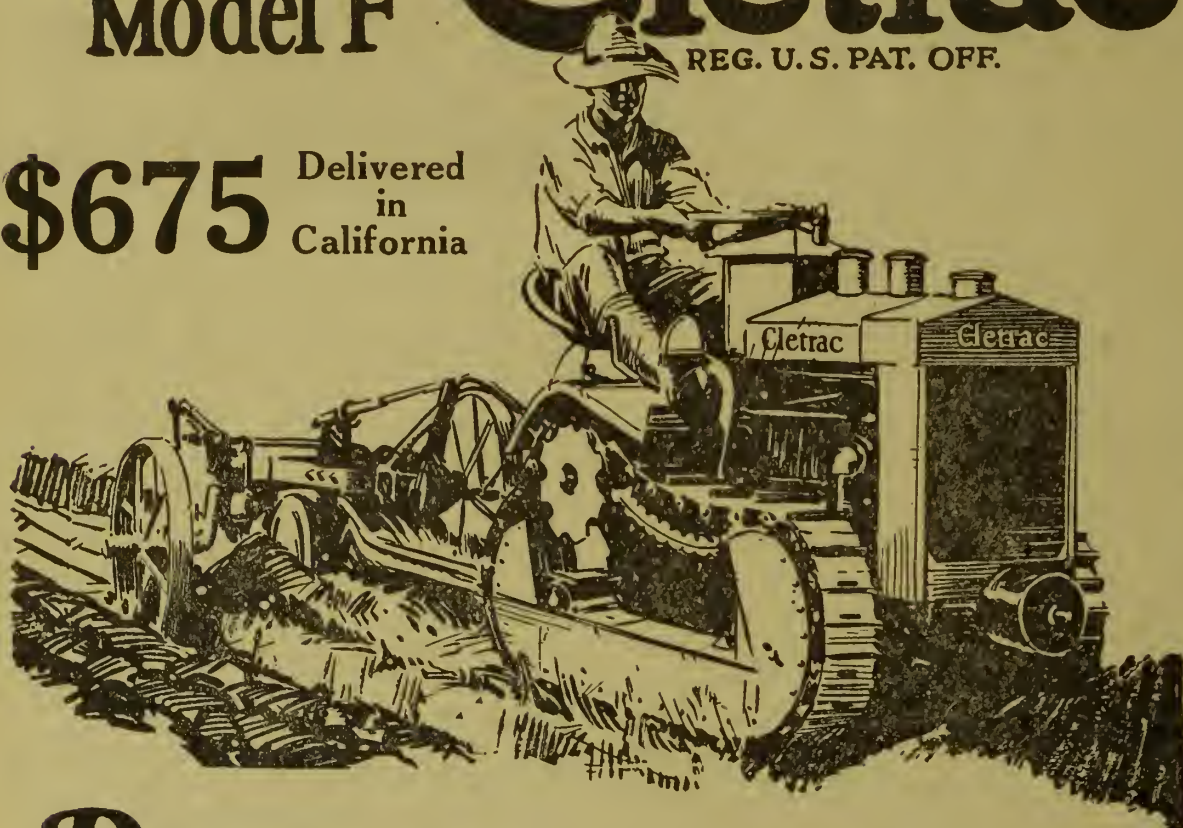
For those of you who have established orchards in the less protected localities the orchard heater will be the only salvation. Those of you who are intending to purchase land for avocado planting, I would advise to

(Continued on Page 587.)

The New Model "F" Cletrac

REG. U. S. PAT. OFF.

\$675 Delivered in California



Does All Farm Work

HERE is a tractor so far in advance of any tractor you have seen that it will make you figure power farming all over again.

Until we actually saw Cletrac F at work and learned its price, we did not believe it was possible to build a crawler-type tractor with chrome steel for every part subject to severe wear and sell it for so low a price.

Cletrac F is the value of the hour. Its power is ample to pull two 12 inch bottoms—to turn under 6 to 8 acres a day. In the same proportion it speeds up all other farm work—discing, seeding, haying, harvesting, hauling, belt work.

Lays its own tracks anywhere and everywhere you want it to go—automatically lubricated—all working parts accessible—handles any job on the farm—and its low price will meet your means today.

Remember this—here is a tractor against which old methods of farming cannot compete. We'll be glad to put it through any test or demonstration—without obligation to you—and stake our reputation on the result.

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"Largest Producers of Tank-Type Tractors in the World"

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PACIFIC COAST FACTORY BRANCHES

LOS ANGELES, CAL. SAN FRANCISCO, CAL. SPOKANE, WASH.

Model 32 "Caterpillar" Combined Harvester



A 2 Man, 6 to 10 Horse
Harvesting Outfit

Now—even though you have no more than 100 acres in grain—you can own a *real* Holt Harvester

No longer need you be dependent on the custom outfit to harvest your grain. No longer need you pay another man a profit for cutting and threshing your crop. No longer must you be satisfied with work that isn't done quite as well as you would do it yourself. No longer need you envy the grain grower who has big enough acreage to warrant the ownership of one of the big Holt harvesting outfits. Now you can have *your own* outfit, cutting full 12 feet, requiring only 6 to 10 horses (or equivalent tractor power) to pull it, and only two men to operate it. And it's a real Holt Harvester in every respect.

A real Holt Harvester! Model 32 has exactly the same separator design as the larger Holt machines, possesses the same splendid grain-saving and grain-cleaning qualities. In addition, it's the lightest running harvester ever built—Hyatt Roller Bearings are used throughout. It is light weight, too—weighs less than 7000 pounds. The separator is of all-steel construction. Lubrication is by the positive, efficient Alemite Sys-

tem. A powerful motor provides power direct to the threshing cylinder. Safety sprockets eliminate breakage. Model 32 is built for a lifetime of service—offered to meet the demand for a *real* combined harvester of small size.

Think of having a real harvester that two men can handle and that can be pulled by a small tractor or a few horses! Think of the convenience, the saving of time, and—best of all—the economy of handling your grain harvest the Holt way. Then place your order at once for one of these machines for 1922 delivery, or mail the coupon for complete information. You owe it to yourself to be fully informed about this profit-making little machine.

Tear out and mail this coupon

The Holt Mfg. Co., Stockton, Calif.

Please send me your illustrated descriptive folder about the Model 32 "Caterpillar" Combined Harvester.

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Address _____

The Holt

MANUFACTURING COMPANY

Stockton, California
Spokane, Wash.

Peoria, Illinois
San Francisco

Los Angeles

CANNING OLIVES COMING BACK

By A. L. Spellmeyer



B. McKELVY who visited the south from the Fresno district in the organization of the new California Olive Growers Association was surprised to find less than 100 acres of cannling variety olives between Los Angeles and Saugus, outside of the Sylmar grove.

Some of the same men who made the peach and raisin industry profitable are interesting themselves in olives. It is stated that there are less than 20,000 acres of budded canning olives in this state, that California has a monopoly of two products, the sun dried fruit and ripe olives.

The varieties are Missions and Manzanillos, the stable canning olives; Sevillanos and Ascolanos, the very large Queen olive canning type. Yield per acre seems to vary. One district reports half a ton to the acre. One canning record shows over 1½ tons to the acre. Some small acreages show as high as four tons to the acre.

An olive grove from planting to bearing time will cost in the San Fernando valley \$1,500 or more, and anywhere in the state from \$700 to \$1,500 an acre. Orchard care runs to some \$45 per acre yearly, picking from \$20 to \$30 per ton, taxes and interest some \$100 per acre on good land. A group of olive men recently figured \$180 a ton as average crop cost in a good year, with a crop probable seven out of ten years. For the past two years olive prices have not in many instances covered picking costs.

Trees were uprooted. No one wanted an olive grove. They were worse than raw land, as a constant expense with no return. The condition in the olive industry was identical with that prevalent when men could not sell their peach crops, and when men dug up their vineyards, previous to organization of the raisin and peach associations.

Some men up around Fresno looked around and said, "The olive industry is in a bad way" and started to examine it. McKelvy was one of them,

Glass another, and some leading lights in the raisin, peach and fig worlds also took a look. To their surprise they found less than 20,000 acres of canning olives, budded, and bearing. 5,000 or more of these acres are in the Tulare district. They figured the olive was just the easiest thing on the whole list of California products to organize and would show the best profit, so they started to it.

A cost plus basis is the aim of the new organization, and this will mean apparently \$250 per ton for the average canning olive. The other difficulty to be met is a standard form of pack so that every can of every olive factory meets a size and quality standard.

At the present time the same ray of hope that has reached the canning olive men doesn't help the oil olive men. With 35 to 40 gallons from a ton of olives, and this oil for the best grade wholesaling now at \$3.40 per gallon, part of other grades go to \$2 per gallon wholesale for olive oil and the residue oil for soap as low as 80 cents per gallon. The tariff is not

sufficiently protective. The oil olive men have a chance to work for a tariff that is protective and wait a better price or tear out their trees. There is nothing in \$50 per ton oil olives of a \$30 picking cost.

INCREASED DUTY ON OLIVE OIL

The duties on olive oil as now operative in the emergency tariff bill are 40 and 50 cents a gallon, according to whether the imports are in bulk or in packages. The new rates secured through the senate amendment are 50 and 60 cents a gallon.

The Fordney bill as it passed the House carried rates of 49 and 57 cents per gallon but the senate finance committee cut these to 40 and 50 cents. Thereupon the California olive industry, through the California Olive Association, began a vigorous fight to get the rates back to where they would be really protective of the domestic olive industry, with the result that the senate on Monday of this week adopted the amendment providing for duties of 50 and 60 cents a gallon.

FROST DAMAGE TO FIGS

As to frost damage to figs I. J. Condit, horticulturist of the California Peach and Fig Growers, says in the Associated Grower:

"The cumulative effect of frost damage occurring in 1921 is just beginning to be appreciated in bearing fig orchards. Calimyrna, Adriatic and Mission fig trees in full bearing have shown very serious effects this spring. Sunburned branches, dead tops and dried out limbs are unexpectedly appearing in trees widely scattered throughout both the San Joaquin and Sacramento Valleys. Heavy pruning and cutting back are being practiced in many such cases in order to reduce the bearing surface of the tree and to renew the top.

Caprifig Situation

"The cold weather of April 9 and 16 has caused considerable damage to the profichi crop of caprifig trees in some sections. It is doubtful whether any injury has resulted to the mamme crop. Even the leaves and terminal buds of all varieties have suffered considerably and will undoubtedly result in a partial or total loss of crop in certain orchards."

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Purchase on Contract

I bought a machine on installment contract, have made part of the payments, but by change in business do not desire to keep up the contract. The parties from whom I purchased state they will sue for the balance. Can I be held to the contract?—Subscriber, Auburn.

There is very little use in having contracts if people cannot be required to comply with them. It is optional with the vendor in such a matter whether he will re-take the machine or sue for the balance. In such action he can affirm the contract and attach the machine.

Starting Grocery

What steps should I take to start a grocery store on my own property outside the city?—Subscriber, Alameda.

Unless there is some particular county ordinance dealing with the matter it is suggested that the necessary requirements are to build a store, put in a stock of groceries, and induce people to buy them from you.

Community—Separate Property.

I was possessed of some cash, furniture and household fittings at the time of marriage. By a former marriage I had a son. The money was used in various household expenses. Since that time my husband and I have invested in property held in the names of both. Can I will to my son the cash

First to establish the \$10.90 price—"Usco"



THE makers of U.S. Tires made this announcement last November—

"Hereafter the price of the 30 x 3½ 'Usco' is \$10.90."

The lowest price ever quoted on a tire of quality reputation and standard performance.

* * *

And now, with the opening of Spring, there seem to be quite a number of "New and Special tires" coming into the market in the \$10.90 price range.

Perhaps you are wondering just what there can be either "new" or "special" about these tires.

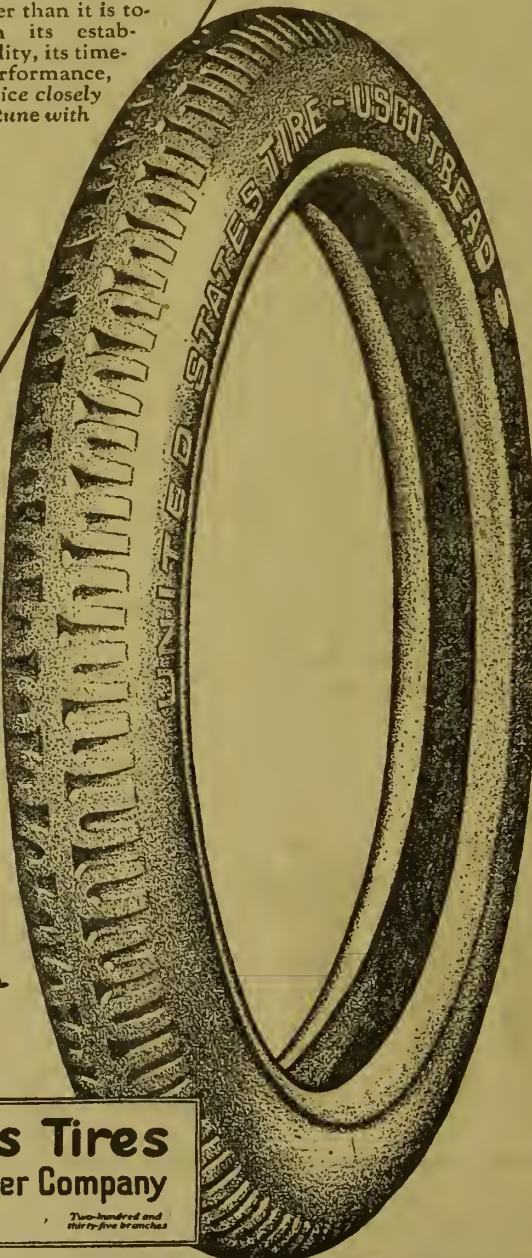
It can't be the \$10.90 price—"Usco" established that five months ago.

Nor quality reputation and standard performance—for it takes more than one full season for any new tire to demonstrate where it stands in quality and value.

With so many tires rushing into this \$10.90 price field (now that the season promises business from the American car-owner), it is worth remembering that "Usco" showed its good faith by announcing this price last fall.

The same intent to serve that has made "Usco" a standard value for years.

The "Usco" Tire was never better than it is today—with its established quality, its time-tested performance, and its price closely figured in tune with the times.



United States Tires
are Good Tires

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U. S. Tire Co.

\$10.90

*and even better
than the price*

United States Tires
United States Rubber Company

Fifty-three
Factories

The Oldest and Largest
Rubber Organisation in the World

Two-hundred and
thirty-five branches

I had at the time of marriage and also one-half of the community property?—Subscriber, Hynes.

The property held at the time of marriage was separate property and that which remains thereof is separate property, such as the household fittings. The cash has evidently been expended in the upkeep of the community and therefore does not remain to be willed. The will could cover the personal property which remains. In-



Sizes: 6, 7, 8, 10, 12, 15 and 24 inches

Bean Turbine Pumps

These pumps assure maximum delivery of water at highest efficiencies, against varying heads. They are made in very small sizes to fit your domestic well and deliver from 100 to 180 gallons per minute. Made also to deliver up to 3500 gallons per minute.

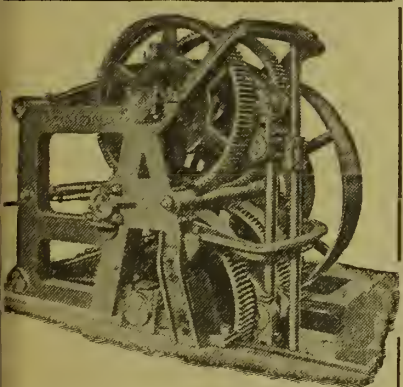
Careful, high grade engineering skill and workmanship is employed throughout.

Send coupon for catalog.

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21 W. Julian St., SAN JOSE, CAL.

BEAN SPRAY PUMP CO.
121 W. Julian Street, San Jose, Cal.
Please send your new pump catalog to my address.

Name _____
Address _____
50-P3



THE POMONA Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

Pomona Manufacturing Co.
POMONA, CAL.
Manufacturers of the
POMONA Irrigation Gates and Valves

sofar as the late investment in real property is concerned the presumption arises from the fact that it is held in the names of both parties that each have an undivided interest in the whole. In such respect this undivided interest in the whole. In such respect this undivided one-half interest might be subject to will. On the other hand it might be subject to proof on the part of the husband that it was community property. Those matters depend upon the circumstances. It would probably be safe under the circumstances to make a will covering the one-half interest. Insofar as community property is concerned, upon the death of the wife all community property goes to the husband without administration and the wife has no interest in community property as such, which is subject to will.

Bought Sight Unseen

If I made an exchange for property which I have not seen, is such a transaction legal? If after looking over the land I find it has been misrepresented, can I rescind and obtain my original property?—Subscriber, Sonora.

There is no requirement of law whatsoever that a party see property before purchasing it. In the absence of fraud the contract is perfectly legal and binding. If the land was misrepresented and if these misrepresentations were material, you are entitled to either of two actions. You may rescind the contract, return to the other party all you have received thereunder and demand the return of your property. If this is refused you may bring action in rescission, providing, however, that you act promptly in the matter. The other remedy is to affirm the contract and bring action for the difference between the value of the property as it is and the value which it would have had if it had been as represented.

Taxes on Estate

Real estate is left to heirs who cannot agree as to its management. The taxes are becoming delinquent. Would one heir have a right to pay these taxes and other liens against the property, and, if so, could he require the others to repay to him their share? Subscriber, Nipomo.

Any one of the heirs certainly would have the right to pay these liens and could require the other heirs to repay their proportion. In fact, he would have a lien on the shares of the other heirs for the amounts which he had paid, together with legal interest. He cannot, however, acquire any right by paying off these liens other than the right to require the repayment of the moneys paid.

Closing Road

Upon taking possession of property recently purchased I find that a road leaves the officially surveyed line for the purpose of going around a hill, and cuts into my property. This has been used by the public for nine years and been repaired and graded by the county. If I desire to keep the public from cutting through my property may I plow up the road or fence it?—Subscriber, Terra Bella.

It would be necessary to go back to the original method under which this detour was made. If the viewers in opening the road and locating it as it now stands made a mistake it would seem that the former owner had acquiesced in this mistake. There are decisions which hold that a road as laid out and opened by the viewers, used and travelled as a public road, graded and kept in repair by the road overseer, becomes a part of the public highway, and the legal presumption arises that the owners of the land abandoned possession of the land for the road, and thus established it. If you should plow up the road and be found in error it might entail considerable expense upon you to replace the road in the original condition. In order to test the matter it would be well probably for you to extend your fence across the road as it stands and have the matter settled by an action in trespass against the road overseer when he comes and seeks to remove the obstructions. As frequently stated these matters of roads are so dependent upon the exact history that it is difficult to give a definite statement.



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A SEIBEL AIR SPRING SEAT on your tractor will free you from that bouncing, jolting, and constant swaying—will protect you from the danger of a permanently injured spine and serious kidney trouble—will make you feel 100% fresher at the end of the day.

\$18.50 on ten days' trial

Send \$18.50 to our nearest agency, or to the company direct, for a ten days' trial. Pay the return freight if you don't want to keep the seat, and your money will be refunded.

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Fumi-Spray Kills Red Scale

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CHARTERS-DAVIS COMPANY
PACKERS AND SHIPPERS OF FRUIT
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CORONA, CALIF.
April 19 1922.

Herb. Chen., Lab.
Los Angeles

Gentlemen:

Replying to your inquiry of the 18th, as far as we are determined now we are satisfied that your preparation will kill red scale.

We have already had an inquiry as to results obtained.

Yours truly
Charters-Davis Co.
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Manager

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In another year we will be able to present those growers of Southern California who may doubt our claims as to the effectiveness of Fumi-Spray, with convincing testimonials from well known growers (like the above) who have put it to a practical test. Remember, Fumi-Spray is just out—but it is winning its way over all opposition. We stand ready to prove our claims by any test you may name—a bad case of purple scale, for instance. We honestly believe Fumi-Spray to be more effective than fumigation—and less costly, less work, less danger. We challenge you to challenge us to prove this!

HERBICIDE CHEMICAL LABORATORIES
1963 Santee St., Los Angeles, Cal.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sweet Potatoes

Will you please advise me as to kind of sweet potatoes you consider best for the market and how far apart are the plants set in the rows?—Subscriber, San Dimas.

The Nancy Hall is probably the best variety and is the earliest. For late the yellow Jersey leads as it is the better keeper. Yellow Nansemond is also grown by many. The usual planting is 18 inches in the row and rows 36 inches apart. Some plant in the row but a foot apart.

Saving the Moisture

I have several thousand grape cuttings set out in nursery rows in very

sandy soil. I have been wondering if it is necessary to cultivate often in such soil to keep ground moist, as you would in heavy soil. From the little experience I have had so far with cultivation twice a week the soil seems dry for about three inches down, but from there down it is quite moist. Do you think it would be more moist on top if not cultivated?—Subscriber, Pasadena.

As a rule growers believe that frequent shallow cultivation, keeping a dry dust mulch on the surface aids in preserving moisture in the soil. If one does deep cultivation the moist lower soil is thrown up to the surface and a large content of its moisture is lost through evaporation. Many prefer to follow irrigation with deep cultivation and then give shallow cultivation a few days later. Others will go over the field with light hand tools or hoes, cutting weeds here and there and dis-

turbing lower soil as little as possible. Light straw or manure mulch aids in holding moisture in loose sandy soils.

Prices for Team Work

Is there any regulation in this state in regard to prices for team work in orchards? I should very much like to know what Los Angeles County is charging. In Porterville we are paying \$7 a day for our plowing and that was the wartime price. Has there been no reduction? I see no reason for such high prices now.—Subscriber, Berkeley.

There is no legal provision as to prices which may be asked for team work, and if no teamster may be had at less than \$7 per day, which is twice what we could secure good team work for some years ago and that for ten good full hours, then the \$7 must be paid. In fact Porterville is a whole lot better off than is the city of Los Angeles. We have vivid recollection of one piece of work done a few weeks ago where the owner of a piece of land

wanted a little dirt moved so he engaged a teamster with one helper and a scraper. Instead of the anticipated two or three hours the job was hardly finished at noon so the teamster and helper came back and worked a short time after luncheon. This necessitated a charge for two half days. All told, less than six hours of time was put in for the work. The teamster made a charge of \$12, with \$5 additional for the helper, or \$17 total. Of course it is impossible to farm where such prices are paid, and for the small farmer either cooperative ownership of team or tractor is made necessary.

Whitewash for Almonds Affected by Frost

I have a young almond grove three years old. Last year the blossoms or young nuts all froze. This year most of them froze, but the peaches, which were but a little later about blooming escaped. I am told that Prof. Whitten of the U. C. advocates whitewashing the trees to delay the blossoming and so lessening the danger from frost. I would like to hear from some one who has tried this plan, as to what results were obtained; also, if the results were good, as to how much of the tree was whitewashed—just the trunk and big limbs or the whole tree, buds and all. I think if we could delay the blossoming for two weeks it would often save the crop that would otherwise freeze. I hope that someone who has had experience in this matter will kindly give same through your columns, and believe it will be of great interest to many of your readers.—Subscriber, Paso Robles.

We would refer our inquirer to comment on "Whitewash Retarding Blossoming" written by W. R. McLean on page 7 of our issue of January 7, 1922.

Argentine Ant

The little red ant is here. Will you give description of the Argentine ant? It seems to have driven off the black ant.—Subscriber, East San Diego.

There are three distinct forms of adults, workers, males and queens. The workers gather the food and attend to the labors of the community and are simply imperfect females with no reproductive capacity. They greatly outnumber the other forms and are the ones most commonly met. The males, always winged, are the drones of the colony and have only one function, that of fertilizing the queen. The queens are the reproducing females and for a short time during the mating period are winged. They remain in the nest most of the time, but occasionally may be found out in the trails—a characteristic of this species.

SUN-MAID GROWERS OPEN OFFICES IN ORIENT

The Sun-Maid Growers has established headquarters at Shanghai to handle the oriental trade. Branch sales offices will be opened at various commercial points. The territory covered will include China, Japan, Dutch East Indies, Straits Settlements and Northwestern Siberia. C. S. Beatty has been named general manager and will be assisted by Thomas M. Knight and K. Nakamoto.

MARKING CAPRIFIG TREES

The California Peach and Fig Growers is cooperating with the State Nurserymen's Bud Selection Association in placing permanent labels on all caprifig trees in the valley.

COTTON CONFERENCE

A public conference will be held at state department of agriculture, Eleventh and K Streets, Sacramento, June 3 at 10 a. m. All persons interested in the protection of California's cotton industry are invited to be present at the conference and be heard, either in person or by attorney.

Nuevo, Riverside County, estimates its apricot crop at 400 or 500 tons.



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No previous closed car standard prepares you for the quality you find in the Essex Coach.

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Touring, \$1095

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Freight and Tax Extra

Essex Motors, Detroit, Michigan

Household Department

MAN'S WORST ENEMY

By O. S. Pinckney

I'd been working hard in the field all day, in the blistering sunshine, pitching hay, and glad I was when the night had come, and I shouldered my fork and started home:

Home to the supper, waiting for me, in the cooling shade of the maple tree.

I had milked the cow and the stock I'd fed,

And brought the wood in from the shed, And then, at last, had sat me down, To fried potatoes and biscuits brown; Bread and butter and layer cake, And other good things Mollie makes.

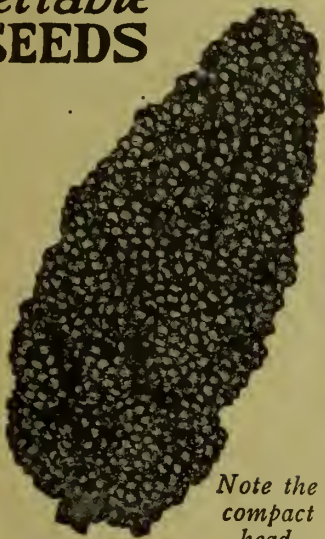
Then, after supper, the paper read, I wended my weary way to bed, And soon was sunk in slumber deep, Dreaming I owned ten thousand sheep; Wool at a dollar—and then a shock— 'Twas the rattle-te-bang of the darned alarm clock.

MRS. GRAHAM'S MOTHER

(Continued)

"Frankly I had no idea that you would give us such a wonderful, such

A&M
reliable
SEEDS



Note the compact head

A&M
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Dwarf
Milo Maize

In heading Maize you experience a feeling of satisfaction when you grasp a large, well-filled, heavy head; one after the other all the same height from one end of the row to the other. It counts in the profits, too, and the cost per acre for seed is a mere trifle.

A & M Selected Strain Dwarf Milo produces fields of this description.

Packed in even weight, branded, 100-pound bags.

Ask Your Dealer

Aggeler & Musser
Seed Company

622 So. Spring St.
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an admirable paper," she said.

"I haven't been in club work all these years for nothing," Mrs. Tate replied after thanking her.

"You were a dear to help us out, and I know Helen must be bursting with pride. The president of the federation said yours was the finest paper she had heard in her travels. She wants to meet you."

Not long after this event a huge festival was projected to make money for a community house. Helen Graham was to have charge of the refreshment booth, and she began at once to enlist her friends to help her. Her own mother she did not ask, to that active woman's displeasure. When the plans were in shape and Mrs. Tate could stand it no longer, she made a few remarks to her daughter.

"If this were back in Wessington I'd be at the head of the whole thing. Here I'm of no use whatever."

"Why, mother," gasped her daughter, "what a remark to make! You know you've done your duty many times over, besides bearing other people's burdens. You've worn yourself out in good works for Wessington, and you deserve the vacation I'm trying to have you take. You are helping me by just being here. You shouldn't undertake hard tasks now. We younger women should take up your work. It's our turn now."

"I'm not objecting to your working. What I don't like is not being allowed to work myself. There is plenty of work for both old and young."

"Yes, but we have to take a rest sometimes and this is your time. If you don't stop once in a while you'll have to stop altogether."

"Fiddlesticks! It's you, not work, that makes me weary."

"Now, mother. Just cuddle down in this chair before the fire and read that new novel. I'm off to a committee meeting and am due this minute."

"A novel," sniffed Mrs. Tate, "when there are dozens of improving books I want to read!" And before Helen reached the sidewalk her mother was on her way to her room, where she wrote the paper for her club at home, for which she had been gathering material.

The whole of the day before the community festival took place Helen Graham spent in arranging her refreshment booth. In the middle of the morning Mrs. Tate went to the building with a package of decorations which her daughter had forgotten. In her heart was a faint hope that she might be given some part in the work of preparation.

"You're a jewel, mother, to bring me all this stuff. I was wondering what I had done with it. Just look around and see what is going on in this bustling place, but don't you dare to take a hand in the work or you'll be too tired to come tomorrow."

"How about yourself? It strikes me that you may be slightly weary by that time."

"Of course I shall be tired to death, but I have to come, and you don't."

While they were talking, Mrs. Benson came running over to them from the other end of the building.

"Isn't it too exasperating? Mrs. Haines has been called to Chicago to meet her old uncle who is going to leave her his money, and her chief assistant is home with her sick baby. We had expected the flower booth to be the best paying of all, and now it will have to be left out unless we can find some one to take hold of it. Everyone is too busy even to suggest some person to take it," she said gloomily.

Just then the arrival of two huge boxes at the refreshment booth required Mrs. Graham's attention, and Mrs. Tate and Mrs. Benson moved away toward the booth in question. Mrs. Benson stopped every few steps to try to enlist the services of some one, and Mrs. Tate sauntered along alone. She came to the space for the flower booth just as two men, hidden by the immense palms they were carrying, stopped her to ask where their burdens should be put.

"Put them up there," directed Mrs. Tate, pointing to some wide shelves she had just discovered.

The rest of the morning she spent



Wall Paper Free

Here is our offer. We will give you enough wall paper for the walls of your bedroom, absolutely FREE OF CHARGE with each purchase of sufficient border to cover same. State size of room when ordering. One room free to each order. We are overstocked on hundreds of patterns and must make room for heavy shipments now coming in. All patterns of late design and first class in every way. Send for sample books and state size of rooms when ordering.

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Our enormous buying power enables us to make exceptionally low prices on a complete stock of designs for living, dining, kitchen and bedrooms.

Lot 1	Lot 2	Lot 3
Living and dining room. Your choice of many attractive designs at	Kitchen and Bathroom Tiles	Bedroom. Your choice of many of our attractive designs at
1c a Roll	35c a Roll	1c a Roll
Border to match HIGHEST GRADE	HIGHEST GRADE	Border to match HIGHEST GRADE

Lot 4

30-in. Papers, Tapestry and Grass Cloth Effects, 65c a Roll

Borders must be sold with Lots 1 and 3. Look over our prices. You will find they are much lower than elsewhere. No returns. No exchanges. Remember, the stock will not last long at these prices. You will have to act quick. Order today. Return sample to us of patterns desired.

PAINT PRICES ALSO SMASHED

Bungalow Paint, all colors, gallon.....\$1.00	Roofing or Building Paper.....\$1.00 Roll Up
Flat White, gallon.....\$1.10	Kalsomine, pound.....6c
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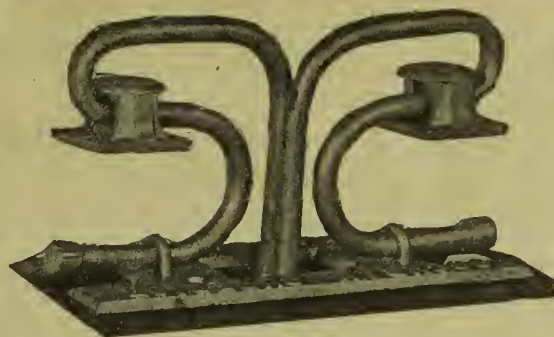
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The New Superior saves you money, labor, and time. The quickest, simplest and safest oil-burner known.

Learn about the modern way to heat your stove or range.

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KRESKY'S SILENT BLUE WONDER BURNERS

Fit any cook stove, use kerosene; no stopping up, no cleaning; cheaper, cleaner and safer than wood; cool in summer, comfortable in winter. Satisfaction guaranteed. Live salesmen wanted. Great seller.

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Military
Automatic

\$10⁴⁵



FREE—Extra Magazine Worth \$1.50
No. D333. Most remarkable pistol value ever offered. Brand new; handsome blue steel, 32 cal. 10-shot automatic, \$22.50 value... **\$10.45**

No. D222. 25 CAL. AUTOMATIC PISTOL. Handsome blue steel. Fits pocket. 7 shot. \$15 value... **\$7.95**

Extra magazine for above, each... .80
No. D555. 45 CAL. REVOLVER. Break-open, automatic ejector, double action, range type. Nickel finish. **\$9.75**
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All guns use standard ammunition

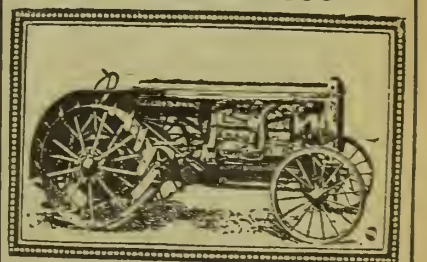
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111 New Montgomery St., San Francisco

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TWO SIZES—15-25, 18-30

Do your harvesting and threshing with an Allis-Chalmers.

Ask our nearest agent or write us and find out how we make it easy for you to buy your A-C tractor.

H. V. Carter Motor Co., (Distributors)
52 Beale St., San Francisco

in arranging the plants that came. She was not disturbed in her labors.

Mrs. Benson had asked various women to manage the booth and, when she happened to look in the direction of the flower booth and saw work going on there, she returned to her own booth.

Mrs. Graham, occupied with her own plans, supposed her mother had gone home.

At luncheon time Mrs. Tate slipped out without a word to her daughter and ate her noonday meal at a near-by tea room.

In the afternoon the flower booth developed into a fairy dell under the skillful management of Mrs. Tate and two helpers whom she had picked up at luncheon. By dinner time everything was ready for the next day. The cut flowers were not expected before morning. She went home tired but happier than she had felt for many a day. She put on a fresh gown and was sitting on the davenport reading the evening paper when her daughter appeared and dropped at once into a chair.

"I can hardly take another step. I simply must go to bed. Kate can bring me some dinner. I'm so thankful you were not mixed up in this tiresome business. I've had no end of trouble and disappointment."

Mrs. Tate followed her daughter to her room, helped her to undress, and gave orders for her diner.

"You look so calm and restful, mother. I wish I felt as you look," her daughter said as she stretched herself out on her bed.

Mrs. Tate laughed merrily and went to the dining room to eat dinner with her son-in-law.

The next morning the last finishing touches were added to the booths. Fortunately, the refreshment and flower booths were at opposite ends of the building. With her helpers, Mrs. Tate had everything ready before noon, when she went home, read awhile, and then dressed in her most becoming gown. Mrs. Graham hurried in just in time for luncheon, tired, flustered, and out of breath.

(Continued next week.)

HOUSEHOLD QUERIES

Mint Sauce

Will you kindly tell me how to prepare mint sauce for serving with meat? Thanking you in advance for the favor.—A Subscriber, Waitsburg, Washington.

Cut fine with sharp knife fresh green leaves and tender tips of mint. Add vinegar and sugar to taste, just enough in quantity to cover the minced leaves. Some cooks use a little salt and very little sugar and let the sauce stand for several hours before using, but many prefer to use as soon as cut. One tablespoon to a serving is the usual proportion.

Rose Potpourri

I have been looking for directions for making old-fashioned rose jar or potpourri. I wonder if you would print the rules in your column soon.—Subscriber, Fillmore.

Gather petals of most fragrant roses (the red ones usually are the sweetest). Spread thinly over sheets

of paper and dry for several days, turning occasionally to make sure that all are evenly dried to a crisp state. Old formulas tell us to dry them in the sun but I have found it better to dry in the house where the petals dry more evenly and slowly and where there is no wind to blow them off the drying sheets. Perhaps our California sun is hotter—we know our air is dryer—than in the Eastern states or in England whence hail our grandmother's potpourri recipes. The floor of an unused room would be the most satisfactory as rose petals would be undisturbed by motion of coming and going and would not accumulate dust. Besides the fragrance is unpleasantly heavy to many people in living rooms. Rose geranium leaves, orange blossoms, lemon verbena, sweet marjoram, honeysuckle, lavender or other sweet-scented herbs or flowers may be added. Thoroughly mix with the dried petals the following potpourri spice and place in rose jar:

Ground cinnamon, 1 teaspoon; cloves, 1 teaspoon; attar of roses, 3 drops; glycerine, 9 drops; pure alcohol, 1 tablespoon; oil of lavender, 6 drops; rosemary, 6 drops; powdered orris root, 2 ounces. Sift dry ingredients together and bottle with glycerine and alcohol till ready for use.

Or, dried petals may be well peppered with orris root, cinnamon and salt (about 1 tablespoon for ordinary rose jar). Place in jar, then add 20 drops each oil of cloves and lavender, 10 drops oil of cinnamon and as much oil of musk as you wish to afford. Keep jar in dry place and covered except for a few minutes when it may perfume the room. Stir every day for first 2 years. The fragrance will grow more delightful with the passing years.

Here is another: 3 handfuls orange blossoms, 3 of clove pinks or stock, 3 of rose leaves, 1 each of sweet marjoram, rosemary and lavender, ½ handful mint leaves, rind of 1 lemon, 6 bay leaves, ¼ ounce cloves. Chop finely all together and thoroughly mix. Spread in layers in jar with handful bay salt between each two layers.

Boiled Cake

What in the world is a boiled cake? I have just seen several references to boiled cake as being so good and inexpensive. Can you tell me how to make it?—Subscriber, Los Angeles.

Here is a recipe for a "boiled" spice cake. It's not so different from ginger bread after all and not a bit mysterious—but delicious, is moist, keeps well and is not too rich to be eaten heartily. One cup sugar, one-half package raisins, half cup walnut meats broken in small pieces, one tablespoon lard, pinch salt, one teaspoon each cinnamon, cloves and allspice, sprinkle of nutmeg, one and one-half cups coffee. Boil together and let get cold, then add one teaspoon soda in a little water and enough flour to make stiff. Bake in a slow oven about one hour.

Pickled Limes

I am a subscriber to your paper, from which I get a great deal of information of very practical use. I should like the best recipe you have for pickling limes.—Subscriber, National City.

Wash limes, cut out stem ends and stems, pack in jar, sprinkle thickly with salt, cover and let stand for one week. For stuffing take 3 ounces chiles, 4 ounces garlic, 4 ounces turmeric, pound together and add 3 ounces green ginger sliced, adding just enough vinegar to make a paste. (For any quantity take in proportions given, doubling or halving as required.) Stuff this into the limes, tie them together and stand in glass or stone jars for one month, when they will be ready for use.

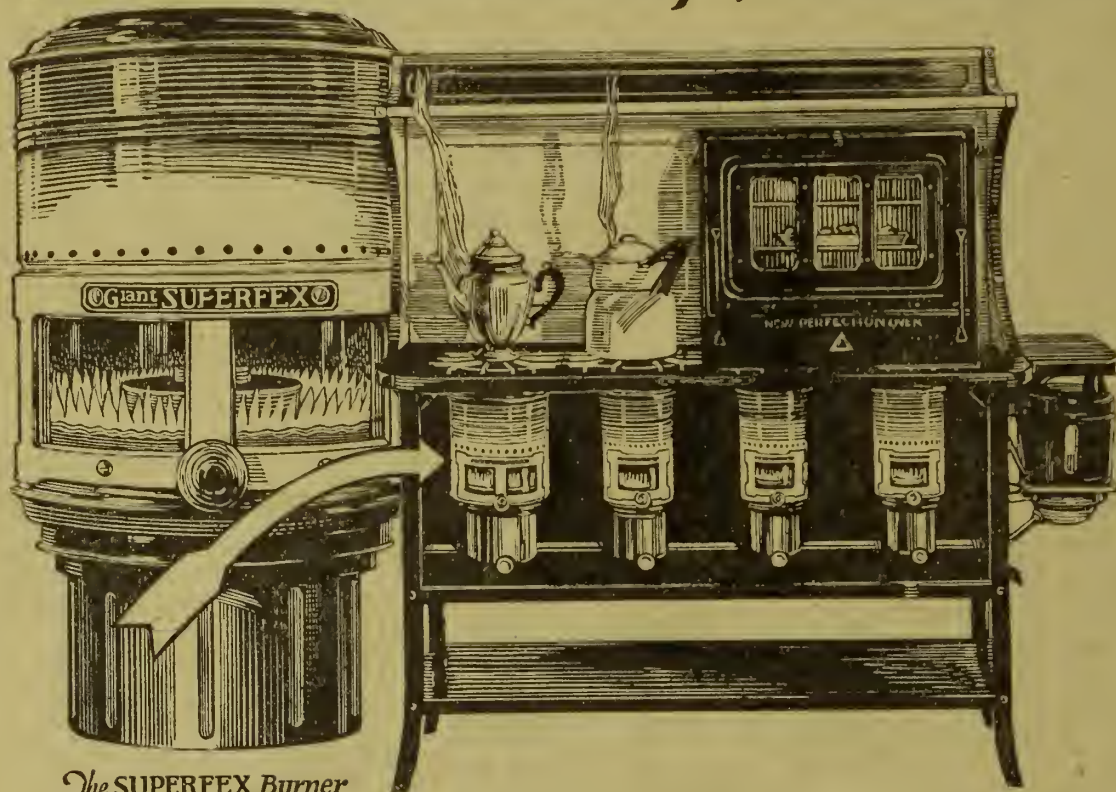
Hard Soap

Have directions for making soft soap, but can you tell me how to make the hard kind?—Subscriber.

Clarify fat thoroughly, melting and adding water, bringing to a boil, and allowing to cool. The fat will form a solid cake on top of the water and the impurities will sink to the bottom and may easily be removed. Melt fat again and heat until all water has evaporated, till bubbling stops. Then slice a medium sized potato into it and

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What you get in this new stove—See it NOW at your dealer's.

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2. Abundant heat that is absolutely clean and odorless.
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5. Handsome, sturdy, long-lived stove with higher and bigger Aladdin Quality Porcelain Enameled Cooking Top, and new base shelf for utensils.
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To accommodate the SUPERFEX Burners and the Giant SUPERFEX, we have constructed a stove that for beauty, strength, smartness, convenience, completeness and all-around satisfaction, sets a new standard. Now on exhibition for the first time—America over. Visit your dealer.

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PLAN now to prevent food from spoiling during the hot summer months. New, sanitary, all-metal, rust-proof cooler, keeps food cool, fresh and sweet without the use of ice, chemicals or electricity. Costs nothing to operate; will last a life-time.

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Special Offer to users willing to show our cooler to prospective buyers. Write at once for attractive folder and special offer. EMPIRE MFG. CO. 175 N. 7th St. Washington, Iowa

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The Slevert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Slevert Oil Burner Co., 710 North Main St., Los Angeles.

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strain through a dry piece of cheese-cloth.

To each five pounds of lukewarm grease use one small can lye, one quart cold water, one-half cup hot water, three tablespoons borax, one-fourth cup household ammonia, two tablespoons sugar, one teaspoon salt. Mix lye and cold water, let stand till cold, stirring occasionally. Mix one-half cup hot water with three tablespoons borax. Let this cool and add one-fourth cup household ammonia, two tablespoons sugar and one teaspoon salt. Pour lye into grease slowly, stirring continually with a wooden spoon or spatula. Add other mixture, stir until light and thick. Pour into an enameled pan lined with paraffin paper. Crease before soap gets cold.

Canning Chicken

Could you kindly let me know in your columns, which we so much appreciate and know the value of, why we can't put up canned chicken like fruit and vegetables. We sell our broilers and hens at such a low price. I know there will be many more who will appreciate such a recipe.—Subscriber, Petaluma.

Here is where possession of a steam pressure cooker simplifies matters. If you have a pressure cooker it is only necessary to sterilize in cans 30 minutes at 15 pounds steam pressure, 250 degrees Fahrenheit. Otherwise it is necessary to boil for three successive days for 1½ hours each day.

Meat should be cooked as desired for use on table, fried or boiled until almost done. Pack hot cooked meat in cans, fill with boiling hot gravy, tomato sauce or broth. A gelatin broth made by boiling unflavored gelatin in meat broth or water is often added. This sets to a jelly in the jar after sterilization. Two or three ripe olives added to each jar will improve flavor. Place in boiler, bring water to boil and boil hard for 1½ hours on three successive days.

Or the acidified brine method may be used. To the liquor from cooking add 1 ounce (2 tablespoons) lemon juice or strong vinegar per quart and mix well. Pack meat in jars or cans. Add boiling hot liquid and boil hard four hours.

HINTS FROM HOUSEKEEPERS

Fig Marmalade

Here is a recipe for fig marmalade and I think if once used you will never go back to the old way of preserving figs:

To 9 cups figs ground through food chopper, use 6 cups sugar, 1 large lemon or 2 small ones ground. Mix well together and cook in covered granite or aluminum pan in the oven just long enough to thoroughly sterilize it, for too long cooking destroys the delicious flavor so characteristic of this marmalade.—Mrs. Clara Schrack, Valley Springs.

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

Does the nervous condition of the mother affect the milk?

The failure of the modern mother as a nurse is due to anxiety, loss of sleep, fatigue, worry, household cares, and social dissipation; and uncontrolled emotions, excitement, grief, or fright, may cause milk to disagree with the child.

A nursing infant that is well nourished has good color, sleeps two or three hours after nursing, or, if awake, is good natured, comfortable and happy. It gains weight steadily, and has normal movements of the bowels.

If it is not getting enough, it does not gain and may even lose in weight. It no longer shows energy or playfulness, but is cross, fretful, and irritable, and sleeps poorly. Some babies nurse a long time, when the milk is scanty, and others for only a few minutes, and then turn away in utter disgust. The only sure way of telling how much a child is getting is to weigh it before and after nursing four or five times a day; it need not be undressed.

Most doctors insist upon a mother nursing her child, even if it does not get more than a teaspoon and is given a substitute bottle after each nursing. A small amount of good breast milk greatly improves the child's nutrition. The trouble is nearly always with the milk, not with the child.



When Hungry Little Muscles Say, "Please Help Me"

DID you ever stop to think who it really is that's talking, when childish voices raise a clamor, "Mother, I'm hungry?"

It's really muscles and bones and nerves and cells worn in the stress and strain of play—that are calling for rebuilding material.

What kind of an answer? The *right* thing, or just *anything*? It makes a big difference.

Grape-Nuts, so deliciously crisp and appetizing to taste, and so quick and convenient to serve, is a splendid food for rebuilding young bodies. All the wonderful nutriment put in wheat and barley by Nature, including the vital mineral elements, is there—and Grape-Nuts digests easily, quickly and completely. Served with cream or milk, Grape-Nuts is exceptionally nourishing.

"That's splendid!" says appetite. "That's just the need!" say the hungry muscles, nerves and bones.

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WATER AND OIL TANKS Made from 2-inch Clear Air-Dried Redwood							
Capacity		Outside Dimensions				Ship- ping Wt. Lbs.	Price
Gals.	Bbls. 42 Gals.	Diameter ft.	Height in.	ft.	in.		
500	12	5	5	3	11	440	\$24.00
750	18	5	9	4	11	580	30.75
1,000	24	6	6	4	11	655	35.25
1,500	36	7	1	5	11	830	45.00
2,000	48	8	1½	5	11	975	52.50
2,500	60	8	4	6	11	1,145	60.75
3,000	71	9	1½	6	11	1,270	69.00
3,000	71	8	5	7	11	1,290	69.00
4,000	95	9	10½	7	11	1,555	87.00
4,000	95	9	2½	8	11	1,580	87.00
5,000	119	10	11	7	11	1,745	98.25
5,000	119	10	3½	8	11	1,790	98.25
6,000	143	11	4	8	11	2,010	111.00
7,000	166	12	1½	8	11	2,160	118.50
8,000	190	12	3	9	11	2,375	130.50
10,000	238	13	7½	9	11	2,770	150.00

We will allow 5 per cent discount for cash with order or 2 per cent discount for cash in 10 days from invoice date.

All prices are for tanks complete, ready to erect, K. D., F. O. B. Pittsburg, Cal. The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

Complete instructions for erection accompany each tank. If erected according to these instructions, we will guarantee a water-tight tank. Made from clear, air-dried redwood, banded with round steel hoops fitted with upset threads.

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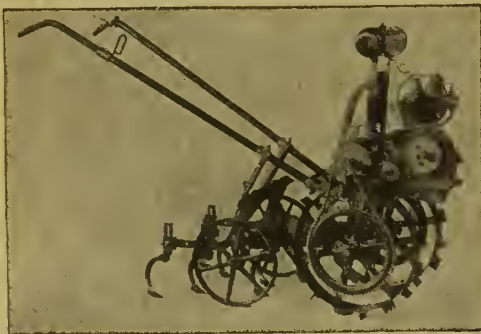
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Young boars sired by Royal I Am, grand champion at all California shows and at Portland in 1921.

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Herd Headed by the King of Hollow Hill

BERKSHIRE HOGS

Stock of Both Breeds For Sale

Alex. Wilson, Supt. Guasti, Cal.

CHAFFEY JUNIOR FAIR A BIG SUCCESS

By Jack Klein



VER 100 high school lads who have been training in the agricultural departments of 18 schools of Southern California accepted the invitation of the Chaffey Junior farm bureau to attend the fair held at the school grounds in Ontario on May 19-20.

This junior farm bureau which is affiliated with the San Bernardino County farm bureau is one of the first junior organizations in the West and is apparently more active than most adult farm bureau centers.

The fair this year completely eclipsed the one held last year in number and quality of the exhibits. Only members of the clubs in the district were eligible for prizes on their exhibits, but there were plenty of them. In the pig department there were over 100 entries. In the chicken show there were nearly 200 birds, and the rabbits and pigeons ran them a close race for numbers. The calf club boys had a number of entries, and a few mature cows which have been used in various projects were also on hand.

Displays of school work in lines of agriculture other than livestock were numerous and educational. The girls had a large exhibit showing their efficiency in sewing, cooking, housekeeping and nursing. A number of girls were also exhibitors in the livestock classes.

On Saturday judging teams from Holtville, San Bernardino, Lancaster, Brawley, Riverside, Pasadena, Pomona, George Junior Republic, Owensmouth, Hemet, Long Beach, Chaffey, Van Nuys, Citrus Union, Gardena and from Jefferson, Franklin and Manual Arts in Los Angeles entered the big contest in livestock judging. They were required to place a class of horses, sheep, hogs, beef cattle and dairy cattle. Professors True, Howell, Thompson and Hughes from Davis, assisted by Mr. Wilson and Mr. Thomas, were in charge of the judging.

The contest was divided into three classes. Class A was for the judging teams and was won by the boys from Van Nuys. George Junior Republic was second, Lancaster third, Riverside fourth and Pasadena fifth. In this class John Ritter of Lancaster was high man.

Classes B and C were for individuals and were equal, the division being made on account of the large number of boys.

Class A—1, Glenmore Inbeck, Van Nuys. 2, Virgil Stalder, Riverside. 3, Harry Adams, Van Nuys. 4, Karl Kelsey, Riverside. 5, Cecil Stalder, Riverside.

Class B—1, Robert Shaffer, Owensmouth. 2, Albert King, Pomona. 3, James Powers, Lancaster. 4, Burl Hancock, Long Beach. 5, Wm. Sawyer, Lancaster.

Animals for the judging classes were furnished by the breeders of the neighborhood. The Italian Vineyard Co. of Guasti showed Berkshire swine, Wessels and Mahoney of Chino, Guernsey cows and Hall Brothers of Perris, Shorthorns. All of the animals were of the highest quality and it was somewhat of a task for the professors to place them to their own satisfaction after the boys had finished.

The men from Davis were highly pleased with the work of the boys. With the swine and two cattle classes they showed exceptional knowledge, but most of them were a bit at sea with the horses and sheep. As Mr. Wilson said afterward they had not expected much knowledge of sheep from boys in Southern California where sheep are not plentiful, and they tried not to smile when mention was made of the sheep's hams and its fur and hair. His speech to the boys after the judging was very comprehensive and pointed out their faults so carefully that in the future many of them will score much higher on sheep judging.

The exhibits made by the boys were judged by Messrs. Gordon and Ralston of the university extension department.

Twelve thousand cuttings of the athel tree or tamarisk articulata are being set out by the Fontana Farms Company. These trees, similar to a pine though not of the conifer family, are famous for their prodigious growth

and dense foliage. They will be used at Fontana to fortify the existing border tree and windbreak system which now contains over 400 miles of fully grown eucalyptus trees. It is estimated that there are cuttings sufficient to plant a row from 13 to 15 miles in length. The cuttings are placed directly in the groves midway between eucalyptus rows, the soil having first been thoroughly wet. During the grove irrigating season they will receive water every 21 days. Judging from the experience in Coachella Valley and other sections where tamarisks have been planted it will be but a very few years before these trees are fully grown.

Sharp practices will not cure dull times.—Ashville Times.



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High efficiency and slow speed keep power and repair bills down. Viking pumps operate at 60% to 65% efficiency and maintain a constant high efficiency under varying heads (impossible with the ordinary centrifugal type).

Sizes: 10, 20, 35, 90, 300, 450, 1050 and 1600 gallons a minute.

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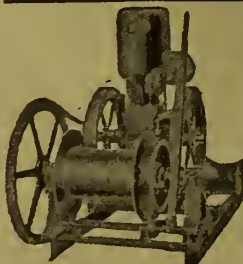
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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
June 1 and 2, Burr Farm, Los Angeles.
Sheep
June 15-16, Annual Ram Sale, California Woolgrowers' Association, Davis.

The Berylwood Stock Farm at Hueneme is continuing to make good records with its Holsteins. Queen Butter Cup Pontiac, a granddaughter of Pontiac Korndyke, has just finished a 7 day record of 30.4 pounds butter from 480 pounds milk; Arcula Alcartra Burke, a junior two year old, made 20.75 pounds butter from 491 pounds milk in 7 days, and Korndyke Canary Brightest made 19.66 pounds butter in

milk and 29.3 pounds fat. 182 cows in the association made over 40 pounds fat during the month. The high cow was a registered Jersey owned by D. F. Conant of Modesto which produced 87.3 pounds fat from 930 pounds milk. The Stanislaus County testing department is doing a splendid work and new members are constantly being added. Twenty cows were culled from the herd of the association last month on account of not being up to the standard set by the association.

F. L. Hogue and A. F. Walker, two prominent Holstein breeders of Stanislaus County, have entered into partnership and are establishing an excellent herd of Holsteins at Ripon.

BOVINE "CONTAGIOUS" ABORTION

This is a collective term applied to miscarriage or premature birth produced by the existence of some abnormal condition in the bodies of pregnant animals. Abortion is not in itself a disease but is the result of a disease.

Since the term contagious abortion

is somewhat misleading and is usually applied in cases where a single animal slluks her calf two or more times or where several animals in a herd abort, a more general term such as abortion disease would be considered more appropriate in referring to such conditions, especially when the exact cause of miscarriages is not known.

The disease in most cases is regarded as being infectious, and until more light is shed on the subject by scientific investigators, every precaution should be taken to prevent cattle intended for breeding purposes from coming in contact with the infectious germs. In a large measure this may be accomplished by breeding your own animals through careful selections within the herd, and handling every cow with as much care as though she were known to be infected. Provide separate sanitary quarters for calving and for the isolation of cows showing symptoms of abortion. The afterbirth of each aborting cow and the dead calves should be burned and the premises thoroughly disinfected.

Before introducing a new animal into the herd the history of that in-

dividual animal and the herd from which it came should show that there was no possibility of exposure to the disease. The safest plan is to purchase healthy animals from healthy herds. Cattle should be given clean wholesome feed and water from sources where abortions have not occurred and they should be provided with sanitary surroundings. All cases of abortion occurring in a herd should be regarded as contagious until otherwise determined.

There is no known prevention or cure for abortion disease other than the exercising of prevention against the entrance of the disease into a herd. Various products are on the market which the producers claim will prevent abortion disease. At the present time there is no known prevention aside from exercising precaution against exposure of cattle to the disease.

The wise procedure is proper care and management of the herd. Medicine will not cure the disease!—J. P. Iverson, chief division of animal industry, state department of agriculture.

COMING EVENTS

(Corrections and Additions Requested.)

Western Directors Departments of Agriculture, Sacramento, May 29-30.

County Horticultural Commissioners, Sacramento, May 29-June 2.

Federal Horticultural Board, Sacramento, May 31.

California Nurserymen, Sacramento, June 1.

Western Plant Quarantine Board, Sacramento, June 1-2.

Western Sonoma-Marín Dairy Cattle Show, Valley Ford, June 10-11.

California Rodeo, Salinas, July 24-29.

San Joaquin Valley Fair, Stockton, August 16-22.

Sonoma County Fair, Santa Rosa, August 23-27.

Walnut Growers Field Day, Santa Barbara, September 2.

State Fair, Sacramento, September 2-10.

Grape Day, Escondido, September 9.

Tehama County Fair, Red Bluff, September 11-17.

Tulare County Fair, Visalia, September 12-19.

Colusa County Fair, Colusa, September 14-17.

Glenn County Fair, Orland, September 18-23.

Kings County Fair, Hanford, September 20-23.

Fresno County Fair, Fresno, September 25-30.

Shasta County Fair, Anderson, September 28-30.

Ventura County Fair, Ventura, October 1-8.

Kern County Fair, Bakersfield, October 2-7.

Butte County Fair, Oroville, October 2-7.

Pork Day, Turlock, October 4.

Southern California Fair, Riverside, October 10-15.

San Francisco Livestock Show, October 18-22.

California Horsebreeders Association, Los Angeles, October 13-22.

Indio Date Festival, Indio, October 18-22.

Imperial Valley Fair, October 23-28.

Orange and Olive Festival, Oroville, November 28-December 2.

COAST AND GENERAL

National Foreign Trade Convention, Philadelphia, May 10-12.

Plant Quarantine Conference, Washington, D. C.

Rose Festival, Portland, Oregon, June 7-9.

Southwest Washington Fair, Chehalis-Centralia, August 28-September 2.

Interstate Fair, Spokane, Washington, September 4-9.

Washington State Fair, Yakima, September 18-23.

Oregon State Fair, Salem, September 25-30.

Arizona State Fair, Phoenix, October 30-November 3.

7 days, eight months after calving. This cow will make almost 1000 pounds butter in 365 days.

The Poland China swine breeders of Riverside County have formed a local association which is very active, and they are out to let people know that there are quite a few Polands in that neighborhood, and good ones too. They expect to have a large exhibit at the next Southern California Fair.

Guernsey guaranteed milk from the Windemere ranch at Chino is to be sold in some of the Los Angeles cafeterias. This will add to the present supply being delivered by the Adohr, Brant and others. The demand is so great that there is room for a lot more milk of the same kind at prices above the market.

The April report of the Stanislaus County farm bureau cow testing department shows 1,225 cows tested, the average production being 781 pounds

How to choose An ENSILAGE CUTTER

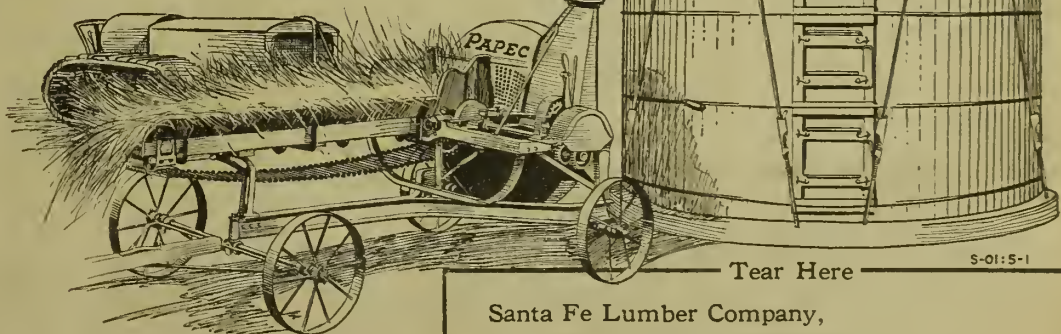
THERE ARE A GREAT MANY WAYS of deciding upon what ensilage cutter to buy—from flipping a coin to choosing from a catalog. But the common sense way is to **EXAMINE A NUMBER OF CUTTERS**, then compare them as to construction, convenience, service, up-keep and price.

That is the way we would like you to form your opinion of the Papec—by actual comparison with other cutters, not by glowing descriptions and pretty phrases. The coupon will bring you complete information regarding the Papec.

You can decide upon a silo by the same system of careful comparison of one against another. Agricultural experts have pronounced the Simplex Silo "scientifically correct." Mail the coupon, and we will tell you how the Simplex meets the scientific requirements of what a silo should be. Then compare this silo with others.

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WHY STOCKYARDS?

(Continued from Page 569.)
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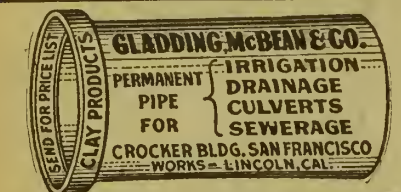
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market, as in the case of market points in the Middle West. The nearest feeding grounds of any appreciable size are 200 miles distant from Los Angeles, and there is no possibility of development of feeder grounds nearer it, because of the intensive development in the fruit and citrus industry. The shipping cost from the market point to feeding areas and the back haul to market point eliminates the possibility of profit in such feeding operations.

4. Our present methods of marketing cattle in California permit the buyer to select the quality of cattle which he wishes for immediate slaughter, shipping only those desired and permit the producer to hold unfinished cattle at a minimum expense on his range.

5. There is little possibility of the development of California into a great feeding state because California does not produce a surplus of feed, as do the Middle Western states, particularly those in the corn belt, where the surplus of feed is marketed in the form of livestock.

6. The experience of livestock feeders in the corn belt states is that feeder cattle can be more economically purchased and shipped direct from the range to the feed lots, avoiding going through stockyards, with the result of less shrinkage to the cattle and avoiding the payment of feeding and commission charges, thus making the cost to the buyer less and the price received by the seller higher.

7. The California Cattlemen's Association is convinced that from the producers standpoint the proper place to sell, grade and weigh cattle under western conditions, is at the range or shipping point.

8. Under the stockyards plan of marketing cattle, it is impossible to control the receipts of cattle at yards, with the result that unavoidable heavy receipts would depress the market and because violent fluctuations and vari-

ations in the price paid as now occurs at eastern market points, which fluctuations are disastrous to the producer. The price received by California producers remains steady, with few and gradual fluctuations because only the supply needed is bought by the packer.

9. With the present plan of marketing cattle in California, producers have enjoyed the best market in the United States during the past two years. The California producer has received more for his cattle in California markets without stockyards than producers elsewhere in the United States have received at their markets under the stockyards system.

10. While it has been suggested that stockyards might be organized on a cooperative plan to handle only the livestock of members of an organization, it would be impossible and illegal to refuse any livestock shipped to such a stockyard. Thus, even a cooperative plan would not enable the producer to control the receipts at the stockyards.

11. During 1921 a national committee studied the problem of marketing livestock, hoping to avoid some of the evils of marketing through stockyards. At the end of nearly a year's work they were without a solution to the problem and the only recommendation which they had to offer was that some system of more orderly marketing should be devised. They were unable, however, to suggest a plan which would make for and insure satisfactory, orderly marketing at Middle Western or Eastern points. California has the most orderly marketing of any state in the nation.

12. The California Cattlemen's Association is opposed to concentrating the slaughter of livestock at a few central points because such concentration would destroy the industry now existing and the investments in smaller towns throughout the state. Local slaughterers in small towns throughout the state kill 40 per cent

of the livestock consumed in California. Their investments and their activities should be encouraged and maintained.

13. This local slaughter in small towns takes care of a class of cattle which would depress the market at large central points.

14. Small local killing plants scattered over the state take care of the small producer with less than carload lots of livestock, which small lots are expensive to ship to central or distant market points.

15. Central stockyards would necessitate additional switching charges from such yards to packing plants, a cost which would be considered by the packer as deductible from the price paid to the producer.

16. Sale and handling charges in stockyards would cost producers approximately \$450,000 annually on the Los Angeles market alone, which cost is not now necessary and which is an added burden to the producer.

17. We deem it especially undesirable to establish stockyards until there has been an opportunity to study the results of the operation of the packer and stockyards administration, which has been recently instituted by the United States department of agriculture.

ANOTHER GREAT HOLSTEIN HERD COMES TO CALIFORNIA

We have been waiting for the past two or three years to be able to announce the arrival of the great Schroeder herd of Ormsbys in California, and now it has come to pass. E. C. Schroeder who has formerly held forth at Moorhead, Minnesota, but who has usually spent his winters in this golden state looking about for a place to locate his herd permanently, has formed a combination with Chas. W. Anderson of Burbank, one of the best known Holstein men of the state. The new firm, known as the E. C. Schroeder Farms Company, has taken over Edgemont Farm and combined the herd of Mr. Anderson, which is headed by a son of Pontiac Korndyke, with that of Mr. Schroeder at the head of which is Sir Pietertje Ormsby Mercedes 37.

Ed Schroeder has achieved greatness in Holstein circles of the world mainly through the performance of the great bull Sir Pietertje Ormsby Mercedes who was in the minds of many people, the greatest bull the breed has ever developed and his death was a great loss. He was a consistent sire of show ring winners and great long distance producers. Fifteen of his daughters have achieved over 1,000 pounds of butter in a year. It is through his sons that he is best known. In this state Sir Pietertje Ormsby Canary, so long at the head of the herd at the McCloud River Lumber Company and later at Toyon Farm; Sir Pieterje Ormsby Mercedes 43 at the Toyon Farm; and Major Pieterje Ormsby Mercedes at the head of the Maxwell herd; have served to bring him into prominence. Another boost for the old bull was showing made by his grandsons and granddaughters in the Maxwell herd on the last fair circuit. These were sired by Tritomia Pieterje Ormsby who was himself the grand champion of the National Dairy show. Fred Hartsook now owns 16 daughters and a son of Tritomia.

Sir Pietertje Ormsby Mercedes 37 who comes to head the combination herd is a tried bull and six of his daughters have made over 1,000 pounds of butter in a year and all in heifer form.

Mr. Schroeder is bringing out 75 animals. Fifteen of these are daughters of Sir Piet himself. One is by Sir Piet and out of Spring Brook Bess Burke 2nd. The rest are mainly the daughters "of the 37th." There are 22 cows in the herd with over 1,000 pounds of butter in a year.

Bob Melin who has been in charge of the Moorhead farm has been invited to be superintendent of the new place and after a short visit here has decided to accept. A few days in California after a Minnesota winter was enough to settle the matter for Bob. He will attempt to fix up a nice show herd for this fall but his main efforts will be toward making yearly records. Now the new test barn on the Anderson place is explained.

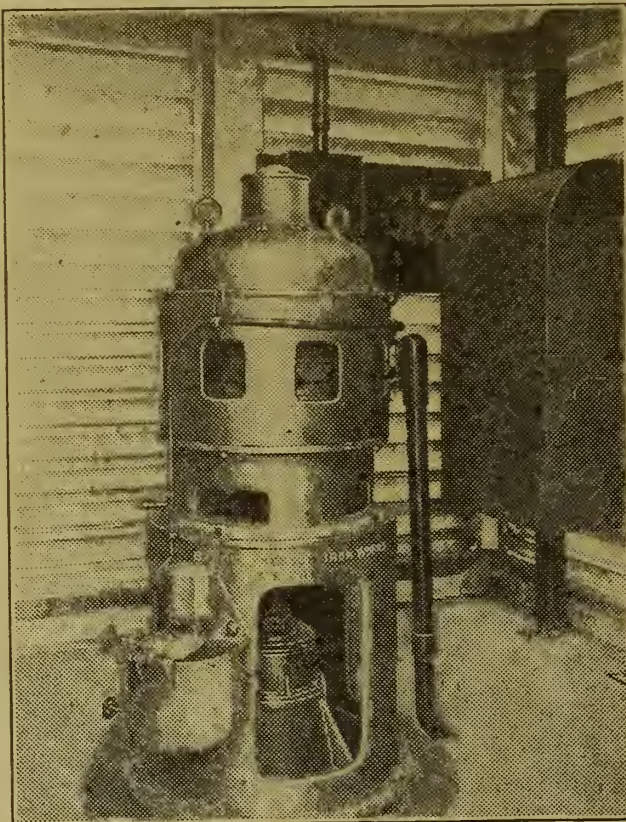
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PRODUCTIVENESS of the average farm depends on the availability of water. That is why a Byron Jackson deepwell turbine is the ear-mark of a prosperous farm for it places unlimited quantities of water at the owner's command.

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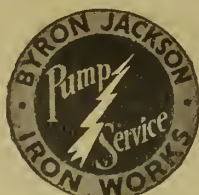
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EDGEMOOR GUERNSEYS IN DEMAND

The dispersal sale of the big Guernsey herd at Edgemoor Farm formerly owned by W. H. Dupee and now the property of G. L. Strobeck, which was held at Hynes on May 17 was well attended and 21 buyers took the offering. It is seldom that so many buyers appear at a sale of this size but all were enthusiastic and many of them were careful pickers.

As is the case in all dispersal sales there was a great variety in the offering. It ranged from tiny calves, that a breeder who was to remain in the business would never trust to the mercies of an auction crowd, to old matrons who have almost outlived their usefulness. Also there were 14 bulls of various ages which were more or less a drag on the sale. There has been an awful lot of bulls of the various breeds offered for sale in the past few months, and it is a wonder that the market can soak them up at any price.

Most of the females of breeding age were in calf to Masterpiece of Edgemoor who is probably the best bred Guernsey bull alive today. He carries all of the most popular blood lines and is backed up by extremely high production. His dam's record of 748.32 pounds fat as a senior two year old is the second highest of the breed. The cows and heifers of popular breeding which were backed up by records were in high demand and brought good prices. The top of the sale was Dene King of Hollow-Hill Farm, a second calf heifer, who has lately finished a record of 521.07 pounds fat as a two year old. She was finally knocked down to G. T. Drinkwater of Lakeside, San Diego County, for \$925. She could have brought \$500 more and been well within her value. Professor Gordon True of the university farm was also bidding on her because the farm owns her dam, Imp. Dene Jewel, the great show cow.

Topping the bred heifers and second only to her dam was the daughter of this fine young cow, Dene Langdon of Hollow-Hill Farm, who sold to C. A. Bullis of Brawley for \$700.

This heifer is a daughter of the King of Hollow-Hill now owned by the Italian Vineyard Company at Guasti. Four daughters of this good bull appeared in this sale, and the average for the four, none of which was more than a senior yearling, was \$504. They were beautiful individuals and evidenced the results of the careful breeding carried on at Hollow-Hill Farm for a number of years. Practically all of them were backed up by good records on both sides for a number of generations.

The California Breeders Sales and Pedigree Company which handled the sale and Rhoades and Rhoades, the auctioneers, gave very good satisfaction.

A list of the animals and buyers follows:

FEMALES

Imp. Angerosa III, J. A. Brown, Capitola, \$385.
Azucena Langdon of Hollow-Hill Farm, Italian Vineyard Co., Guasti, \$460.
Beatrice of Edgemoor, Irving Hellman, Los Angeles, \$500.
Beauty Rose of Rock Creek, Jack Delbridge, Pasadena, \$385.
Brilliant's Dairymaid of Edgemoor, Wilbur T. Helm, Oxnard, \$275.
Imp. Brittleware Molly B., Naylor, San Diego, \$260.
Capelle's Jessie, Helm, \$200.
Caroline Sylvia, Brown, \$310.
Countess of Twin Farm, Helm, \$300.
Dene Langdon of Hollow-Hill Farm, C. A. Bullis, Brawley, \$700.
Dene King of Hollow-Hill Farm, G. T. Drinkwater, Lakeside, \$925.
Diamond Queen of Edgemoor, Bullis, \$300.
Imp. Diamond's Milly of the Turque Delbridge, \$325.
Dolly of Crystal Pond, Bullis, \$150.
Dolly's Ada of Crystal Pond, Bullis, \$325.
Dreamy Eyes Baltimore of A. D. F., Naylor, \$500.
Ellena Bettina, Bullis, \$225.
Imp. Fan of Bickleigh, Italian Vineyard Co., \$300.
Fan Langdon of Hollow-Hill Farm, Bullis, \$375.
Florence of Crowell Farm, Dr. Wessels, San Diego, \$325.
Golden Daffodil of Ashton, Drinkwater, \$375.
Golden's Lucille, Bullis, \$300.
Graceland's Beauty, Drinkwater, \$300.
Irma of Beinertown, Wessels, \$400.
Laura of Glenville, Grice, \$285.
Lily's Two Spot of Valley View Farm, Chas. Hartig, Spadra, \$235.
Loleta of Fairview, Bullis, \$250.
May Rose Girl of Valley View Farm, Brown, \$250.
Memory of Pine Grove, Wessels, \$285.

(Continued on Page 583.)

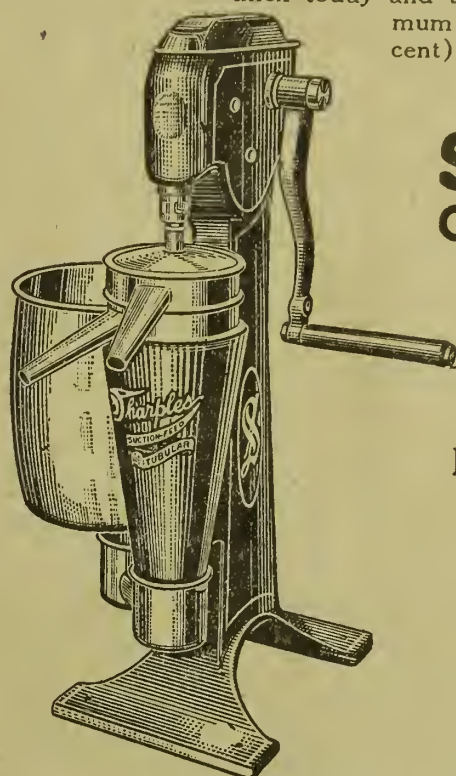
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All average 920 lbs. of butter, 19,159 lbs. of milk.
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All average 854.82 lbs. of butter, 18,601.5 lbs. of milk.
2 sons with daughters above 1130 lbs. butter.
4 granddaughters above 1100 lbs. butter in 1 year.
All average 1199.93 lbs. butter, two under full age.
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Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

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All selected—no culls

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Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices \$6.00 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

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"Eastman's Bred-to-lay" Hoganized and trapnested Barred Rocks. **BABY CHICKS**, Fairmead Poultry Farm, Fairmead, California.

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Baby Chicks from My Pure Bred, heavy laying strain of S. C. White Leghorns, a result of 17 years of most careful breeding for laying and standard qualities, June and July delivery at \$12.00 per 100, and \$11.00 per 100 in lots of 300 and more. Vigorous, strong chicks at a reasonable price. Correspondence solicited. **J. R. Heinrich Poultry Yards**, Arroyo Grande, California.

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120 ACRES WITH 18 CATTLE
Growing crops, team, poultry, bull, hogs, implements included; about 100,000 ft. timber easily marketed close by; rich loam tillage with portion bottom land, 25 cow-pasture, plenty of fruit, good house, barn. To close out quickly only \$1500, part cash. Details this and another Missouri farm with 200 fruit trees, good buildings, full equipment and crops for \$3200, part cash, page 103 Illus. Catalog Bargains 30 States. **FREM. STROUT FARM AGENCY**, 831 HK New York Life Bldg., Kansas City, Mo.

IRRIGATED LAND ON GOOD TERMS.
You can't beat the terms we offer to farmers who know how to farm rich, irrigated bottom land. This land will grow heavy crops of alfalfa, fruits and vegetables. It is ideal for intensive farming, Transportation and irrigation, the best. It is in the heart of the Sacramento Valley. A real opportunity for you. Write now.

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For Sale—258 Acres Land situated one mile north Somis, Ventura County, on an elevation of Mesa land. Is good grape or fruit ranch. With all modern ranch improvements. Present crop Lima Beans. For particulars write **M. V. R. A.**, Box 306, Oxnard, California.

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, **Oscar Lehner**, 3120 Colton Avenue, San Diego, California.

Buy a Home—Fifteen years to pay. Low rate of interest. Alfalfa, Raisin, Grape, Prune, Figs. Everything grows here. Ask—**Williams Chamber of Commerce**, Williams, California.

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Florida—Indian River Orange Lands and groves. Booklet and list and local paper 5c. **Goodwin & Baker**, Realtors, Ft. Pierce, Fla.

For Sale—Ranches, Homes, Acres, free list. **Wilson Bros.**, Santa Cruz, California.

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I Want Farms for cash buyers. Will deal with owners only. **R. A. McNowen**, 370 Wilkinson Bldg., Omaha, Nebr.

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Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint—\$2.20 a gal. Roof Paint Special—35c a gal. Prompt Deliveries on Mail Orders. **ANGELUS ROOFING & PAPER CO.**, 764-766-768 So. San Pedro Street. Phone Bdway 5401. Los Angeles, Calif.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. **Derryfield Farm**, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. **BONITA**, CALIFORNIA.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. **The Kruckeberg Press**, 235 Court St., Los Angeles

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for tree book on patents.

TURKEYS

Wild Strain Turkey Eggs—Limited number. \$12 for 15. **P. H. Snider**, Adelanto, California.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. **A. Surtman**, Petaluma, California.

NEW AVOCADO BULLETIN

Announcement was made by a government official at the avocado convention, that a bulletin on the avocado would soon be published and sent out from headquarters at Washington, D. C.

Goat Island in San Francisco bay, for many years site of a naval training station, has been abandoned, congress not having made appropriation for its support. Men in training there are transferred to the San Diego base.

Farmers of Polk County, Oregon, have signed up 300 acres for flax growing.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Grub in the Head

I have an eight year old horse that goes along all right but at times throws his head down and acts as if there was something in his nostrils: Will go along like an old cow at times then all of a sudden he will bolt. About six months ago he discharged from the nose and I was told that he had distemper. What is wrong with him?—Subscriber, Tucson, Arizona.

It acts like grub in the head, the same as sheep have. Horses are not supposed to have grubs in the head but we do not know any reason why they should not. The symptoms would be such as you describe. Would not know what to do for it.

Canker in the Ear

What will cure a little Fox terrier of canker of the ear? She has it very badly. It is filled with what looks like sand and blood. It annoys her very much. I wash it out with salt and warm water.—Subscriber, Burbank.

Canker of the ear is almost incurable. Try dropping a few drops of kerosene in the ear every day or two.

Founder

I have a mare of race stock that has very bad feet. She hobbles around at times as if stiff. She is worse after even a short drive. The frogs are shrinking away and scaling off in large scales. What can I do for her? Also please describe canker of the foot.—Subscriber, Santa Rosa.

It is inflammation of the lamina of the feet; also called laminitis. The lamina of the foot is the soft part between the hoof and the bone of the foot. Anything that may cause inflammation of the lamina stops the growth of the hoof which will shrink and bind the parts and cause pain. Once it is established it usually becomes chronic and is hard to cure. Soaking the feet in cold water for an hour or two every day will in time relieve it. Canker of the foot is due to a germ and rots away the frog and sole. It keeps the parts wet and is very offensive to the smell. Turpentine may dry it up.

Hard Swelling

I have a horse that was kicked on the outside of the hock joint about four months ago, causing the leg to swell badly, and there appears to be a hard bunch there that does not go away when the horse is exercised. It does not cause lameness and is not tender. Can you advise me through the Cultivator of anything that will remove it without a hard blister? If not what would be a good blister for it?—Subscriber, Hughson.

As you say it does not cause lame-

ness you better not do too much with it. Rubbing it frequently with a round stick like a hammer handle may soften it up and in time it will disappear. A blister might cause a scar and that would make it more noticeable.

EDGEMOOR GUERNSEYS

(Continued from Page 581.)

Nelly Antoinette of Rock Creek, Geo. Sawyer, \$325.
Pearl C. of Herodale, Drinkwater, \$325.
Pearl's Little Rose, Brown, \$285.
Peterson's Princess Linnis of Arizona, Thompson, \$235.
Primrose of Neshannoek, Bullis, \$125.
Princess Starbright, Bullis, \$285.
Priscilla of Maple Broeck, Wessels, \$300.
Quaker Girl of Crowell Farm, Bullis, \$225.
Radiline Vernon of A. D. F., Thompson, \$225.
Ruby Evaline of Herodale, Drinkwater, \$300.
Ruby Fire Fly of Belrnetown, Drinkwater, \$250.
Ruby's Calla of Belrnetown, Brown, \$265.
Ruby's Evaline of Belrnetown, Wessels, \$450.
Ruby's Lady of Belrnetown, Brown, \$235.
Ruby's Queen of Belrnetown, Brown, \$260.
Selma E. King of Hollow-Hill Farm, Wessels, \$310.
Simplicity of Pine Grove, Wessels, \$225.
Sweet Lady Bonnie Bell, Brown, \$225.
Sylvia's Allure, Hartig, \$240.
Tritoma's Maid, Miller, \$225.
Twilight Langdon of Hollow-Hill Farm, Italian Vineyard Co., \$485.
Heifer calf, Brown, \$240.
Heifer calf, Hartig, \$240.
Heifer calf, Naylor, \$260.
Heifer calf, Dinsmoor, \$350.
Heifer calf, Bullis, \$210.
Heifer calf, Bullis, \$250.

MALES

Azucena's Penrod, Brown, \$140.
Birchwood's Abel, Blackwood and McIntosh, \$130.
Corium Baldy, Pete Sovouz, \$125.
Diamond Secret of Edgemoor, Heil, \$285.
Elmway's Hector, Smith, \$140.
Keene of Sarnia, Bollinger, \$150.
Kermit of Sarnia, Tatum, \$160.
Lone Tree Actor, Rapson, \$200.
Lone Tree Clansman, Heil, \$150.
Lone Tree Defender, Bullis, \$155.
Lucy's Nonpareil of Fond Du Lac, Hartig, \$180.
Mont Masher, Blackwood and McIntosh, \$80.
Rosebud's Secret of Edgemoor, Molyneux, \$200.
Bull calf, \$70.

The 37th annual convention of the Holstein-Friesian Association of America and Heart of America Dairy Show will be held at Kansas City, June 5-10.

LIMAS ARE GROWING

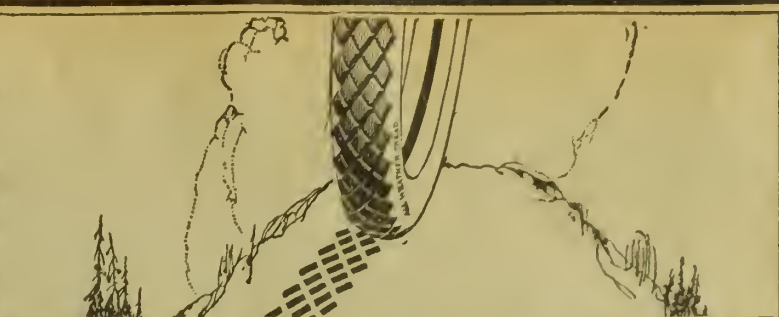
It now appears the acreage of Lima beans this season will be larger than in most former years. Sugar beet growers have received such an unsatisfactory return that many a beet field has been turned into a bean field this year. The big crop which is possible creates a situation which is causing the growers to ask "What are we going to do about it?" They are answering their own question by getting busy with plans for stronger cooperative effort. Commenting on the situation Chas. C. Teague tells the bean growers:

"It has always seemed to me that the Lima bean growers should be able through cooperation to control the market and secure exceedingly favorable results, better results than the growers of most any other agricultural produce, because the growing of Lima beans is confined to a very limited strip of land, along the coast of Southern California, and the California Lima has no competition elsewhere in this country. This is a most favorable state of affairs and the growers should make the most of it by 100 per cent cooperation."

SHOWING VALUE OF RIPE OLIVES

With free demonstrations of ripe olives in leading retail grocery stores, intensive sales work among retailers and jobbers and educational methods being used in domestic science departments of schools, the California Olive Association is carrying on now in Kansas City and other Middle Western cities a campaign designed to finally re-establish the ripe olive in Eastern markets.

At the rate truck orders are coming in to the manufacturers of commercial vehicles, 1922 sales are going to be more than 200 per cent of 1921's. This will mean that over a quarter of a million new trucks will go into service this year in the United States.



QUALITY IS AT THE PEAK PRICES ARE AT BEDROCK

Year after year the quality of Goodyear Tires has been going up and up.

Veteran users say Goodyear Tires today give more than twice the mileage they did ten years ago.

In the meantime, there has been no slackening in our effort to push Goodyear prices down.

Today these prices are at bedrock—the lowest they have ever been.

Look at the figures listed below.

They represent an average decrease in Goodyear prices since 1910 of more than 60 per cent.

Remember—Goodyear quality is at its peak.

These prices, divided by your speedometer reading, tell the story.

Now is the time to buy.

30 x 3 1/2 Cross-Rib Fabric.....	\$10.95	33 x 4 All-Weather Tread Cord.....	\$33.40
30 x 3 1/2 All-Weather Tread Fabric.....	\$14.75	33 x 4 1/2 All-Weather Tread Cord.....	\$42.85
30 x 3 1/2 All-Weather Tread Cord.....	\$18.00	34 x 4 1/2 All-Weather Tread Cord.....	\$43.90
32 x 3 1/2 All-Weather Tread Cord.....	\$25.50	35 x 5 All-Weather Tread Cord.....	\$54.75
32 x 4 All-Weather Tread Cord.....	\$32.40		

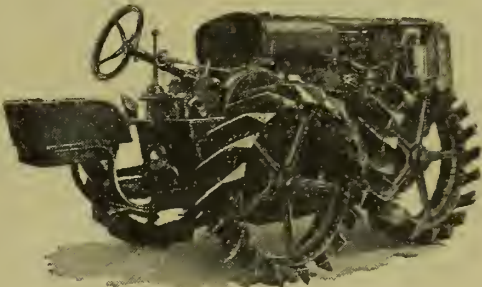
Manufacturer's tax extra

GOODYEAR

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KROYER BUILT

135% Strong



WIZARD 4-PULL TRACTOR

After delivering the normal listed drawbar pull, the Wizard has 35% extra reserve strength and power—making it 135% strong* and 135% powerful.

This is your assurance that the Wizard will make good on the toughest jobs you give it, and will keep at it day after day and season after season.

Rigid 4-Wheel Drive Gives Tremendous Traction

Traction equal to or better than that of a track tractor, with amazingly low upkeep cost, is made possible by the revolutionary rigid 4-wheel drive principle with leader shoes on every wheel.

Every tractor user should know the facts about this wonderful new tractor.

For details, write your name and address across this advertisement and mail it to us.

Kroyer Motors Company

Los Angeles Harbor, San Pedro, Cal.

QUALITY

When Writing Advertisers Please Mention the Cultivator.

Recognized Quality in Farm Equipment

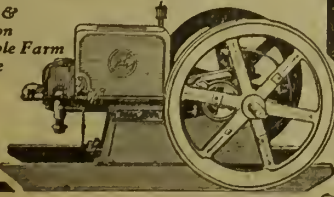
You can afford to buy the following equipment because it is honestly built, honestly priced, and gives honest service.

Fuller & Johnson Engines
Leader Water Systems
Sharpless Cream Separators
Star Windmills
Myers Power Pumps

Write for name of nearest dealer.

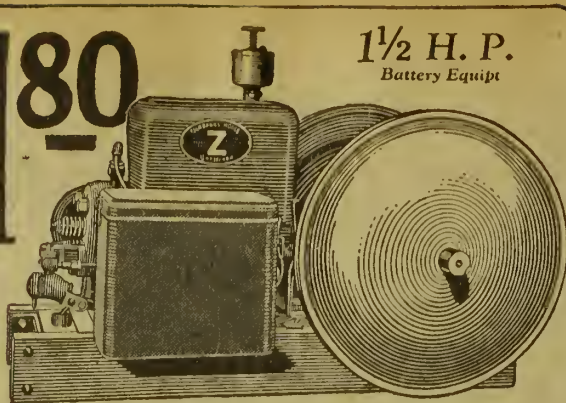
Pacific Pump & Supply Co.
853 Folsom St., San Francisco

Fuller & Johnson
Portable Farm
Engine



\$44.80

F.O.B. FACTORY

1½ H. P.
Battery Equip

NEW "Z" ENGINE

Those who want a thoroughly dependable engine at a comparatively small investment will select the new "Z." It is built to the same high standards as other "Z" Engines, and fully guaranteed. It delivers more than rated horse power; operates on gasoline alone; has simple high-tension battery ignition; hit-and-miss governor; new type, safety flywheels; quiet-running, spiral-cut gears. Wonderfully simple—no complicated parts. Control lever gives six speed changes. Starts easily, runs steadily, requires little attendance, carburetor requires no adjusting. The high quality and low price are due to scientific study and large production facilities. One of the greatest values in years. Over 300,000 "Z" Engines in use. See your dealer. Or write us.

New low prices
on other "Z"
Engines

With high-tension magneto and throttling governor

1½ H. P. \$ 67.00
3 H. P. 100.00
6 H. P. 160.00

All f.o.b. factory—
add freight to your
town.

FAIRBANKS, MORSE & CO.

Manufacturers Chicago

Western Branches: San Francisco; Seattle; Los Angeles; Portland.

THE AUTO-OILED AERMOTOR

A Real Self-Oiling Windmill

Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

Write today for Circular. **AERMOTOR CO.** Chicago Des Moines
for Circular. Kansas City Minneapolis Oakland

A year's supply of
oil is sent with
every Aermotor



Aermotor
Towers are
Towers of
Strength

AERMOTOR WINDMILLS, ENGINES, PUMPS and PARTS
Are Carried in Los Angeles Stock. Write for Catalogues and Prices
SHAW PALMER BAKEWELL CO., 419 East Third St., Los Angeles, Cal.

HURLEYS
NEW

GOOSE NECK Cultivator

The Best Furrowing and Leveling Machine on the Market—
Built for Horses, also Largest and Smallest Tractors.

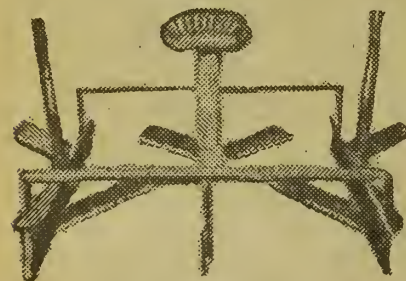


M. N. HURLEY, Manufacturer

This is the lightest weight efficient Cultivator and Furrower on the market. Its construction of spring steel gives it a crossbar that yields to sudden strains and it springs back. Detach the shovels and wheels and you have THE BEST LEVELER YOU CAN BUY.

Patented reinforced spring steel draw-bar 5 in. x ¾ in. with bar below 5 in. by ¾ in. reinforced on two edges with angle iron. Shanks diamond shape 1¼ in. or 1½ in. Hitches for all tractors or horses. 6 ft. size only \$110 with 1¼ in. shanks. 6 ft. with 1½ in. shanks \$105. Made in 6, 7 and 8 ft. sizes. Horse drawn cultivator has front truck. Over 300 in use and all giving best of satisfaction. Order direct. You can go any depth from 5 in. above the ground to 15 in. deep, setting the teeth to prevent cutting the roots.

138 So. Comstock, Whittier, Calif.



Golden Gate Weed Cutter

One of the handiest Farm Tools on the market. Kills the weeds completely, cutting them off under the surface, close to the roots. At the same time it

THOROUGHLY PULVERIZES THE SOIL

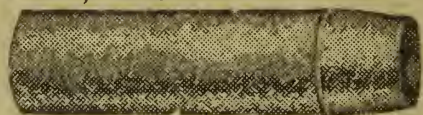
No need to plow after using this tool, for it leaves the soil in a perfect mulch. Here is the cheapest and best solution to the weed problem. Cuts 7 feet or less in width and adjustable to any depth. Weight, 230 lbs. Constructed of steel throughout.

SEND FOR CIRCULAR which tells you all about this handy tool and what users think about it.
C. G. SIGURD, Manufacturer
Capital Ave. and McKee Road, San Jose, Cal.

SURFACE IRRIGATION PIPE

PROMPT DELIVERY
Write for Catalog
and Prices
Manufactured by

Woolwine Metal Products Co.
8th St. and Santa Fe Ave. Los Angeles



Your appreciation of the California Cultivator can be shown best by writing to and buying from Cultivator advertisers.

Eggs as Poultry Feed

By M. A. Schofield



THE waste eggs from hatcheries when boiled hard become rubbery and difficult to handle. They must however be thoroughly sterilized, because the feeding of raw eggs to some animals and all poultry has not been satisfactory. We have therefore hit upon this plan: Take a wooden pail or tub and fill one-half with eggs; then pour boiling water until the pail or tub is nearly full. Throw a blanket or some other covering over and around the vessel so as to retain the heat. It will be better to keep covered for several hours. This method will thoroughly sterilize the eggs and will leave the white of a consistency almost like milk. They may then be readily mixed with any kind of ground feed. Usually they are fed shell and all, as the semi-organic ash of the shell is valuable to growing animals and to fowls which are laying.

Fed to Broilers

From time to time broilers are raised for some special market. After experimenting with feeding eggs, it is my belief that no other feed produces broiler sized chickens at a younger age, or flesh of so fine a quality. As to rapid growth it is not unusual to find Leghorn cockerels weighing 2 to 2½ pounds at 10 weeks of age where they have been fed eggs judiciously. Ten to twelve eggs a day for 100 broilers is about as much as they can assimilate.

To Laying Hens

Some years ago we set aside 120 Leghorn pullets and fed them with the idea of determining how many eggs a flock of pullets could be induced to produce and still keep in reasonably good health. In this test we made use freely of waste eggs. It became evident early in the test that they would not be able to consume any large amount of this material. An egg a day per pullet was entirely too much, and we finally determined that one-half egg per day for six days a week was about right. Now as to the results: On three separate days these pullets, numbering 120, laid 108 eggs. For three months their average was a little in excess of 90 eggs per day. The mortality was not unusual; but

the egg production the second season was disappointing. This test would indicate that the eggs fed in this quantity were somewhat stimulating as well as supplying a feed which was highly digestible.

To Laying Ducks

The most remarkable results which egg feeding has given us have been with laying ducks. All those who have attempted to hatch large quantities of duck eggs realize how disappointing the fertility and hatchability are apt to be. In fact, early in the spring duck eggs seldom hatch well when fed the ordinary ration. Time after time we have recommended the feeding of eggs where there was trouble with the hatchability. The laying duck will stand one egg per day for a time and will stand three-fourths of an egg a day for a long period. Where ducks have reasonably good care it is nothing unusual for their eggs to hatch from 70 to 75 ducklings per 100 eggs set; in some instances as high as 85 per cent. So far as my experience goes no other feed will secure such hatchability when duck eggs are incubated artificially in large quantities. Laying ducks fed a reasonable number of waste eggs will usually produce hatchable eggs in December and January, which is rather unusual for our section of the country.

The effect on the hatchability of geese and turkeys is very similar. Not only is the hatchability better when judiciously fed, but the number of eggs produced by both geese and turkeys is greatly increased by the careful feeding of this material. However, with these fowls, feed very sparingly.

To Pigs

A few years ago the boys of the Gardena high school entered into a pig fattening contest. Those pigs which were fed eggs, age and size considered, made far greater gains than did any of the other pigs in the contest.

The same will be found true in feeding calves; so altogether we find that when eggs are properly sterilized they furnish some necessary elements for nutrition not usually found in the grains and mill feeds fed to poultry and livestock.

Poultry Queries

Conducted by Jean A. Koethen

No Gizzardless Ducks

In your article in last week's Cultivator you say a duck "has no gizzard." Then what do you call the part of its internal workings which very much resembles the gizzard of a chicken? Perhaps you were misquoted.—Subscriber, Van Nuys.

No, I was not misquoted. I wrote gizzard when I should have written crop, that was all. The duck has no distinct crop, like the chicken, and hence must have its feed softened beforehand. Thank you for the correction.

Fall Hatching

What is the objection to hatching chicks in summer and fall? I am thinking of buying chicks in May and later in July and September.—Subscriber, San Leandro.

Leghorns hatched in May, if they have clean ground to run on, shade and an abundance of green feed, are often ready for the laying house by October. The objections to May hatching are: the cheap price cockerels bring in midsummer; heat and parasites which are liable to stunt the growth of the birds unless every precaution is employed to keep them away; scarcity of green feed in summer; the fact that the later hatches nearly always have to run on ground fouled by previous flocks; in the case

of heavier breeds the almost certainty that they will not begin laying before January. There is nothing whatever to be said in favor of hatching in July. Pullets will not lay before January and may not lay before March weather is hot and parasites are rampant. September is one of the best months in the year for hatching, and most poultrymen who are unable to get out all the chicks they want before the middle of April wait and get out another hatch in September. September chicks bring top prices as broilers and fryers, and pullets invariably lay in March, but they lay small eggs. That is the only objection to September hatching.

Houdans

Please tell me where I can get a setting of Houdan eggs.—Subscriber, Escondido.

Who has these rather rare but excellent birds? If any one has them or knows of any will they kindly let us know.

Limberneck

When our Leghorn chicks are about a week old their heads draw back and they topple over and die. Can you tell us the cause?—Subscriber, Domino.

Your chicks have limberneck, or wryneck, due to severe indigestion or

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy
In Drinking Water Does It—No
Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 550, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

Baby Chicks

We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. All popular breeds: Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc. Also our famous Oregon-Corvallis White Leghorns. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner Ducklings, Mammoth Bronze baby turkeys. All kinds of pullets supplied—anytime. Incubators and brooders. Careful attention to every order, large or small. Send today for prices.

REDWING HATCHERY

2030 East Florence Avenue
Los Angeles, California

Poultry Stock

Specializing in White Leghorns from heavy laying strains of proven ability. Breeding, incubation, brooding and developing by most efficient methods known. Females ready when weaned from heat, hardened, and sex has been determined.

We start you right, either big or small, and save YOU TIME, MONEY AND WORRY. Write for prices, etc. Visitors welcome. Also fancy or general utility birds.

CURTISS POULTRY FARM

Phone 78-J-4

1st and Grand Ave. East San Gabriel, Calif.

Baby Chicks

Strong, sturdy Baby Chicks that mature early. Chicks from the best laying strain. These are the money-makers when winter egg prices soar. Our experience hatching millions of chicks covers 16 successful years. Ship to anyone within 72 hours of Los Angeles. A full count of live chicks guaranteed at destination. Get your order in now—we are booking future orders. Incubators, brooders, feeds and supplies.

—Get our List—

PIONEER HATCHERY
320 South Spring St.
Los Angeles, Cal.

Try the Coulson
System of Feeding
Our free book "Chickens from Shell to Market" gives full particulars.
Coulson Co., Petaluma, Cal.

Sicilian Buttercups

EGGS—CHICKS—STOCK

No other fowl combines so many desirable characteristics. Adapted to farm-yard or back-yard.

Descriptive circular and price list on request.
A. L. CAVANAGH
Sawtelle, California

LEE'S LICE KILLER

Kills lice, mites, bed bugs, etc., affecting poultry. Spray or dust on roosts, etc. Get body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or banding. Does lot of unpleasant work. At most towns, at stores handling live fowls. Write for information and FREE Book.
GEO. H. LEE CO., Dept. F-30. OMAHA, NEBR.

poisoning. You should examine their feed very carefully and make sure that there is no mold in it. In such young chicks the trouble is more likely to be due to moldy or heated grain than to any other cause. Perfectly sweet, clean feed is the only cure, though a liberal amount of sour milk may help to get them back into condition after the cause is removed.

ELEVENTH NATIONAL EGG LAYING CONTEST

The 300 hens in the eleventh National egg laying contest laid 6,663 eggs during April, or an average of 22.21 eggs per hen. Pen 47, S. C. Rhode Island Reds, owned by Cream Ridge Poultry Yards, New Egypt, New Jersey, won the cup for April by laying 139 eggs during the month.

The number of eggs laid by the different breeds for the month and to date are: Wyandottes, 1086 in April, 5497 to date; miscellaneous varieties, 1122 in April, 5385 to date; Plymouth Rocks, 1151 in April, 5339 to date; Leghorns, 1105 in April, 5258 to date; Anconas, 1151 in April, 4893 to date; Rhode Island Reds, 1048 in April, 4765 to date.

The ten leading pens for April are: S. C. Reds, New Jersey, 139 eggs; White Wyandottes, England, 138 eggs; Barred Rocks, Missouri, 135 eggs; R. C. Rhode Island Whites, Missouri, 134 eggs; S. C. White Leghorns, Washington, 132 eggs; Barred Rocks, Missouri, 132 eggs; S. C. Anconas, Missouri, 131 eggs; White Wyandottes, England, 130 eggs; R. C. Rhode Island Whites, Illinois, 130 eggs; Barred Rocks, New Jersey, 129 eggs.

The ten leading pens to date are: White Wyandottes, England, 681 eggs; S. C. White Leghorns, England, 653 eggs; S. C. White Leghorns, Washington, 644 eggs; White Wyandottes, England, 640 eggs; S. C. White Leghorns, England, 633 eggs; Barred Rocks, Missouri, 625 eggs; R. C. Rhode Island Whites, Missouri, 624 eggs; White Wyandottes, Missouri, 623 eggs; Barred Rocks, New Jersey, 617 eggs; R. C. Rhode Island Whites, Missouri, 597 eggs.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

High pens April: Hanson's Poultry Farm, Corvallis, Oregon, 250 eggs; Boehm & Noel, 245; Alex. Stewart, 242; Geo. Gray, 238; Hollywood Farm, 234; L. A. Thornewill, 233; Ely's O. K. Ranch, 220; Wm. Bacon, 228; Pacific Trapnest Station, 226; R. H. Young, 225.

High Hens to date (212 days): Alex. Stewart, 184 eggs; L. A. Tornewill, 178; W. H. Marshall, 178; Mrs. H. C. Kleinsmith (Barred Rock), 176; Alex. Stewart, 176; D. B. Walls, 168; Alex. Stewart, 166; Hanson's, 165; Hanson's, 161; Russell, 161.

SOUTHERN CALIFORNIA EGG LAYING CONTEST

Highest Pens for April

Geo. C. England, 264½; J. L. Miller, 253½; W. E. Gainsley, 250½; E. E. Rogers, 249½; C. G. Weaver, 248½; Blackman & Mumford, 247½; H. M. Stone, 242½; M & M Ranch R. I. R., 239½; Bellows Egg Ranch, 238½; R. F. Richardson, 238½.

Highest Birds

Ferd Heying R. I. R., 29; M & M Ranch R. I. R., 29; M. L. Frick, 29; Geo. C. England, 29; C. G. Weaver, 28; Flinian & Furstenfeld, 28; Geo. C. England, 28; E. E. Eisenberg, 28.

Highest Birds to Date

B. S. Smallwood, 155; Geo. C. England, 155; E. E. Eisenberg, 153; E. E. Rogers, 151; M. A. Schofield, 149; M. I. Frick, 146; M. A. Scofield, 140; Ferd Heying R. I. R., 138; Geo. B. Wilken, 137; Flinian & Furstenfeld, 136.

H. L. Marsh, formerly president and principal owner of the Samson Sales Co., at that time the largest distributor of tractors and farm machinery in Southern California, with offices and sales rooms in Los Angeles, has recently accepted the position of assistant sales manager of the Fontana Farms Company.

"STRICTLY FRESH" EGGS AND OTHERS

A fresh egg contains highly nutritious properties which are demonstrated by the development of the chick within the shell. Since hen eggs are used extensively as human food, it becomes necessary to classify them with regard to quality.

In the new world we recognize three classes, as follows: Fresh eggs, stale eggs, and others which have undergone changes sufficient to classify them as inedible. Some of the Orientals apparently have not as yet been able to decide when an egg is to be regarded as spoiled as long as the shell remains intact.

In the United States the processes of refrigeration have been developed to a very high degree, thereby making it possible to preserve perishable, edible products for a long period. Sometimes, however, refrigeration fails to retain in certain products the properties desired by the consumers, due either to inefficiency of the refrigerating equipment, carelessness on the part of those in charge of it, or on account of the stored product deteriorating with age.

This is true regarding the cold storage of eggs. While it must be admitted that cold storage has worked wonders in the handling of this product, nevertheless there are limits to the time a fresh egg will remain fresh under the most ideal cold storage conditions. Occasionally, in some parts of this country, eggs from cold storage are found to be labeled and sold as "strictly fresh" when in reality they have reposed in cold storage until they have lost considerable of their freshness. Most people can detect this condition by taste and smell when such eggs are served to them as food. While it is true that a rather ancient cold storage egg may contain considerable nourishment, it is also true that it is not as "strictly fresh" as it is sometimes labeled.

There is a very simple method known as candling which will indicate when an egg ceases to be regarded as strictly fresh even before the shell is broken. Such information may be obtained by permitting rays of light to pass through the egg and noting the various changes which have taken place with regard to position or shrinkage of the white and the yolk or from the action of micro-organisms within the shell.

CAMPUS PLAN AT DAVIS

The new campus plan which is to govern the future growth of the Branch of the College of Agriculture at Davis and which has been adopted by the board of regents as the official plan for that institution, has just been completed by Professor John William Gregg, landscape architect, and is now on display in the director's office at Davis, where it is attracting a great deal of attention and receiving much favorable comment from all who are interested in the development of a greater institution for agricultural instruction and research.

The plan itself is approximately five by seven feet in size and beautifully rendered in color to bring out the details of the main scheme which shows a practical but aesthetic grouping of buildings around a large central quadrangle which is balanced on Second Street of the town of Davis as a secondary axis and with a broad main roadway from the state highway on the north determining the main axis.

The detailed arrangement of buildings is such as to eventually form group units with secondary quadrangles which are called for by the style of architecture which is to prevail and which is being worked out by William C. Hays, architect of San Francisco.

Such utilitarian factors as convenience, accessibility, centralization of special and general types of instruction and research, comfort, and health have all been considered of prime importance in the study and preparation of the plan, which as it develops will gain great architectural and landscape beauty.

Already two new buildings, the Dairy Industries Building and the Horticultural Building, are being erected according to this plan, and new sidewalks, curbs and roads are now under construction along new lines with the result that the plan is already beginning to furnish a visible suggestion of the future institution.



A 2-month-old cockerel a few hours after being attacked by head and neck lice. Both baby chicks and grown fowls are killed in great numbers by this type of louse.

MINERALIZED WATER ROUTS CHICKEN LICE

A new scientific discovery makes it easy to rid poultry of lice and mites. Simply dissolve in the fowls' drinking water the



The body louse of chickens.

harmless mineral tablets known as Paratabs. Soon after the fowls drink the mineralized water, all lice and mites leave them. Chicks that drink the water never will be troubled by vermin.

Paratabs do away with the bother of greasing, dusting, spraying and other unsuccessful methods of fighting lice. They are warranted to impart no odor to flesh or eggs. They cost only a trifle and are sold under a money-back guarantee. Thousands of poultry raisers are using them with complete success.



The head and neck louse of chickens.

What Users Say

Paratabs are the best thing for chickens I ever used. They clean the hens and make them lay, and I don't find any lice, mites or fleas on any of my young chicks. Paratabs are a good tonic for all chickens.—Mrs. W. A. G., Jacksonville, Fla.

Paratabs are fine. My chickens have no more lice. Before using Paratabs I had 20 loafers on the roosts, but now they are out.—A. F., Keeseville, N. Y.

I never saw anything like the work of Paratabs. It reminds me of the fairy story of the magic wand. Early this year I was getting 14 to 16 eggs a day. Then, without visible cause, the number dropped to 5 to 7 a day. I began using Paratabs as directed and in 2 or 3 days there was a difference of 1 or 2 eggs a day. On the fifth day I got 17 eggs and on the seventh I got 23. I heartily recommend Paratabs.—Mrs. E. H., Centralia, Ill.

I received the Paratabs all right and my hens seem to be laying better already.—Mrs. W. S. C., Monticello, Ark.

I am giving Paratabs water to my chickens and am having better luck this year than ever before. I haven't had a little chick to be a bit sick. It is the greatest medicine we ever used for young chickens.—Mrs. M. N., Pulaski, Ky.

Send No Money

LET US TAKE ALL THE RISK

Anyone can try Paratabs without risking a penny. We are so confident this new scientific discovery will free your flock of lice and mites that, to introduce Paratabs, we will send two full \$1 packages—enough for 200 gallons of water—for only \$1. BUT SEND NO MONEY. On delivery, pay the postman \$1 and postage, and if your flock is not free from lice and mites in 10 days, your money will be refunded without question. Don't let vermin kill your fowls and steal your profits. Write for the Paratabs today.

Paratab Laboratories

Dept. 959

1100 Coca-Cola Bldg., Kansas City, Mo.

Los Angeles Markets

Los Angeles, May 24, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 39 cents.

Prices extras past week:
May 18 19 20 22 23
37½ 37½ 37½ 38 39

CHEESE

Brokers' prices:
California flats, 18@20.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 28; case count, 23½; pullets, 22.

Prices extras past week:
May 18 19 20 22 23
26 27 27 27 28

POULTRY

Price to producers: Hens, 20; colored, 30; broilers, 24@30; roaster, 35; old roosters, 12; fryers, 30; ducks, old, 30; ducklings, Pekin, 3½ up, 25; others, 25; geese, 20; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 10@14; old, 8.

LIVESTOCK

Los Angeles, May 23.—Weighed and delivered off cars without food or water:
Hogs (hard grain fed), 125 to 175 lbs., 10.75; 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 8.00; medium, 7.00; cows, good, 6.50; medium, 5.50; calves, 125 to 150 lbs., 9.00; 150 to 175 lbs., 10.75.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 23, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market dull. Idahos: Russets, 1.75@2.00; Stocktons, ordinary, 1.60@1.75; few cold storage stock, 2.25. New stock, best, locals, 1.25@1.40; poorer, 85@1.00.

Sweet Potatoes: Movement light, market steady. Locals, No. 1 best, per lug, 70@75. Arkansas: Nancy Halls, 4c per lb.; per bu., mostly 1.50; baskets, 1.75.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, No. 1 Whites and Yellows, 1.25@1.35, mostly 1.25; lugs, Whites, 1.00.

Garlic, 7@8c lb. In small lots; some fancy, 10@12c lb.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, May 23, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, fancy, small, 50@75; best, 1.00@1.25 doz.

Asparagus: Per lb.: Local, best, 12@14; poorer, 10@11; Northern, best, 8@9; poorer, 6@7.

Beans: Imperial Valley green best, mostly 14@16; Ky. Wonder, 17@18; San Pedro wax, 11@12; Ky. Wonder, 18@20.

Bunched Vegetables: Per doz. bunches: Turnips, 40@45; beets, 40@50; carrots, 50@55; radishes and spinach, 20; parsley, 15.

Cabbage: Market strong, quality ordinary. Field cr., best, 2.00@2.25.

Cucumbers: Hothouse best, 2.00 doz.; local, 2.25@2.50.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 6.50@7.25, according to quality. San Diego, mostly 4.00@6.00.

Eggplant: Mex., 16@17 lb.

Lettuce: Market very weak. Locals: 50@60, best stock.

Peas: San Luis Obispo, 5@6; San Pedro, 6@7.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 15@18; Bells, Fla., 20@25; Mexicans: Bells, 15; local, 25@30.

Rhubarb: Local, best, strawberry, packed box, 1.00@1.15; Crimson, 85@1.00.

Squash: Market steady, 4-basket crates summer squash, mostly 85@1.00; Italian, 1.25@1.35; lugs, Crookneck, 2.00@2.25.

Tomatoes: Market firm. Mexicans, repacked lug, 3.75@4.00; original lugs, best, 3.50@3.75; loose, per lb., best, 12@15; poorer, 8@10. Imperial Valley, 4-basket crates, 3.25@3.50.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

These are actual prices obtained May 23 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: Imperial Valley, lb., 15@16.

Blackberries: Cr., 6.00.

Cherries: Lb., 30.

Loquats: Best, 12@14 lb.; No. 2, 8@10.

Raspberries: Cr., 6.00@6.50.

Strawberries: No. 1, 3.50@4.00; No. 2, 2.75@3.25.

Watermelons: Lb., Mex., 5@6.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock May 23 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.25@3.75; market pack, 3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 2.25; special brands, fancy, 6.75@7.50; choice, 5.50@5.75.

Oranges: Demand moderate, market steady. Navels, market pack, 5.50@6.00, according to size and quality; culls, 1.00 per field box; few best, 1.50; Valencia's, special brands, 7.50@8.00, according to size.

HONEY

Continued cool and foggy weather with occasional showers has retarded the new honey crop until it is not expected that new stock will be on the market in appreciable quantities before the 20th or 22nd of May. The market is in a waiting position, as the old crop is practically cleaned up and no sales of new stock have been reported. Dealers report few purchases. Extracted honey from growers at 6c for light amber sage, 8c for extra light amber and 9c for white sage.

HAY

Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00
Barley 18.00@22.00
Old alfalfa practically cleaned up. Prices quoted f. o. b. L. A. to producers are:
Rabbit Alfalfa 18.00@20.00
No. 1 Alfalfa 15.00@17.00
Standard Alfalfa 12.00@14.00

GRAIN

Prices L. A. Grain Exchange, May 24.
Barley: 100 ton lots June Del., 1.17½.

San Francisco Markets

San Francisco, May 23, 1922.

BUTTER

Extras 38
Prime Firsts 38

Prices Extras last week:
May 17 18 19 20 22
37½ 37½ 37 37 37

CHEESE

Dairy Exchange quotations:
California Young America, fancy 25
California Flats, fancy 20½
Oregon Trips 22
Oregon Young America 24

EGGS

Dairy Exchange Quotations:
California Extras 27
Extra Firsts 25½
Extra Pullets 24
Undersized 18

Prices Extras last week:
May 17 18 19 20 22
27 26 26 26 26

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs., 32@34 per lb.; 1½ to 1¾ lbs., 36@38; do, colored, 38@40; 1¾ to 2 lbs., 38@40; do, colored, 48@52.

Fryers: 2½ to 3 lbs., 42@46 lb.; do, colored, 50@55 lb.

Young Roasters: 3½ to 4 lbs., 43@47 lb.; over 4 lbs., 36@44 lb.; do, colored, 43@47 lb.; staggy, showing spurs, 25@30 lb.

Colored Old Roosters: 17@19 lb.

Leghorn Old Roosters: 14@16 lb.

Leghorn Hens: 2½ to 3 lbs., 21@23 lb.; 3 lbs. and over, 24@25 lb.

Large Colored Hens: 30@32 lb.; off grades, 28@29.

Ducks: Young, 23@25 lb.

Geese: Young, 24@26 lb.

Live Turkeys: 32@35 lb.

Dressed Turkeys: Young, 42@44 per lb.; off stock, 36@40 per lb.

Belgian Hares: Live, 16@18 lb.; dressed, 18@23 lb.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@3.50 doz.

Old Pigeons: 2.50@3.50 per doz.

Guineas: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: Steers, first quality, 7@7½ per lb.; second quality, 5½@6½; cows and heifers, No. 1, 5@6; second quality, 4@5; bulls and stags, 3@4 per lb.

Calves: Light weight, 8@9 per lb.; heavy, 5@7 per lb.

Sheep: Wethers, 6½@7½ per lb.; ewes, 4½@5½ per lb.

Lambs: 10@10½ per lb.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 11½@12 per lb.; 200 to 250 lbs., 10½@11 per lb.; 250 to 300 lbs., 9½@10 per lb.; light sows, 9½@10 per lb.; do, heavy, 8½@9 per lb.

California Farm Bureau Marketing Association reports:

No. Hogs	Av. Wt.	Dock	Price
Turlock, May 17			
121 feeders	113	---	\$10.50
60	152	---	10.25
82	175	---	10.20
5	213	---	9.20
1	330	---	8.20
1	370	20	7.20

270 hogs.			
Three cars, 13 consignors,			\$3,992.71.

No. Hogs	Av. Wt.	Dock	Price
Fresno, May 19			
92	159	---	10.60
23	161	---	9.15
18 feeders	124	---	9.15
1	350	20	8.25
7	223	---	8.15
2	390	---	5.50
1	520	---	3.50

244 hogs.			
One and one-half cars, 11 consignors,			\$2,296.11.

Totals for week: 514 hogs, 4½ cars, 24 consignors, \$6,288.82.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60@2.00; Oregon Burbanks, nominal; Idaho netted gems, 1.75@2.00; off grades, lower; Salinas, 2.25@2.75 per cwt.; new, 3½@5½ lb.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: Australian cold storage browns, nominal; green onions, 1.75@2.00 per box; new crop, white, 1.50@1.75; Coachella Valley, 3.00 per cwt. in sacks; yellow, 1.25@1.50; Stockton Red, 3.00 per cwt.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 22, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00@6.00 per cr.

Asparagus: 3@6 per lb.; white, 5@7 per lb.; graded, 8@10 per lb.

Beans: Imperial, 10@15 per lb.; hot-house, lb., 35@40.

Bunched Vegetables: Carrots, 60@1.00 per dozen; turnips, 55@60 per dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: 3 per lb.

Carrots: 2.75@3.00 sack.

Celery: River, 2.00@4.00 cr.

Cucumbers: Mexican and local, small, 1.50@2.00 per dozen or 3.00@3.50 per small crate; do, English, 2.25; Texas, 6.00 hamper of 6 doz.

Endive: 20@25 lb.

Lettuce: Delano, 75@1.25 per cr.; Los Angeles, 1.00@1.25; local, 50@1.00; Walnut Creek, 1.00@1.25.

Mushrooms: 50@1.00 lb.

Parsnips: 3.00@3.25 per sack.

Peas: Bay and Peninsula, 1½@4 lb.

Peppers: Florida and New Mexico, Bella 15@20; Chilis, 8@10.

Rhubarb: Box, 1.35@2.00.

Squash: Summer, 1.00@1.50 cr.; Italian, 1.50@2.00.

Spinach: Lb., 2@4.

Tomatoes: Mexican, repacked, 4.50 per L. A. lug; off grades, 2.50@4.00.

Turnips: 2.00@2.50 per sack.

FRESH FRUIT

Apricots: Lb., 15@17.

Bananas: Hawaiian and eastern, 7@7½ lb.

Cantaloupes: Small lug, 2.00@2.75.

Cherries: Box, 1.25@2.00; bulk, 12@15.

Loquats: 15@17½ lb.

Pineapples: 5.00@6.00 per doz.

Strawberries: Watsonville and Salinas, 1.20@1.30 cr.; locals, 60@70 dr.

CITRUS FRUITS

Grapefruit: California, fancy, special pack, 4.25 per box, some 7.00; Tulare, 3.00@3.25; Imperial Valley, 4.00@4.50.

Lemons: Special pack, 6.00@6.50 box; choice, 5.00@5.50 box; Lemonettes, 2.00@3.25.

Oranges: Special pack, 7.50@8.00; choice, 6.50@7.00; culls, 2.50@4.50. Valencia's, fancy, 7.00@8.00; choice, 6.50.

BEANS

California Bean Growers.

Large Whites 7.10

Small Whites 7.00

Pinks 5.75

Mexican Reds 4.50

Red Kidney 8.25

Cranberries 8.00

Bayos 6.00

Blackeyes 4.80

Henderson Bush Limas 9.25

HAY AND FEEDSTUFF

A. W. Scott Co. reports under date May 20:

Receipts past week 897 tons as compared with 571 previous week. Seaport and shipping have been in fair volume.

Interior trading continues extremely quiet and has been badly upset by the show-ers of rain. Large areas, particularly volunteer, have been cut. Standing hay and grain has profited by the moisture.

Several sections are baling first cutting alfalfa. A few sales in small quantities have been reported through the week at prices ranging from \$10 to \$13. A little Nevada hay continues to go into some of the more remote sections, but it will soon be displaced by the first cutting California crop.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

	Ton
Wheat Hay, No. 1	16.00@18.00
Wheat Hay, Fair Grade	14.00@16.00
Tame Oat Hay	15.00@18.00
Wild Oat Hay	11.00@13.00
Alfalfa Hay, Old Crop	15.00@18.00
Alfalfa Hay, New 1st Cutting	13.00@15.00
Stock Hay	10.00@12.00
Barley, Ground	32.00@34.00
Rolled	30.00@31.00
Oats, Rolled Feed	38.00@40.00
Bran	35.00@38.00
Millrun	38.00@41.00
Middlings	48.00@50.00
Linseed Meal	49.00@52.00
Coconut Meal	33.00@35.00
Alfalfa Meal	22.00@24.00
Cottonseed Meal	50.00@55.00
Sugar Beet Pulp	29.00@31.00
Molasses, tanks	17.00 Barr 25.00
Milo Maize	38.00@40.00
Corn Meal or Cr. Corn	35.00@37.00
Scratch Feed	43.00@45.00

270 hogs.			
Three cars, 13 consignors,			\$3,992.71.

No. Hogs	Av. Wt.	Dock	Price
Fresno, May 19			
92	159	---	10.60
23	161	---	9.15
18 feeders	124	---	9.15
1	350	20	8.25
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Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60@2.00; Oregon Burbanks, nominal; Idaho netted gems, 1.75@2.00; off grades, lower; Salinas, 2.25@2.75 per cwt.; new, 3½@5½ lb.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: Australian cold storage browns, nominal; green onions, 1.75@2.00 per box; new crop, white, 1.50@1.75; Coachella Valley, 3.00 per cwt. in sacks; yellow, 1.25@1.50; Stockton Red, 3.00 per cwt.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

Artichokes: 4.00@6.00 per cr.

that deliveries be made at least two weeks in advance of contract dates, in order to maintain a killing number. There is no surplus beef in the state. Buyers undoubtedly will hold off buying and kill the last fed steer before buying grass cattle, in order to reduce the price of grass-fat stuff to the lowest possible point.

Feed conditions in the San Joaquin Valley and coast counties are reported good, and considerably improved by recent rain. This will enable cattlemen to hold and market only prime cattle.

Orderly marketing will stabilize the price. Sell only f. o. b. ranch. Top your herd and sell only prime beef. Forcing half-fat cattle onto the market will break the price. Report sales to your Association Secretary promptly.

A bill has been introduced into congress and has passed the senate almost unanimously, extending the life of the War Finance Corporation for one year. This bill, if passed, will enable cattlemen to secure loans on cattle until July 1, 1923.—R. M. Hagen, Secretary.

PROBLEMS WHICH THE AVOCADO INDUSTRY MUST MEET

(Continued from Page 567.)

avocado, I want to quote from an article published in Science, January 20, 1922, by A. F. Woods of the University of Maryland. He says, "there has never been a time when the need for agricultural research of the first order was as great as it is today." He emphasized the fact that, under the present conditions of population, it is not only essential to make two ears of corn grow where only one grew before, but that it is just as essential to increase the nutritive value of the products produced.

Having defined what should be done, the next question is who should undertake the work. A careful investigation of the existing varieties in this state and in different countries where the better varieties of avocados are to be found, will be an important step in such an undertaking. Our own association can do much, and we can rely upon the county farm bureau, the state university and the U. S. department of agriculture for valuable assistance, but inasmuch as there are many other problems of great importance to be investigated and inasmuch as the expense of establishing and operating the plant and organization necessary to make such work permanent, will be of considerable magnitude, it seems to me that the most feasible plan would be to undertake the work through either a state or a national experiment station.

There is great need for an experiment station to study the subtropical fruits which are being introduced into Southern California in large numbers. Among the problems which such an experiment station, with the assistance of this association, the farm bureau, the state university and the U. S. department of agriculture, should investigate, are:

The improvement of the existing varieties of avocados through bud selection.

The introduction of larger and more satisfactory varieties of the Mexican race of avocados.

The development of new varieties of avocados from seeds,—especially hybrids of Mexican and Guatemalan varieties.

Diseases of the avocado, injurious insects and fungi.

Irrigation problems. a. The maximum drouth which the different varieties of avocados will stand in different soils without injury should be determined. b. The effect of excessive irrigation on the trees and on the production and quality of the fruit should be determined. c. The importance of allowing the trees to dry out in the fall should be emphasized. It is thought by many growers that trees are rendered less hardy by irrigation in the fall on account of the new foliage which is produced. Recent investigations on hardiness, however, show that the drying out process has a tendency to produce certain colloid materials in the tree which greatly increase its hardiness.

The falling of fruit before it matures.

Influence of climatic conditions: a. The effect of humidity on the different varieties of avocados should be determined. b. An effort should be made to lessen the hazards due to cold weather by encouraging the development of hill land, and by the devising of more efficient and more economical orchard heaters or other ap-

paratus for the protection of orchards.

The keeping qualities at the ordinary temperature and the effect of cold storage on the different varieties of avocados.

Possibilities of by-products.

Vitamine content and nutritive value of the avocado.

The physical condition of the soil best adapted to the growing of avocados.

The maintenance of soil fertility.

The maintenance of soil fertility is one of the most important and one of the least understood problems with which horticulturists are concerned. In this connection I want to quote again from the address of Raymond A. Pearson at the President's Conference. He said that soil fertility is the most important of our national resources and emphasized the importance of its conservation, and added that we gather crops very much as we harvest lumber. We make use of what we find without much reference to the needs of future generations.

Avocados remove much larger quantities of mineral matter and nitrogenous matter from the soil than do other fruits. These materials must not only be returned to the soil from year to year, but must be in a condition to be assimilated by the trees. Practically no attempt has been made to solve the fertilizer problem for avocados. It is more than likely that the tendency of avocados to bear in alternate years and the tendency of the unripe fruit to fall at times are due, in a measure, to the fact that the tree is undernourished. Fruit trees have stored in them each fall a certain amount of reserve material for their growth in the spring, but this reserve material has not been shown to contain any large amount of available nitrogen. It is very doubtful if avocado trees in ordinary soil and with ordinary treatment can fully recuperate from year to year the large amounts of mineral and nitrogenous matter which are removed with the fruit. Its failure to produce fruit in any year may represent the normal performance of an undernourished tree. Furthermore, an undernourished tree is an easy prey for all the enemies of the horticultural world.

A study should be made of the influence of various fertilizers on the resisting power of avocados to cold weather. It is well known that some fertilizers make trees more hardy, while others produce the opposite effect. An exhaustive investigation should be made of this subject.

It has also been shown that the protein content of some agricultural products can be increased by the addition of certain fertilizers at the proper time.

These are some of the problems which the avocado industry must meet. As these problems are solved, the quality of the avocado will be improved and its nutritive value increased; and the avocado tree will become more hardy and more prolific. The influence of this work will be felt in all countries where the avocado is grown, and the avocado will

become more and more important as a factor in increasing and perpetuating the food supply of the world. If the California Avocado Association takes the initiative in solving these important problems, and becomes instrumental in the establishment of either a state or national experiment station in Southern California where research on subtropical fruits may be permanently established, it will have performed an important service to this state and to the world; and the avocado industry in Southern California will become a permanent and profitable industry in the face of ever increasing obstacles.

SUSCEPTIBILITY OF AVOCADOS

(Continued from Page 570.)

pay the extra price and get above the frost line.

The frost line however, is very difficult to designate. It appears that most of the steep hillsides, as well as the tablelands with plenty of air drainage on one or more sides, are well adapted to avocado culture so far as frost protection is concerned.

There are a number of orchards in the lowlands which escaped remarkably well during the last freeze. This however, is no indication that avocados can be grown safely at all times in those places, because Jack Frost is not always visiting the same localities with the same degree of severity.

Some sections which were affected very much in 1913 escaped practically unharmed in 1922. On the other hand sections which were hit severely last January experienced very little damage in 1913.

Orchard heating is not only expensive; it is a constant worry during the winter months and a very unpleasant occupation. The expense of equipping an acre with modern heaters is \$500 more or less, according to the kind of heaters selected. My recommendation to the persons located in the most exposed places would be at

least 80 seven to nine gallon cast iron pots to the acre.

As far as the avocado industry is concerned in a general way it is well to say the freeze came in time to serve as a warning. Five or ten years from now the planted area of tender varieties would have been much larger and naturally the damage corresponding.

CROP REPORT

Sutter County Farmer, Yuba City, Sutter County

Almonds, 85 per cent. Apples, fair. Apricots, full crop. Cherries, 90 per cent. Peaches, full crop. Pears, fair. Prunes, 65 to 75 per cent. Grapes, full crop present outlook.

J. B. Hickman, Horticultural Commissioner, Monterey County

Apples, 110 per cent. Apricots, 10 per cent. Cherries, few trees. Peaches, 90 per cent. Pears, 100 per cent. Prunes, 100 per cent.

WEATHER REPORT

San Francisco, Cal., May 26, 1922.

	Rainfall			Temp	
	Week	Season	Normal	Max.	Min.
Eureka	.46	34.50	44.14	60	41
Red Bluff	.12	16.62	24.24	38	59
Sacramento	.24	14.04	19.73	92	52
San Francisco	.30	19.65	21.88	87	49
San Jose	.11	14.76	16.49	92	50
Fresno	.28	10.70	8.42	94	52
San Luis Obispo	.09	23.28	20.06	94	44
Los Angeles	T	19.65	15.46	82	51
San Diego	.16	18.63	9.87	68	54

33 Acres Ideal Avocado Land Proven Frostless

By cold snaps of both this year and 1913. Eight acres of young valencias absolutely undamaged. Balance ready for trees. Plenty of water; rolling land; excellent soil. Beautiful home site. Only 20 miles from Los Angeles and adjoining one of the liveliest towns in Southern California.

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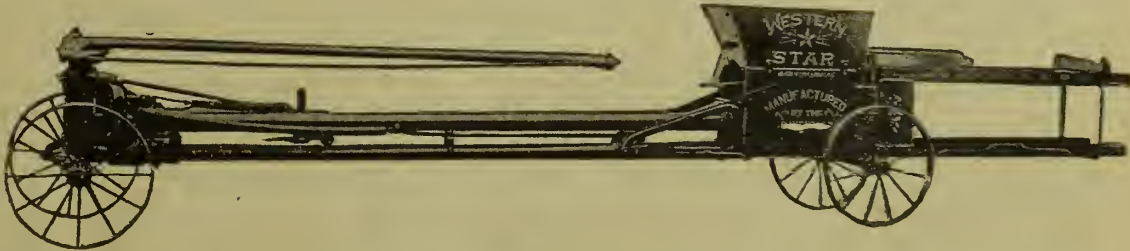
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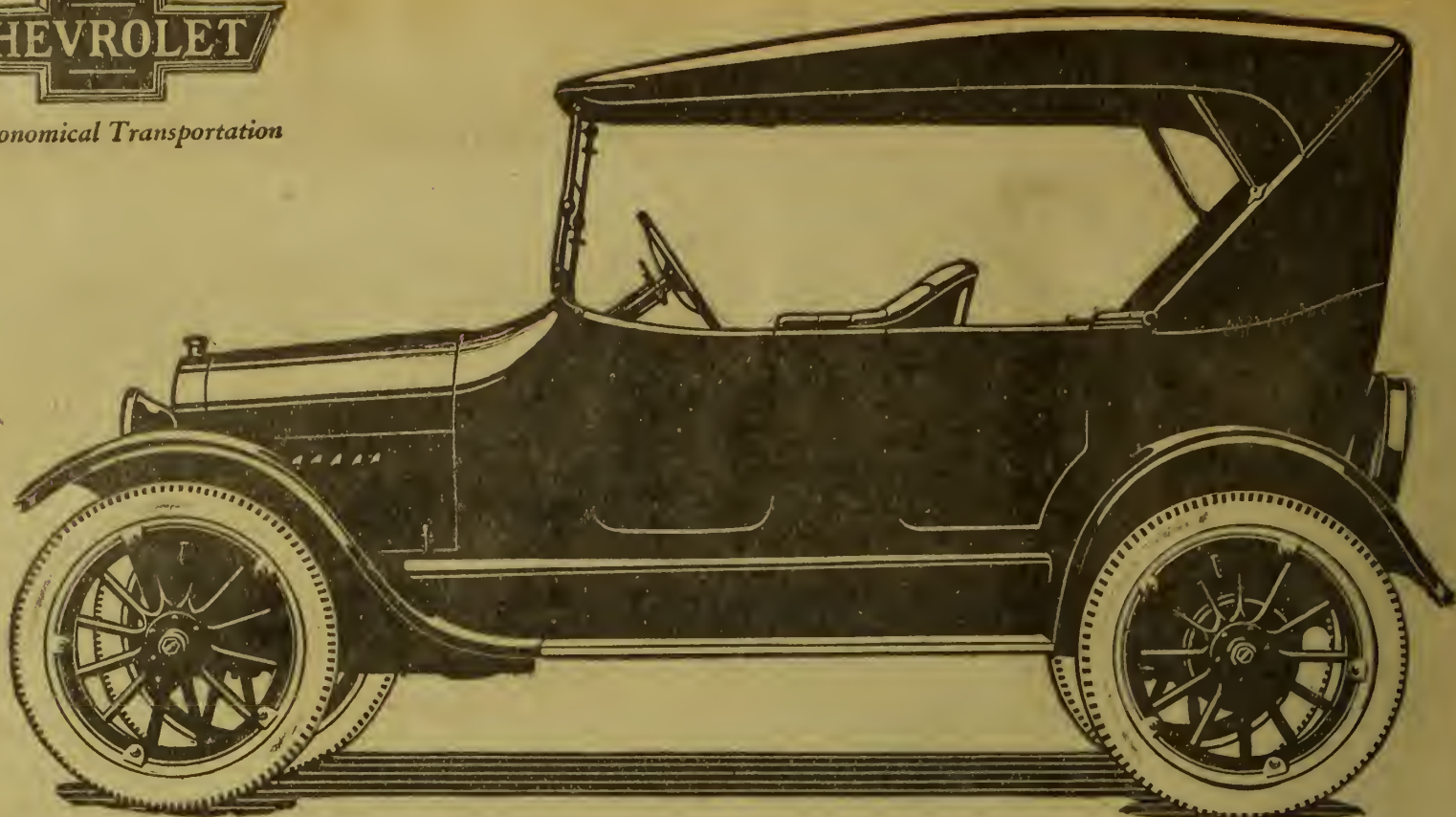
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The World's Lowest Priced FULLY EQUIPPED Automobile

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Equipment and accessories considered, Chevrolet is the lowest priced car made.

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Standard Water System—pump circulation, large, honey-comb radiator and fan. This means a cool, efficient engine, saving gasoline and oil and ensuring driving comfort.

Standard Doors—two on roadster and coupe, and light delivery, four on touring and sedan.

Standard Instrument Board—containing speedometer, ammeter, oil pressure gauge, lighting and starting switch, and choke pull.

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Powerful, Valve-In-Head Motor—the same type as used in successful cars selling at much higher prices.

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Many Other Advantages which will be noticed on inspection, comparison and demonstration.

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Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

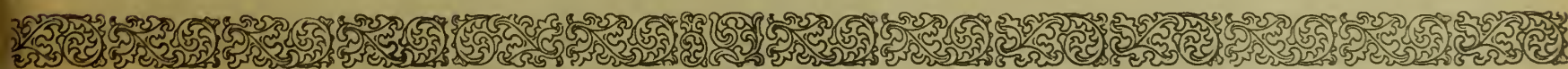
San Francisco

Vol. LVIII

June 3, 1922

No. 22

Making Hay in the Shadows of Snow Clad Mountains



THE · NATION'S · SERVICE · TRUCK



Your Choice of the "Red Baby's" Brothers · \$1500

The famous "Red Baby" Speed Trucks of the McCormick-Deering dealers are making millions of people sit up and take notice this summer. They are brightening up the landscapes throughout the country, flitting everywhere, covering many miles in few minutes, delivering machines and service, and helping to speed up Prosperity. The dealer's red speed truck is the most useful live wire in the community. It has earned the title, "Nation's Service Truck."

This International Speed Truck, which is putting new life into the implement industry, is the ideal truck for any farmer and business man who wants fast, dependable haulage at low cost. Ask the McCormick-Deering dealer about the "Red

Baby's" brothers. For \$1500, f.o.b. factory, you can get an International Speed Truck complete with any one of twelve different body and cab combinations, and with tires, power tire pump, electric lights and starter, fenders, etc. Liberal terms if you haven't the ready cash.

Flag the McCormick-Deering dealer as his swift "Red Baby" comes along, or go to his store to pick out the truck and body style you need for your work. The closer you investigate this speed truck, the better you will like it. If your hauling is on a larger scale, remember that the International Motor Truck line is made in eleven sizes from the 1500-lb. speed truck to the 10,000-lb. heavy-duty unit. Write for catalog.

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California Cultivator

Vol. LVIII, No. 22

Los Angeles, June 3, 1922

One Dollar Yearly

Stage Coaches, Whiskers and Hoopskirts Revived

WHISKERS are winners. Hoopskirts are plentiful along Sacramento streets, and, if we leave out the real fat ladies, are more or less attractive. But Sacramento whiskers are awful and will certainly drive self respecting people to drink or at least to commit something dreadful. Some of the boys have become frightened and have shaved. This has stopped several divorce proceedings and is lessening crime—in Mining Town. Some of the wearers of whiskers, "Whiskerinos," are most brazen, but others have a hunted look and glance at those they meet as if they would like to stop and explain.

But, seriously, the "Whisker Parade" or "Whiskerino Pageant" has proved the principal feature of the "Days of '49" celebration which is closing as I write. Further, it has proven one of the cleverest and most successful advertising stunts ever pulled off. Coast people and papers are talking about it—I mean them—and many of the "Nationals" amongst the magazines are giving out a fund of information and publicity—which California likes—and all because of this event.

So, "whiskers are winners" and all California will receive the benefit.

Financially it's a success. Nearly a hundred thousand has been spent. Over a hundred thousand has been taken in by Mining Town.

"Mining Town," occupies several blocks near the Southern Pacific Depot. Its entrance is by a tunnel

Editorial Correspondence



Days of '49

Snapped on the streets of Sacramento during the celebration last week. Upper: Contrast of old and new stages. Lower: Old prairie schooner.

through a range of home made mountains. Coming down from the mountains is a stream or ditch which pours its waters over the old time water wheel operating a mill (which is a

duplicate of one formerly near Knights Landing. This "grist mill" is fitted with old time mill stones, elevators and all complete as in olden time. A prominent sign announces "Gold dust

taken for flour" also that "grists" on toll plan are accepted.

This mill is actually operated by the overshot water wheel. It is mentioned as an example of some of the worth while exhibits. It is erected by the Sperry Flour Co. and is in charge of a pioneer who has been with Sperrys for 39 years.

Even more educational are the historical and museum exhibits made by various counties, cities and societies. Tuolumne County is one of these. It played up Bret Harte and Mark Twain and their connection with the county. Bret Harte was quoted: "There was commotion in Roaring Camp. It could not have been a fight, for in 1850 that was not enough to have called together the entire settlement. * * Deaths were by no means uncommon in Roaring Camp but a birth was a new thing. Hence the excitement. Cherokee Sal was sinking fast etc." Other quotations were featured by illustrations and otherwise. California will read more of its own classics because of "Days of '49."

Tours are arranged to Coloma, the Marshall mill site, Placerville and other placer mining points. One old time church in Sacramento is open day and night, giving each evening lectures and addresses and lantern exhibits reviewing historical events and renewing interest in California by Californians.

It is not all booze and burnside.

Report of Committee on Registration and Classification of Avocado Varieties

Read at the Seventh Annual Meeting of the California Avocado Association at Pasadena

WE are glad to have new varieties to mention from year to year, particularly when they give promise of commercial value. There is always the possibility of the discovery among them of something even better for commercial purposes than the superior kinds we already have. None of us will deny that these in themselves are a sufficient foundation for our industry to become a great one but that the ideal commercial avocado for California conditions is still to be found. None also will deny the great value and important place in our industry of those which have been or may still be imported from abroad. What has been done by individuals and by the government in this respect has given us some of our best kinds and assisted in giving us a foundation on which to build towards our ideal fruit. But in view of the hardness we seek it seems more and more probable that such a fruit is most likely to be obtained in a cross between the Guatemalan and Mexican types in a California grown seedling.

Natural crosses of the kind have occurred and will occur, and a few growers are doing some intentional hybridizing. It would be very desirable for the future of our industry if the state or national government would undertake this work on strictly scientific lines.

A natural enthusiasm over his product exists in a grower who produces a new and good fruit, and a very common desire is to urge its immediate use by the industry. He needs frequently to be reminded that this is unreasonable and that a combination of many different values is needed in an avocado qualified to take place as a leader in the market and that it takes years to find if they are present. No fruit when first produced, however good it may be in itself, can be known to possess them in proper proportion. Hardiness against cold and wind, ease of propagation, strength and healthy growth of young trees in nursery and orchard, season of maturity of the fruit, length of time from bloom to maturity, beauty of appearance, inside and out, size of fruit and of seed, keeping and shipping qualities, beside quality and flavor, must be considered, and, as the basis of all else, whether the tree is precocious and productive. However good the fruit may be, a tree is of little worth that does not yield a good crop. Also our knowledge is not complete until we know the young budded trees

are exempt from the weakness in the bud union that caused the discarding of the fine Colorado variety and others. To acquire all this knowledge takes much time, even five years is not too much, and several should be given to results with budded trees.

During the past season the committee has as usual examined trees and tested fruits of old and new varieties.

(Full report of varieties tested will be given in next week's issue.)

There are special uses for certain kinds of avocados for Californians who have homes in orange growing sections, even when they have only doorway space, and where it is too cold for our Guatemalan type of tree. We can tell them they are not barred out from growing at their own door a tree or two of the Mexican type to afford their own table and by their own growing an abundance of this wholesome and delicious fruit. Good varieties of this type are available, such as the Northrup, Ganter and others that will stand all the cold which an orange will. They bloom in the spring and mature their crop in

the fall. The Ganter is a good grower, usually a good bearer, with fruit averaging half a pound in weight, free of fibre, moderate in size of seed and of excellent flavor. A frequent defect at the blossom end interferes with its market value, but not with its use at the home table.

Another special use is provided by a variety grown at Highland, called the Tiger. The tree is a hardy, upright grower, productive and bears an attractive looking purple, pear shaped fruit, averaging three quarters of a pound in weight, with a thick skin, large seed and maturing during the latter part of the winter, extending into the spring. It does not have a high flavor, in fact a decidedly neutral one, still agreeable. Its value is that it stands the dry air of the interior valleys better than any other kind so far tested, and seems adapted for growth in such places.

For another special purpose we can utilize our exceptionally and especially frost free locations. The damage done to them by last winter's cold had apparently demonstrated that we can grow safely only in such places some of our choicest varieties. Among others are the Linda, Queen, Knight, Nimloh, Panchoy, Sherman Seedling No. 1 and Victory—all large, fine looking fruit of good flavor and most beautiful clear yellow flesh when cut open.

(Continued on Page 599.)

Agricultural News Notes of the Pacific Coast

Northern California

Grass Valley reports prospects for fruit crops in Nevada County excellent, no material damage being done by recent storms.

Acreage of rice land signed in the California Rice Growers Association is 220,000 in both Sacramento and San Joaquin Valleys.

An extermination campaign will be waged against rats at Willows, Glenn County, where they have recently become a serious pest.

The California Canning Peach Growers has named prices to canneries. No. one cling, \$60; No. two, \$30. Lowell freestone, \$45; other frees, \$40.

At the recent meeting of the Glenn County Holstein-Friesian Club at Willows the need for a teacher of agriculture in the high school was pointed out.

A reclamation district has been organized on Tubbs Island between Sonoma and Toley creeks in Sonoma County. There are 3,000 acres on the island.

The irrigation field laboratory at the university farm at Davis will soon be in operation. Special work will be done on orchard irrigation practice and equipment.

Hayward and surrounding districts in Alameda County are being canvassed to secure \$50,000 for permanent building and equipment for the Farm Products Show.

Sutter County farm bureau is planning to take complete fruit census of the county; acreage, age of trees, tonnage in 1921 of the different varieties will be recorded.

Ranchers of Rio Oso, Sutter County, report herds of 10 to 20 deer feeding on the first cutting alfalfa. The deer make their homes in the dense growth along the Bear River.

The Santa Clara County Walnut Growers Association held its annual meeting at Santa Clara on May 8, electing J. P. Martin, president; C. J. Parks, secretary-treasurer.

Rice growers of Colusa, Yuba and Sutter Counties are signing petitions to congress asking that emergency tariff of 2 cents on imported rice be retained in tariff bill now forming.

Sonoma County Gravensteins are expected to be ready for market between July 10 and 15, a week or two later than usual. It is reported that opening prices will be around \$2.25 per box.

Rice millers are refusing to pay prices asked by the California Rice Growers and mills are idle. Growers say there is not enough rice for local consumption and millers are merely sparring for time.

Wool growers of Yuba, Placer, Sutter, Sacramento, El Dorado and Nevada Counties have organized the Marysville District Woolgrowers Association. A. T. Spencer of Cranmore, Sutter County, was chosen president and William S. Carter, Wheatland, secretary.

The San Joaquin County Cherry Growers Association was recently formed at Stockton to affiliate with the California Cherry Growers Association. A. B. Haslacher of Farmington is president; F. A. McCan, Stockton, vice-president; F. B. Winchel, Farmington, secretary.

Central California

Early date crop at Yuma, Arizona, will be small owing to cool weather when setting.

Packinghouse of the American Fruit Growers Exchange at Sanger was destroyed by fire last week.

Terra Bella Valencia shippers are happy over the prices their fruit is bringing in Eastern markets.

Frank Gill of Success, Tulare County, shipped to Sacramento one day last week nine carloads of beef cattle.

This week ended spinach pack at Oakdale; cannery is now working on peas grown in the Empire district.

Weed Patch, Kern County, will hold a community fair on September 2. Rio Bravo follows suit on September 9.

Turlock is making plans for revival of Melon Day in combination with Pork Day in a two day carnival to be held in August.

The opening of Sequoia national park has been postponed beyond the announced date of May 24. Late snow fall is the reason assigned for the delay.

San Benito County farm bureau held its second annual picnic on May 13, on Tres Pinos Creek, ten miles southwest of Hollister. Twelve hundred people attended.

The survey of a road from Madera to the Wawona grove of big trees, authorized by the state legislature at the last session will be undertaken at once by the state engineering department.

Grain farmers of the Newman, Stanislaus County, district have organized the West Side Fire Protective Association. A committee will urge stockmen to plow fire breaks between hill ranges and grain fields.

The Fresno city commission has made it a misdemeanor to throw lighted cigar or cigarette stumps out of windows of office buildings. The ordinance was passed at the recommendation of the city fire commission.

At the organization meeting of the California Ripe Olive Growers Association at Fresno, H. T. Miller of Bakersfield was elected president and Mrs. U. Stewart of Highland, San Bernardino County, secretary. Headquarters will be at Fresno.

Twenty-nine Fresno County banks had an aggregate deposit of 47 1/2 millions dollars at the close of 1921, according to figures compiled at the Fresno County chamber of commerce. The gain in deposits for semi-annual periods was over five millions.

Record shipments of spring lambs were made from the west side, Fresno County, during April. More than 1000 lambs and sheep were shipped every day of that month from Coalinga section. It was estimated that fully half a million sheep were raised on the west side plains this year.

Valley wide sentiment for establishment by the federal government of a veterans' hospital in the Sierra foothills will be shown through a mass meeting to be held in Fresno this week. It was proposed that the hospital accommodate 250 patients and will very probably relieve all former service men afflicted with tuberculosis and gas.

Southern California

A date packing plant will be located at Riverside.

Peaches and plums will yield heavily in Yucaipa Valley.

Twelve big combined harvesters are busy at Calipatria.

Will Wilde of Ventura is to be secretary of the county fair association.

Associated chambers of commerce of Riverside County held all day meet at Elsinore, May 23.

Beaumont is making plans for its annual cherry festival to be held at height of the season.

Laborers are coming to Brawley, El Centro and Calexico for the cantaloupe harvest. Hundreds are arriving daily.

San Dimas dam is nearing completion. The dam is 140 feet high, 115 feet wide at the base, 11 feet at the top.

Work will soon be started on diversion of a portion of Whitewater which will be carried to Banning for irrigation.

Vern Detar has been named assistant farm adviser for Imperial County. He will give most of his time to dairy work.

The California Growers Association cannery at Elsinore will run to full capacity this season, beginning about July 1.

The town of Ripley and several thousand acres of crop lands were inundated by flood waters from the Colorado.

The road boosters of San Diego and Imperial Counties met in Sentenac Canyon, May 28 to inspect work being done.

A receiving station of the Poultry Producers of Southern California has been established at Escondido, San Diego County.

T. J. West of Imperial has offered to lease the cotton compress at Los Angeles Harbor and pay the city 25 cents for each bale handled.

Francis Cuttle, who has been head of the Tri-Counties Reforestation Committee for the 15 years of its existence, has tendered his resignation.

The Associated chambers of commerce of Imperial Valley has launched united effort to back Congressman Swing in passage of the Boulder Canyon dam bill.

A citrus institute will be held in Pomona, July 14-15. Walnut, Spadra and Pomona farm bureau centers will be hosts to the growers from other southern counties.

The new \$50,000 ferry approach at Blythe, Riverside County, was dedicated May 17. Governor Stephens and acting Governor Hall of Arizona took part in the ceremonies.

Cantaloupe growers, distributors and railroad officials met at El Centro, May 18 to make preliminary arrangements for handling melons, freight rates, icing facilities, inspection, etc.

A state quarantine inspector is needed at Blythe, Riverside County, now that it has become a port of entry by the recent opening of the ferry over the Colorado, according to County Horticultural Commissioner Bottel.

Mill Creek Road to Big Bear Valley opened May 27. Controls will be established. Road crews are said to have moved snow drifts ten and twelve feet deep to open the road.

The Coast and General

Hood River Valley apple growers report very heavy bloom on apple trees.

Broccoli is being packed for the first time by cannery at Roseburg, Oregon.

Clarke County, Oregon, prune growers say their fruit this year will bring them \$2,000,000.

Pineapple shipments from Cuba are now at their apex and an excellent season is promised.

Western Washington shipped 250 cars of eggs to New York and other eastern markets from November 1 to April 3.

Florida's early tomato production is estimated at 10,992 cars; 1921 harvest was 6829 cars. Texas will this year ship about 4500.

The Clarkston, Washington, cherry pool has set prices on 1922 cherries: Bing & Lambert, 10 cents; Republican and Tartarian, 8 cents.

Several new buildings have been completed on fair grounds at Dallas, Oregon, in preparation for the Polk County fair, October 5-7.

Whatcom County, Washington, berry growers have organized a marketing association and will establish a receiving station at Bellingham.

Poultrymen of Stevens County, Washington, are organizing a cooperative marketing association. There are more than 100,000 poultry in the county.

Damage to truck crops in Maryland and Delaware by April frosts made necessary much replanting, especially of beans and tomatoes. Peaches were severely injured.

W. L. Close, district horticultural inspector, has forecast the 1922 fruit crop of Yakima and Kittitas Counties at 14,675 carloads. He estimated the potato production at 7000 cars.

The Pacific Cooperative Poultry Producers announces consolidation of the Oregon and Idaho egg pools and closing of the Caldwell, Idaho, offices. This will effect a saving of at least \$800 per month.

The orange yield in Cuba is reported "too heavy for shipment and the oranges are rotting in the plantations. An excellent opportunity seems at hand for establishment in Cuba of modern fruit and vegetable canneries."

Canners are making contracts with growers of berries in the Woodburn district of Oregon at three and one-half cents for loganberries, four and one-half for gooseberries, seven for red and black raspberries. Cherries are bringing four and one-half.

Secretary Fall of the Interior has notified all reclamation project managers that they may not refuse water to entrymen or land owners pending decision for extension of time on payments. This decision was made in a test case on Miaidoka project in Idaho.

The first annual farm bureau picnic of Yuma County, Arizona, was held at Gadsden, May 6. 700 farmers with well filled baskets enjoyed the day. Speakers were President Bridge of the county farm bureau, President Brown of state farm bureau, President Spillsbury of the Arizona Industrial Congress and J. P. Doyle of Douglas.

SOME three years and a half ago an infestation of a European snail, *Helix pisana*, was reported from La Jolla, San Diego County, and an inspection of the infested area was made by the writer, acting for the horticultural commission.

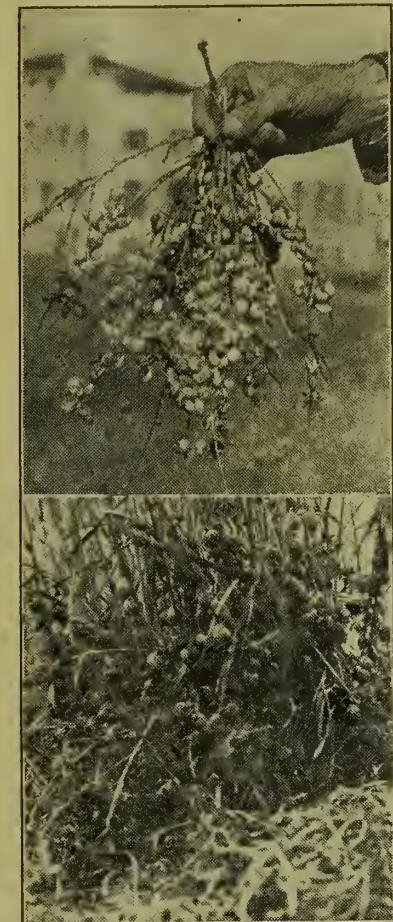
Through Dr. L. O. Howard of the U. S. bureau of entomology and our then state commission of horticulture, our attention was drawn to the dangerous character of this snail and to its evil repute in countries bordering on the Mediterranean. It is said to be a particularly important pest in Sicily where it is recorded as destroying the buds and blossoms of lemons, olives, loquats and other orchard and field crops. A Sicilian naturalist, De Stefani, mentions the damage done to the flowers and young fruit of the lemon and says further, "it gnaws and injures the bark of the twigs, completely denuding them for long distances."

Dr. Howard further called our attention to the fact that no other infestation was known in the United States.

The degree of infestation found at La Jolla was literally astonishing, although strangely enough the area affected was comparatively limited, covering not more than three or four city blocks all told. The infested area was rather rough and divided by a deep canyon running down to the sea. With the exception of where a few scattered buildings stood it was covered with wild oats, buckwheat, salt-bush, sagebrush, sumac, etc.

Snails were gathered on these bushes in enormous numbers, in some instances bunching and massing together in such quantities as to bend some plants to the ground. On one small buckwheat plant not over two feet in diameter and 18 inches in height the writer counted 798 snails in all stages of growth, from those not over an eighth of an inch up to full grown specimens of three-quarters of an inch in diameter. Sign boards, leaves of the agave, bamboo shoots and even cement curbs were literally festooned with groups and bunches of snails. Many had crawled up on the walls of houses and buildings in the vicinity, apparently with no regard for the hot sun, as quanti-

ties were found exposed to its direct rays on the south side of buildings. This disregard of the sun and heat is one of the peculiar characteristics of this snail and is emphasized by the fact that many of the largest bunches or masses were found where there was



A Pest of Snails
Upper photo: *Helix pisana*, showing bunching habit on wild growth during summer. Photo taken during fall of 1918 by R. R. McLean. Lower photo: New infestation of *H. pisana* two years after almost complete eradication. Photo taken April, 1922, by R. R. McLean.

the least shade. As is well known, our common western snail, *Helix aspersa*, has a strong antipathy for light and heat and is a night feeder entirely.

Although in locations that are hot

and dry, as was most of the area in question, *Helix pisana* appears, as a rule, to remain dormant most of the summer, cementing itself to bushes, rocks, boards, cement curbs or even to other snails, there is every reason to believe that those found in irrigated gardens were actively feeding and that in even exposed situations many continued to feed through the summer.

The omnivorous appetite of this mollusc is illustrated by an amusing instance that occurred preparatory to burning over the infested area, one control measure adopted with considerable success. With the cooperation of the proper authorities, printed notices were posted on the several properties affected requiring that they be cleared of brush, etc., within ten days. By the time this period had elapsed, snails had eaten practically all the notices, leaving very little but the bare frames to which they had been tacked.

Control measures undertaken were as thorough as possible under the circumstances, the then Commissioner Gorton securing a gang from the county jail and burning over the entire area capable of being so treated and having garden spots sprayed with solutions of alum and copper sulphate. This work was kept up for several months, until about two years ago it seemed that eradication had been almost entirely accomplished.

However, an inspection made by the writer this past month develops the disturbing fact that in spite of all this, *Helix pisana* has staged a strong comeback and is again to be found in large numbers, and throughout quite as large an area as before. The ability of this snail to persist and multiply in the face of severe eradication measures points to what we may yet have to contend with if it ever becomes an escape from La Jolla and deals with our orchard and field crops as it is reported to do in southern Europe.

It is true that it has not done an appreciable amount of damage around La Jolla and has confined itself largely to the wild growth there, but its reputation is such that we can afford to take no chances with it. That it has not yet spread beyond La Jolla is probably due to its being in a somewhat out of the way place and to there being no commercial orchards or vegetable gardens near by.

How *Helix pisana* came to La Jolla we do not know, but it seems probable it was either brought in on plants imported from southern Europe or else colonized there by someone with a taste for snails and who wished to maintain a source of supply. According to records at the Scripps Biological Institute its occurrence there has been known to conchologists since 1914, but they appear to have had no knowledge of, or at least interest in its economic possibilities and consequently made no report of it to the proper authorities.

The history of this mollusc under California climatic conditions has not been sufficiently studied to warrant definite conclusions, but it is certain from our observations at La Jolla that eggs are not laid until the ground becomes softened by the winter rains. In irrigated gardens egg laying was observed much earlier than in dryer locations, and it may be possible that under such conditions there is more than one generation. As observed by the writer, eggs were laid anywhere, either in shaded spots or places exposed to the sun, the main consideration apparently being that the ground be soft and moist. A moist sandy soil seems to be an ideal location for egg laying, some 10 or 12 to 30 or 40 eggs being deposited in a mass about an inch under the surface of the ground.

There being a vacancy in the office of horticultural commissioner in San Diego County at the present time, the bureau of pest control of the state department of agriculture has been notified by the writer of the present status of *Helix pisana* at La Jolla and is expected to take prompt action. Mr. Smith, its chief, has instructed H. M. Armitage, in charge of the Whittier insectary, to make an immediate investigation.

This Month in the Ornamental Garden

Southern California

By Ernest Branton

JUNE is an unsafe month in which to set out any but plants of a hardy nature and even so they must have unusual care. Annuals, even when moved with soil about the roots, suffer severely from shifting. Those with many roots and lots of soil will pull through hot weather but if soil drops away in handling no amount of watering, sprinkling etc., will save them during hot days. Therefore June is not a planting month.

But "with proviso and exception" as Shakespeare says. The present spring has been cool in the southern end of the state and followed an unusually cold winter. Cannas, ginger lilies, dahlias, elephants ears and many other things from the tropics may still be planted or transplanted. Owing to lack of spring heat usually present these plants did not start growth in

the writer's garden before May 15. They will move easily early in June. Gladiolus bulbs may still be planted but should go in at once; bulbs planted later bring no good flowers except bulbs have been kept in cold storage, this being now a common practice with some growers.

Geraniums, palargoniums and fleshy tropical plants root quickly from cuttings in hottest weather. The writer once rooted 2,000 geranium cuttings in June with very ordinary care. They were put in coarse sand three inches deep and watered freely. In garden soil do not have cutting more than one inch in soil and do not keep wet. Seeds of many kinds may be sown, preferably where plants are to remain: balsams cosmos. centaurea. coreopsis, cockscomb, hollyhock snapdragon and zinnia. All these fairly revel in hot weather. The late varieties of chrysanthemum may also be propagated from cuttings in early June.

Sweet peas are still in bloom and

run to seeds very quickly and heavily if mature blooms are not closely picked, and no more flowers will come. As the vines are grown for nothing but flowers it will pay to keep them closely picked. It is such work as this that should engage the attention of the gardener, for care only is generally necessary during the hot months. Watering is the greatest factor in retention of plant vigor but it should be used with judgment. It will be noted that weeds grow fastest in hot weather and you must hold "a continual pull."

Many varieties of roses have bloomed abundantly on long barren stems containing no leaf buds. These should be cut away as they drain the plant vitality, especially if dried flowers are left on the terminals. Mildew will also be present in some localities and with some varieties. Those badly affected year after year should be discarded. For the others there still is nothing more simple in its application nor more effective in hot

weather than sulphur lightly dusted over the foliage. If the soil is dry under the bushes sprinkle some sulphur on the ground on the sunny side. If sun hits it the fumes generate far more quickly and in greater volume than if scattered on the foliage. But remember that sulphur does not "fume" except with heat so that all that scattered in the shade is lost except for the small fertilizing value it has.

Northern California

By A. R. Gould

NOW that the summer is here there should be an abundance of flowers. Cultivating and watering will be the two most important things to attend to this month. The planting of fall flowers will be in order. There appears to be general complaint regarding the destruction caused by snails, slugs and cutworms, owing no doubt to the extended wet (Continued on Page 600.)

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EDITORIALETTES

These are hay making days. The clatter of the mower and the fragrance of the new mown hay are in the air, and more wealth will soon be in the pocket of the haymaker. Prices are fair—just fair—in some sections. In others freight rates prevent the grower from getting a living wage, much less his share of profit. It is immaterial how much his investment may be or what his labor costs are, but it is very material that the freight rate on his products shall make full interest and large salaries for those more favored.

Up in the valley, The Great Valley of California, the hay makers are more than busy. Both alfalfa and grain hay are going down and putting up. Both are high quality. Grain hay is proving a bigger crop than anticipated. On the other hand it will prove a year of rather high hay production because the last rain of the season was sufficient to make grain fields of many which would have been hay fields without that rain. It will be a big grain year.

Rivers are pouring the floods down from the snow clad peaks and running bank full down the valleys to the bay and to the ocean. The other day we were riding along the banks of the Tuolumne and some one remarked: "See the smoke rising yonder; must be a mountain fire." It proved quite the contrary for as we came nearer and out on a promontory or "inspiration point," the "smoke" proved to be a mist of waters falling over the great La Grange dam.

* * *

The waters, clear and green,—sometimes nearly nine feet deep over the crest—take their mighty plunge and create a scene of grandeur but arouse a twinge of regret for there is no place to use that wealth of water at this time of the year, and there are no reservoirs for storing till we can use. Hence portions of the valleys are flooded and crops destroyed.

* * *

The daily papers of a few days since carried "Kings County Ranchers Face Gigantic Loss" and similar head lines. Many breaks in levees actually did

One cooperating force which has not filled a large place in the public eye, but has in economies made possible to farmers of California, met in Turlock last week and conferred and discussed as to how to better serve the state's economic interests. Fire insurance is only one of the many types of insurance necessary these days, but it is the most necessary. There are in California 22 county mutual companies which are carrying something over a hundred millions in insurance, mostly on farm property. The cost of this insurance is approximately one-half that of the "old line" companies. Some of these companies are now more than a quarter of a century old and there is yet to be reported the first default or loss which has not been met. The money which is stored is stored and used in this state, more, in the county. Some of the problems discussed at the 21st annual convention of the State Association of County Mutual Fire Insurance Companies at Tulare will be touched upon next week.

* * *

Cotton is getting to be king or

encouraging to Western producers. The feeling has at times prevailed that the coast and mountain states have received hardly the attention which has been given to east of Missouri producers. Especially has this been true as to the activities of the bureau of markets. Assurances by Assistant Chief Tenny of the bureau of markets in effect that new powers delegated to the bureau will enable more complete service in the future. The increased powers are not backed by any increase of appropriation—which is a bit embarrassing. There is hope, however, that a way will be made and the desert and mountains will be bridged and greater service rendered to producers on the coast. In any case the question is fully discussed at Sacramento this week.

DATES ON THE MAP

There is a new world geography out. It is edited by J. Russell Smith of Columbia University. Of course California is in it for California is always on the map. Still better, this new geography touches upon some things little known to easterners as to California production. The book is called "Human Geography" and is in two volumes touching upon "Peoples and Countries" and "Regions and Trade." The author has made the discovery that all dates do not come from Algeria or Arabia but that way out on the Pacific Coast in a little valley called The Coachella the finest dates on earth are grown. Illustrations of the date gardens are features of the new book.

AVOCADO COMMITTEE REPORT

On account of lack of space in last week's issue, we were unable to publish the committee report on Registration and Classification of Varieties of Avocados, fully expecting to give our readers the full report in this issue but find it necessary to only print the main part, leaving the description of the different varieties tested by the committee for a later issue. Those interested in avocado culture, who did not have the pleasure of attending the Pasadena meeting, should not fail to read this very interesting report.

SNAILS

From the report of Robert R. McLean of San Diego it would seem that the old saying "slower than a snail" will have to be discarded, especially with respect to the new variety "Helix pisana" which does not seem to be so slow when it comes to eating. If this pest is as serious as Mr. McLean's report would indicate, it is high time some concerted effort was being made by the horticultural authorities to eradicate it before it spreads to the more thickly planted sections of the state, as any pest that has sufficient appetite and nerve enough to devour a horticultural commissioner's notice might prove to be quite a serious menace if it once got established in our orchards and garden lands.

A popular song writer says it is a mystery to him how he does it. But we cannot accept that as an explanation. Ignorance of the law is no excuse.—St. Paul Pioneer Press.

Automobiles wouldn't be dangerous if the horsepower of the engine were proportioned to the horse sense of the driver.—Marion Star.

Sometimes it is better to forget than to remember.

IMPORTANT AGRICULTURAL CONFERENCES AT SACRAMENTO

Questions affecting agriculture are more complex; every day becoming more difficult to answer. Research and experimental work solves one problem only to find it necessary to begin another. World wide traffic with ever increasing transportation facilities, brings products of all climes even many "perishable" fruits to every door.

With the products there sometimes come the native pests and diseases. At least they came. Can we prevent them from coming in the future?

That is the big question before a series of agricultural conferences which are convening at Sacramento as we go to press. The Cultivator Editor is there. He wires:—

"Conference assuming even greater proportions than anticipated. Dr. Marlatt, chairman of federal horticultural board; Dr. L. O. Howard, chief U. S. Bureau of entomology; Lloyd S. Tenny, assistant chief of bureau of markets; Geo. B. Sudworth, member of horticultural board, and others of U. S. D. A. all here. Secretaries of agriculture or engaged in important agricultural work here are: Mote, Arizona; Lyne, British Columbia; List, Colorado; Whitney, Honolulu; Wicks, Idaho; Pratt, Lower California; Shovell, Montana; Records, Nevada; Park, Oregon; Webb, Utah; Robinson, Washington; Nelson, Wyoming. Strong represents California but Director Hecke and nearly his whole staff are on the job and rendering service.

"California county horticultural commissioners in session."

Later Wire.—"Prettiest scrap is between states rights folks from Idaho, Utah and Washington and Chief Tenny. They desire establishment of grades and standards which must be accepted by bureau of markets. State sovereignty must not be violated by bureau assuming authority to establish grades or standards not adopted by state. Resolution condemning federal interference carried three to two.

"Fertilizer control and companies in harmonious meeting. Horticultural commissioners, also quarantine board, have full attendance. Nurserymen gathering for opening session Thursday."

occur, much damage was done and homes were deserted. Fortunately Old Sol tempered his heat for a few days, the snows melted less rapidly and the papers were saved the necessity of chronicling a disaster of first magnitude. The people of California are studying and understanding more of the magnificent resources of the Sierra Nevada, the Sierra Madre and even the Coast Range and "Store the Floods, Stop Destruction, Irrigate the Valleys. Add to the Comforts of Our Homes is becoming more popular"

* * *

Another week we will tell just a bit of the story of one of the rivers which flows out of the Sierra Nevada—the Tuolumne. Clear and green as an emerald it leaps over the boulders till it is slowed up by the La Grange dam where it is diverted to two canals, one on the north bank, carrying the water to Modesto irrigation district, the other on the south bank, taking waters to a still larger, the Turlock irrigation district. A few miles above the La Grange is another and greater in the making, the Don Pedro, and still farther in the mountains is Hetch Hetchy, the project now so far along that its completion is promised in February 1923—But we are anticipating the story we have promised later.

queen or president, or at least something, of crops in several sections of California. Imperial has planted this year over 100,000 acres, and "over the line" has 50,000 more; Palo Verde 18,000 acres; Perris—a comparatively new district in Riverside County—10,000 acres. And large plantings have been made in the San Joaquin. Tariff protection seems to be well supported but another protection is demanded. We should awake to the boll weevil menace.

* * *

The Santa Fe Trail and other good roads have been made better. Bridges over the Colorado at Yuma and Needles are supplemented by ferries. One now operating at Ehrenburg near Blythe is carrying to California literally thousands of autos, many of them direct from cotton boll weevil sections. Some of these have amongst luggage possible carriers of the weevil. Imperial and Riverside Counties are asking for help in quarantine protection. Presumably the Cotton Conference at Sacramento on Saturday will discuss the question and it is hoped some protection may be planned.

* * *

The large number of representatives of the federal department of agriculture who are attending the conferences at Sacramento is most en-

Deciduous Fruit Troubles

By Ernest Branton

DURING the week of May 22—27 the agricultural extension service of Los Angeles County held a series of ten meetings to demonstrate the proper methods of dealing with deciduous fruit trees. V. F. Blanchard of the farm advisors staff conducted the meetings and Prof. E. L. Overholser of the state university was the lecturer and demonstrator.

January is a good time to plant throughout the state. After years of experiment and observation it has been found best to cut back young trees at time of planting. Some claim that in this way moisture is lost from the young tree and that the wound dries up, leaving a dead stub. The little moisture lost lasts but a week or so and the stub does not dry more than a quarter inch. If not cut back too many light thin leaves develop and make a big pull on the young plant through excessive transpiration.

Do not head young trees too low, for a good distribution of the leaders or "scaffold" branches cannot be had. If headed low the branches have to spring from practically the same point. This makes a nest or pocket for lodgment of leaves and trash, and heart rot is often induced. It also makes a weak crotch, for as main limbs grow the trunk at this point is absorbed by them and as they crowd each has but a wedge shaped base pointing to a common center, like the segments of an orange. With main limbs distributed up the stem several inches apart and on different sides of the tree, each may develop naturally without crowding or competition. Head at 24 inches and leave three main branches ranging from eight inches or more above the soil to the top of the trunk. Choose the stronger, well distributed, and the lower one preferably on the south side so its foliage will shade the trunk. In building the tree a fine distribution of fruiting area is the main point to consider.

Sun scald begins in winter, on the southwest side. Due to the dark color of the bark the temperature on a sunny day is 30 or 35 degrees higher than that of the surrounding air. Thermometers properly placed showed an air temperature of 80 and a bark temperature of 110. Therefore white-wash as soon as planted. While the dark bark absorbs heat the whitewash reflects or repels it. Prof. Overholser said Benjamin Franklin spread two large cloths over two inches of freshly fallen snow, on a sunny day, one white cloth, the other black. At sundown they were removed. Under the white cloth the snow was intact; under the black cloth the ground was bare! The snow had melted! Sometimes hot days are followed by freezing nights; the range of temperature is too great for good of the tree. In the spring the scalded portion dries out, leading some to think the injury was done at that time. This side of the tree, in neither trunk nor branches, will develop like the northeast side.

As the trees leaf out pinch the terminals on all but the three leaders, back to short spurs. These will furnish rosettes of leaves to shade the trunk and manufacture plant food. Also the evaporation through the foliage cools the air and keeps the whole tree from becoming unduly warm. If the leaves were stripped from a young tree the temperature would at once rise about 30 degrees.

In pruning time, fall or winter, cut the three leaders to about same height and cut off lower spurs left on the

trunk. The second spring when pinching back select two leaders on each of the three left the previous spring, and these six constitute the permanent leaders which must never be cut back except some change takes place which renders such action justifiable. After this the long pruning is followed that has several times been outlined in the Cultivator. It consists principally of thinning. On the long pruned the leaves and fruits are better distributed, the leaves are thicker, darker colored and therefore better for manufacture of food. The short pruned tree has leaves and fruits in clusters, the leaves are pale and thin, do not manufacture plant food and are a drain on the tree, pulling moisture from tree and fruit. Two such branches, with fruit and leaves may be given this trial: Take them indoors, pull the fruit from one, not from the other. The leaves on the one denuded of fruit wilt more quickly for after the leaves have exhausted the moisture in the branch they begin to pull that from the fruits. It pays to thin fruits on all trees well loaded. Slip a piece of old garden hose over a bamboo or light pole and strike the branches with the rubber "flopper." It will not injure the tree and you may quickly reduce the number of fruits.

Brown rot, a fungous disease, is prevalent in all parts of the state and is spreading. It enters at the blossom and follows through the stem into the branch and also attacks fruit, especially that in clusters. It is mainly in evidence through copious exudations of gum on the outer branches. Shade increases it, therefore thin both foliage and fruit. Sprays are good at any and all times. Best use a strong Bordeaux mixture—seven and a half pounds of copper sulphate, eight pounds of lime and 50 gallons of water. This may at times slightly burn foliage but results in no permanent injury. Spray first when flowers are pushing open. Spray again when in full bloom so inside of flower will be coated. This has not been found to interfere with natural pollination or the activities of bees as it is not poisonous and dries quickly. Prune out infected branches; The spray will control the disease. One may use lime-sulphur, mixing one part of the commercial mixture to nine parts of water, but this spray often injures foliage and fruit.

COURSE ON CHERRY CULTURE

Starting with the first carload of cherries shipped out of California in 1885, the amount has continually grown until in 1921 the shipments numbered 665 cars. Because of the continued increase in importance of this fruit and the demand for information on the best cultural methods the University of California college of agriculture is now offering a 12 lesson correspondence course on cherry culture.

Both commercial cherry growers and owners of home fruit orchard should find this course of great practical value in either making new plantings or in securing good crops from present plantings. Persons interested in cherry culture should apply to the Division of Agricultural Education, University of California, Berkeley, for further information.

PRICES SET ON CANNING PEACHES

California Canning Peach Growers has set prices on canning peaches for this season. All clings: \$60 per ton for No. 1; \$30 per ton for No. 2. Free-stones: Lovells, \$45; all other free-stones \$40.

SUTTER COUNTY PEACH DAY

Today is Peach Day in Sutter County when orchardists will gather at Yuba City. The day has been planned by the farm bureau to demonstrate the great development of the cling peach industry in Sutter County. The program of entertainment includes tours through orchards of the county.

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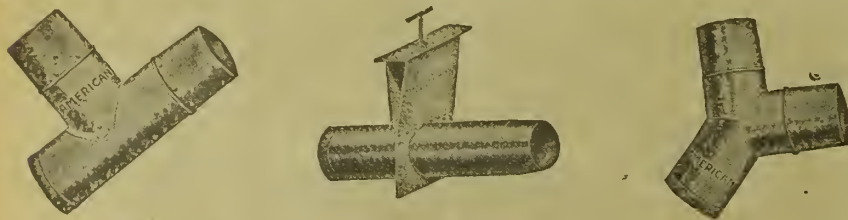
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Phylloxera Resistant Stocks

No pest of the vine has had more thorough investigation than phylloxera. Its deadly work was first observed in Europe after its introduction from America. One of the most thorough investigators has been the University of California. Especially has it done good work in finding resistant stock. This work has been summarized in "Phylloxera Resistant Stocks" by Frederick T. Bioletti, F. C. H. Flossfeder and A. E. Way. It is Bulletin 331 of the Agricultural Experiment Station, Berkeley. The authors say:

"The phylloxera is a minute insect, allied to the scales and aphids, which lives on all species of vines except *V. rotundifolia* and *V. munsoniana* of the southern states. It attacks both the leaves and roots of other American vines, but usually without doing serious injury. It attacks all vinifera varieties, usually only the roots, and finally destroys them. The only method of combating this pest that is

twenty-six as being largely planted. Since that time the number of varieties used widely or that can be strongly recommended has decreased.

We commenced planting resistant vines in California nearly 20 years after the French and were spared much of the uncertainty of the first stages of experimentation. Owing to the great differences in soil and climate, however, we can accept the French conclusions only in a general way and as a guide for our own tests.

At first we made many of the mistakes of the French. We planted inferior and unselected stocks. We placed them indifferently in any soil and in any climate. We grafted them with any variety. And, finally, our methods of handling were usually defective. During the last 15 years our varieties and methods have been fairly satisfactory, but there are still many instances of partial or total failure and it is probable that in but few instances are the best possible results being obtained.

WHERE THE GOLDEN ORANGE GROWS

On your terraced hills the orange groves are growing,
From the flumes and weirs the mountain streams are flowing,
Rippling silver, orange gold, land of promised wealth untold,
California, where the golden orange grows.

of general application is the use of resistant vines. All resistant vines are varieties of American species, or hybrids of these species with vinifera varieties. Although the insect attacks the roots of these vines, the injury done is usually slight and not sufficient to interfere with their profitable cultivation.

The phylloxera is a native of the United States and was introduced into Europe with rooted American vines. When vines were first found to be dying under the attacks of this pest it was noted that American varieties remained apparently uninjured. This led to the planting of American vines to replace the vinifera varieties that had died. The results were disappointing. The best of the American vines weakened or died and those which survived yielded poor crops of inferior fruit.

The next step was to graft the old French vinifera varieties on to the American vines which had maintained vigorous growth in spite of the presence of the insect. The results were varied. In some instances the vines died after bearing a few crops, showing that the resistance was insufficient to maintain a vine producing heavy crops. In other instances the vines lived, but were small and weak. In still other instances the results were satisfactory.

After 50 years of experimentation and experience, the causes of these variations are fairly well understood. It is now known that the American vines vary in their degree of resistance to phylloxera, their adaptation to different kinds of soil, moisture, and weather conditions, the perfection and durability of the unions they make with vinifera scions, and in the vigor and fruitfulness of the vines they support.

Of the thousands of varieties which have been tested, only a few have been retained in general use. L. Ravaz, in "Les Vignes américaines," published in 1902, describes over six hundred varieties, but P. Gervais in his report to the International Congress of Viticulture in 1900 mentions only

AUTRALIAN ORANGES IN LONDON

Referring to the "Mantua" shipment of 3,353 cases of South Australian oranges to London last season, "The Fruitgrower," London, states: "We consider the oranges for quality amongst the best available at this period of the year. A brisk demand is assured. Those in the Californian box carried best. We expect big shipments next season. We have always contended that there is a big trade to be built up in Australian oranges in Great Britain, for the simple reason that they can arrive here when most needed, that is, in the summer and early autumn months and when the market is more or less depleted of supplies of really high class oranges from other sources. If the quality and grade of this first consignment can be maintained there is an almost unlimited demand for such fruit at remunerative prices during July, August, September, and probably on to Christmas, if the shipments can be maintained over that period.

"The difficulties in the past with regard to shipping space for Australian apples has always been principally due to the fact that these shipments range only over a comparatively short period, and for this reason the shipping space which has been occupied during the other nine or ten months of the year by other produce or materials has had to give way to make room for the fruit over a temporary period. This particularly applied in the past to New Zealand. The shipment of oranges to arrive here during the summer months (presumably following the apples, which commence to arrive early in April and finish about the end of June) would seem to point to the possibility that, with a few other items added, a regular service of ships to be devoted to the fruit trade traffic entirely, and fitted with refrigerators or cool chambers, could be initiated and maintained throughout the year, so that the fruit shipping trade from the Antipodes would not then be dependent on the favor of space allotted by shippers who are exporting throughout the whole year freight not connected with the fruit trade."

June 3, 1922

GRAFTING POLLENIZERS

By Claud D. Tribble

In your issue of May 6 I note advice given by a correspondent at Whittier in regard to grafting for the pollination of plums. I have followed this work very closely for many years and wish to say that my experiences are the opposite of the writers.

One of the best examples of grafting in a limb on a tree I have seen for pollination is in the R. J. Coggeshall orchards on Grand Island. In this orchard the owner has grafted in each tree of Tragedy a Clyman scion. There are several hundred trees thus treated, and Mr. Coggeshall gets from 30 to 50 per cent more fruit than his neighbors (trees same age), even those that have certain trees throughout the orchard grafted to the Clyman. This season Mr. Coggeshall has over 4,000 limbs in different varieties grafted for pollination. In this lot are German prune trees 50 years old.

It takes only a very few flowers to pollinate a tree, and a graft placed in a large tree will not grow very fast and will produce an exceptionally large crop of flowers because of its being rather undernourished. In the case of your subscriber it would be better to graft a whole tree than to dig it out and wait for a young tree to grow as it is very difficult to get a young tree started in an old orchard. We have found the Santa Rosa better for pollinating the Wickson than the Climax.

I have adopted a method of working over a tree without cutting off the tree for one or two years and yet get a fine growth and not lose a crop of fruit. I do this by taking a saw and cutting diagonally across the limbs, just above where the tree branches, then using a half circle harness knife to cut the cleft. I then insert the scion, wax over, and in most instances the first season will give a growth of several feet per scion. This diagonal cut gives the scion a great portion of the sap and this gives a very rapid growth. This method could be used if a person wanted a rapid growing, vigorous limb for pollination.

BRIDGE GRAFTING CITRUS

Farm Advisor Hodgson of Los Angeles County during 1921 did much bridge grafting on oranges and lemons in about 25 orchards in various parts of the county. The treated trees were either girdled by gophers or gum disease, though in one instance a large orange tree was completely bark-killed through spilling smudge pot oil around the crown.

A tour of inspection is made every 60 days, in some cases more often. On one of these the injured trees were all bridge grafted or inarched with yearling sour stock seedlings, by the method described in previous issues of the Cultivator. A few of these were killed by frost, but of those not frosted not one had failed to live and form a union with the old bark. Mr. Hodgson says the process is a very simple one and can be performed by anyone.

On this tour of inspection and attention many examples of top-working were examined and treated. Buds were last year inserted on old trunks and branches. Some time after the bark was girdled two or three inches above the bud, some branches were completely cut off. Now (in May) the final cuts were made on trees where the buds have made heavy growth. The large branches are cut on a slope,

close to the bud, with the bud on upper side of slope, flush with the top. The wound is then brushed over with a corrosive sublimate solution (1 to 1,000) and in a few minutes, when dry, the stub is waxed over with hot grafting wax. The tops of the buds are then cut back to start a branching top. This is the last operation necessary for a year to come.

CALIFORNIA FIRST IN VALUE OF NURSERY STOCK

There are 51,453 acres of the best soil of the United States used in growing nursery trees, and the leading state is New York, with 5288 acres, according to the census report. The next is California with 4080. The comparative values of the acreage in New York and in California are vividly shown in the financial returns. While New York's 5000 acres bring in a total of nursery stock to the value of \$2,310,253, California's 4000 produce stock valued at practically three million dollars, or to be exact, \$2,920,458.

In number of nurseries California also leads, with 540 against 359 for New York. There are only six states producing nursery stock exceeding in

value a million dollars. These are in the order named: California, New York, Ohio, New Jersey, Missouri and Pennsylvania. In seed production no state in the union approaches California.

KELSEY'S KADOTAS

The five acre Kadota fig orchard of Fred W. Kelsey, two miles west of El Monte, is believed to be the biggest orchard of that variety in Los Angeles County. It is now three years old, of spreading, low branched trees not over three feet high, yet some trees have borne heavy crops.

As the trees were small, set about 20 feet apart, and grow more slowly than some other deciduous fruit trees it was thought advisable to interplant with some crop yielding an immediate income. The trees were set in February-March and in April rhubarb was interset. Although Mr. Kelsey had just retired from the practice of law and knew nothing of agriculture, in just a year he had sold rhubarb stalks to the value of \$1,661.41, and 60 days later sold \$2,205.13 worth of roots, giving a financial return for three acres of \$3,-

866.54. Mr. Kelsey says he thinks that pretty good farming for a health broken lawyer. After this crop was harvested, for fear of depletion of plant food, he invested \$353 in 40 loads of stable manure.

GRAPES AND PERSIMMONS

In talking with three growers of nursery stock in the San Gabriel valley it was found that all had sold their complete stock of all varieties of persimmons and that the demand is heavier than ever before. All Black Monnukka grape cuttings were early sold and more asked for. One grower is specializing on Eastern Concord grapes and has thousands of rooted cuttings now in the nursery rows, though a small per cent were killed by frost just as the top bud was leafing out. Nearly all so injured are now green from lower buds. The demand for "the real Eastern Concord" is very strong.

Advertising clubs of the world will meet June 11-15 at Milwaukee and will be addressed by Hon. R. S. McKelvie, Secretary Wallace, Hon. Eug. Meyer, chairman finance corporation, Hon. Arthur Capper and Hon. E. T. Meredith on farm papers.

Four Lee Tires that went 8400 miles on their original air.

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LEE Puncture Proof Tires

Jno. L. Dabbs, E. I. DuPont de Nemours Co., Charlotte, N. C., reports: his Cadillac Coupe with Lee Cord Puncture-Proofs ran 8,800 miles the first 18 months on the original air in the front tires. After 8,400 miles the rear tires were retreaded, but up to that time had never been flat.

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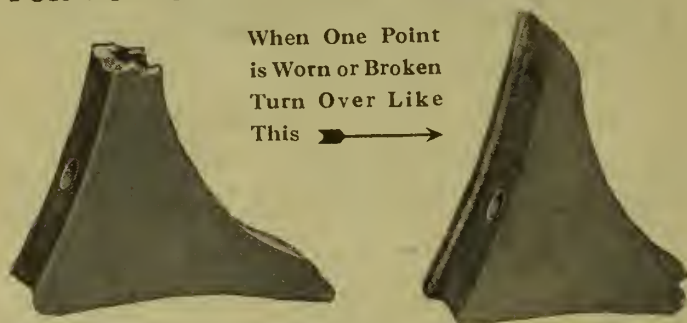
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Valencia Orange Show Awards

Awards at California Valencia Orange Show at Anaheim, May 23-30. Sweepstakes

24 boxes Valencias—1, cup and \$100, American Fruit Growers, Lindsay. 2, cert. and \$75, Pepper Fruit Co. 3, cert. and \$50, Anaheim Orange & Lemon Assoc. 4, cert. and \$25, La Habra C. of C. 24 boxes lemons—1, cup and \$75, Anaheim Orange & Lemon Assoc. 2, cert. and \$50, Mutual Orange Distr., Redlands. 3, cert. and \$25, American Fruit Growers,

With mechanical action, entered by chamber of commerce or citrus fruit association—1, cup and \$250, Brea C. of C. 2, cert. and \$200, Whittier C. of C. 3, cert. and \$100, Rotary Club. 4, cert. and \$50, Anaheim Citrus Fruit Assoc.

By individuals, firms and corporations—1, cup, cert. and \$150, Anaheim B. P. O. E. No. 1345. 2, cert. and \$100, C. C. Chapman. 3, cert. and \$50, American Fruit Growers, Los Angeles.



CALIFORNIA VALENCIA ORANGE SHOW AT ANAHEIM

The management of the California Valencia Orange Show last week put on one of the prettiest shows ever. The photographs give a glimpse of the main entrance and the view as visitors enter the tent.

Fullerton. 4, cert. and \$10, La Habra C. of C.

Best and most artistic display 12 boxes seedless grapefruit—1, cup and \$50, La Habra C. of C. 2, cert. and \$25, American Fruit Growers, East Highland. 3, cert. and \$15, American Fruit Growers, Corona. 4, cert. and \$10, American Fruit Growers, Rialto.

Artistic Display

Valencias, 40 boxes or more—1, cup and \$75, Villa Park Orchards Assoc. 2, cert. and \$50, Anaheim Orange and Lemon Assoc. 3, cert. and \$25, Anaheim Citrus Fruit Assoc. 4, cert. and \$10, American Fruit Growers.

Lemons, 40 boxes or more—1, cup and \$75, American Fruit Growers, Fullerton. 2, cert. and \$50, Mutual Orange Distributors, Yorba Linda.

Boxes

12 boxes Valencias—1, \$50 cash, Anaheim Orange & Lemon Assoc. 2, \$25 cash, Placentia Packing Co. 3, \$10 cash, American Fruit Growers, Riverside. 4, cert., American Fruit Growers, Corona.

12 boxes lemons—1, \$50 cash, American Fruit Growers, Fullerton. 2, \$25 cash, Anaheim Orange & Lemon Assoc. 3, \$10 cash, Mutual Orange Distributors. 4, cert., Placentia Packing Co.

8 boxes Valencias—1, cup, American Fruit Growers, East Highland. 2, cert., Anaheim Orange & Lemon Assoc. 3, cert., American Fruit Growers, Fullerton.

4 boxes Valencias—1, cup, American Fruit Growers, Phoenix. 2, cert., Villa Park Orchards Assoc. 3, cert., Pepper Fruit Co.

4 boxes lemons—1, cup, Mutual Orange Distributors, Redlands. 2, cert., Anaheim Orange & Lemon Assoc.

4 boxes seedless grapefruit—1, cup and \$10, American Fruit Growers, Corona. 2, cert., Anaheim Orange & Lemon Assoc. 3, cert., American Fruit Growers, Riverside.

Commercial Pack

1 box lot Valencias—1, cup and \$10, American Fruit Growers, Lindsay. 2, cert. and \$5, American Fruit Growers, Fullerton. 3, cert., Phoenix C. of C.

Lemons—1, cup and \$10, American Fruit Growers, Fullerton. 2, cert. and \$5, Anaheim Orange & Lemon Assoc. 3, cert., Mutual Orange Distributors, West Anaheim.

Feature Display

Without mechanical action, entered by chamber of commerce or citrus fruit association—1, cup and \$150, Balboa C. of C. 2, cert. and \$100, Anaheim Orange & Lemon Assoc. 3, cert. and \$50, Pasadena C. of C. 4, cert. and \$25, San Bernadino C. of C.

Plates

Valencias—1, blue ribbon and cert., Pepper Fruit Co. 2, red ribbon and cert., Anaheim Citrus Fruit Assoc. 3, cert., Phoenix C. of C.

Most artistically arranged plate display on a counter—1, cup and blue ribbon, Anaheim Orange & Lemon Assoc. 2, red ribbon and cert., American Fruit Growers, Fullerton.

12 Valencias—1, blue ribbon and cert., Pepper Fruit Co. 2, red ribbon, Villa Park Orchards Assoc. 3, white ribbon, American Fruit Growers, Rialto.

12 lemons—1, blue ribbon and cert., Villa Park Orchards Assoc. 2, red ribbon, Anaheim Orange & Lemon Assoc. 3, white ribbon, Mutual Orange Distributors, Redlands.

12 grapefruit—1, blue ribbon and cert., Anaheim Citrus Fruit Assoc.

Miscellaneous

Largest grapefruit in the show—1, cert., Placentia Packing Co.

Citrus fruit by-products commercial, general display of citrus fruit by-products manufactured and entered by a firm and corporation—1, \$50 cash, Thomas Crawford. 2, \$25 cash, North Ontario Packing Co. 3, \$10 cash, Exchange Orange Products Co.

General display of citrus fruit by-products made and entered by an individual—1, \$20 cash, Mrs. R. N. Allen, Anaheim.

Fancher Creek Nurseries of Fresno announces the appointment of S. A. Gebhart (formerly general superintendent of the company and other Roeding interests) as manager of the Fancher Creek Nurseries, to fill the vacancy caused by the resignation of E. W. Horton. Of Mr. Gebhart President Roeding writes: "He has been connected with the Fancher Creek Nurseries for many years during which time he has creditably filled every position to which he has been assigned. Mr. Gebhart's modesty prevents our elaborating on his experience and ability. Suffice it to say, however, that it would be difficult to find a safer authority on the growing and care of trees and vines."

A Central California citrus institute will be held at Lindsay early in the fall. It is hoped to make this an annual event.

REPORT OF COMMITTEE ON REGIS-
TRATION AND CLASSIFICATION
OF VARIETIES

(Continued from Page 591.)

The Linda produces the largest fruit we have, approached in size by the Nimlioh, Panchoy, Sherman Seedling No. 1 and the Victory. The largest Linda weighed over four pounds. Such extreme sizes become more moderate with older trees and full crops. An interesting development last season is the very long period during which this fruit ripened with good quality maintained by the latest to ripen. Beginning at the end of spring the Linda fruit continued to mature throughout the year. A sample sent the committee on January 12, 1922, weighed 19 ounces.

The severe cold of last winter was the worst experienced in nine years and brought disaster to the citrus industry and to our own. While it was a present misfortune, it will in the end be a gain by giving us knowledge of the limitations as well as advantages of different varieties. This information, only partially available today, will become better known and understood during the current year and will put our membership in a position at the next annual meeting to make a wiser, more acceptable and more useful revision of our preferred list than could be done now. Opinions at present, both as to contraction and enlargement, are in a fluid and unsettled state.

In view of the existing uncertainty of opinion it would seem the part of wisdom to now merely divide the list into two parts, letting the list say what the frost says, namely,—that the Fuerte and Puebla stand by themselves, leaving the adoption of a revised list to the next annual meeting.

To assist in a study during the year of varieties which by their previous position in the industry would be entitled to consideration in forming a future list we give a short description, based on the vicinity of Los Angeles and on latest information, mentioning the names of a few others already described, without prejudice to the consideration of any others that may seem worthy of adoption.

The Fuerte and Puebla both are strong, vigorous trees, proven this winter the hardiest of our commercial varieties and are also leaders in oil content, quality and flavor. The Fuerte, of a dull green color, averages three quarters of a pound to a pound in weight, with a medium sized seed, and matures its fruit from January to April. It sometimes has a good many undersized fruit and a good many non-pollenized fruit. The Puebla bears a glossy, handsome, pear shaped fruit maturing in November and December and requiring only about eight months from bloom to maturity. The fruit is small, averaging only half a pound, with a proportionately large seed. Oil content respectively, by Chase analysis of 1920, 29.6 and 26.5.

The Sharpless is well known for its handsome, large, purple fruit. It averages a pound to a pound and a half in weight, with a comparatively small seed. It has high quality and flavor and a desirable ripening period in the late fall. The fruit requires a year and a half from blossom to maturity and the young budded trees for the first few years do not stand up well against our trade winds, requiring more than usual care and attention. Oil content by Chase analysis in 1921, 18.4.

The Spinks is a strong growing tree and a good bearer. The handsome fruit of a purple black color has a long ripening period from early in the spring until October. Weight a pound to a pound and a half and seed large. Fat content, Chase report, 18.5.

The Dickinson tree is good and fruit of good quality and flavor, averages three quarters of a pound to a pound in weight, with a moderate sized seed, and matures in the summer. An outstanding feature is its very thick, granular, warty skin, which be-

comes a handsome purple color and identifies the variety. Some of the fruit have shown a pink color and some bitterness in the flesh. Oil content, Chase report, 14.4.

The Taft tree is vigorous and beautiful, somewhat more tender than the average. Fruit green in color, a pound or more in weight, is one of the very best we have in all respects, but the tree is so slow in coming into bearing that its planting is very limited for that reason. Oil content, 18.9.

The Lyon tree by its upright, slender growth and comparatively dwarf size is the kind best adapted for interplanting or close planting. The green fruit averages a pound in weight with a moderate sized seed and matures in the spring, and is of good quality and flavor. Fat content, Chase analysis, 26.9. The shriveling of the fruit sometimes noticeable, and a good deal of drying before maturity showing at times in some places has been found in other varieties and is now believed to be caused by a temporary tree condition and not by a disease. The weakness and death at one time of young Lyon trees when planted out in the orchard was very great and caused much loss to many planters, but it is claimed that trees of healthy growth are now being produced. They are being planted in large enough quantities to give a wide spread test this year. Should it prove possible to grow as healthy young trees of the Lyon as well as other kinds, the value of the Lyon for early fruiting and very great and regular crop production is well known. An early fruiting young tree should surely have the crop removed for the first year or two to keep it healthy and extra heavy crops should be thinned continuously.

The Blakeman is a vigorous tree of too spreading growth which is easily controlled by proper pruning when the tree is young. The fruit is glossy green, a pound or more in weight, with a comparatively small seed, clear yellow flesh without fiber and quality and flavor of the best.

Other varieties previously described,

—Dickey A. Thompson, Dorothea Prince and Billingsley.

In a future list it should be emphatically stated that the relative hardness of the different varieties is of primary importance, and explanation ought to be given that true Guatemalans should be considered for planting only in places exceptionally safe for lemons and adequately protected with orchard heaters, where lemons require such protection.—Committee: Chas. D. Adams, chairman, T. U. Barber, Wm. Hertrich, C. F. Kinman.

SODA POP FROM SURPLUS FRUIT

Carbonated beverages prepared from surplus berries, grapes, apples, and pomegranates, and superior in every respect to commercial imitations, are promised at a cost of 1½ cents per bottle by W. V. Cruess and J. H. Irish of the University of California. Recent experiments conducted in the university laboratories bear out their findings in the use of surplus fruit.

"The American public consumes over 300,000,000 gallons of soda pop annually," says Professor Cruess. "Most of it is now prepared synthetically from artificial color, citric acid, sugar, and artificial flavor."

RAINFALL CHART

The Security Trust and Savings Bank of Los Angeles has just issued its 1922 edition of rainfall and climatic chart of Southern California. It has the usual brilliant red columns to visualize total rainfall of years as far back as 1877. Also averages in several Southern California communities, and then the main part of the chart is given up to monthly precipitation for each year from 1906 down to the present, at least as far as April 15, 1922. In addition there is a monthly average sunshine chart. Without looking on this chart we guess that nine-tenths

of us would guess wrong as to which is the most sunshiny month of the year. The chart proves it to be October with a showing of 89 per cent sunshine, with November second and May third. The least sunshine of the year is in the month of August, with only 61 per cent.

We believe the Security people will send this chart to any Cultivator reader who will send them a two cent stamp.

TO DEVELOP LOCAL MARKET

Because of the large eastern apple crop, R. B. Peters of the Apple and Pear Growers Committee of Sixteen of Southern California districts advises no attempt at eastern marketing this year. The committee agreed in stating that the only profitable sales last year were made in the local territory and that the proper development and exploitation of this great market is the chief hope of the apple industry of this part of the state. Growers contemplating signing up crops are advised to wait until the final report of the committee.

NINE THOUSAND FOR BUD SELECTION

Appropriation of \$9,000 for bud selection work on deciduous fruits is included in bill just signed by President Harding.

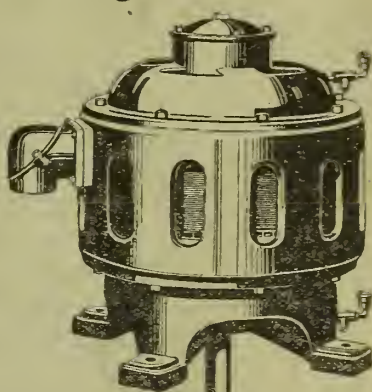
Field demonstrations in pruning of citrus trees will be held in Los Angeles County, June 12-26 at Roscoe, La Canada, Alhambra, Covina, Pasadena, Sierra Madre, Monrovia, Azusa, Baldwin Park, San Dimas, North Whittier Heights, Spadra, Pomona, La Verne, Rivera, Whittier, Downey, San Fernando, and Owensmouth. Exact dates may be secured from farm bureau officials.

The California Lima Bean Growers Association is beginning a campaign for increasing membership and strengthening the organization.

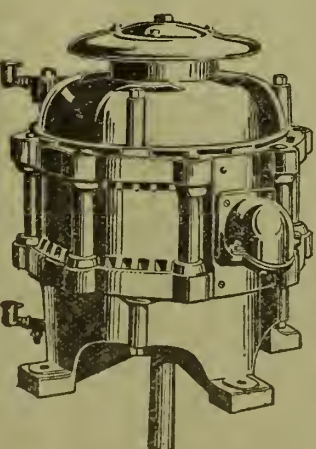
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THIS MONTH IN ORNAMENTAL GARDEN IN NORTHERN CALIFORNIA

(Continued from Page 593.)

season. There are such things as lime and slug shot which may be used on the flower beds, but the most effective way is to watch for them very carefully, find their hiding places by day and use a lantern or flashlight at night as this is when they work. These pests are very fond of the young zinnias, asters, delphiniums and sweet peas. The diabrotica, or squash bug, will soon be getting busy also, destroying choice blooms. These can often be hand picked. Foliage being attacked can be sprayed with arsenate of lead or Paris green. Aphids will also need spraying. Constant attention to watering must be given from now on, especially to all newly planted trees and shrubs.

Climbers

All new growth on these must be tied in, and most of the roses will have made good growth which should be used to good purpose in covering pillars and arches. An excellent quick growing climber is Cobaea scandens which can be used to good effect in covering trellis or fence, while certain ipomeas or convolvulus are also useful for a season.

Begonias

These should be given a shady position and planted in their flowering quarters in good soil mixed with leaf soil. They may be secured in various shades of pink, scarlet, yellow and orange, also white, double, single or frilled.

Liliums

Those planted a few months ago

will now be ready for staking, and a little stimulant such as liquid manure will work wonders applied once a week.

Sweet Peas

To have a long blooming period it will be necessary to keep these well supplied with water, and soot water, also liquid manure, will help these greatly and increase the size of the flowers. To secure early fall flowers which will also continue on into Christmas it is essential that trenches be prepared at once with manure well mixed and seeds sown at the end of the month.

Dahlias

Seedlings of these should now be large enough to plant out in their flowering quarters, and those planted from tubers should be staked and as the buds appear later on should be disbudded. Those of the pompom type should be given less water than the others.

Early Flowering Shrubs

Lilacs, etc., should be pruned back to encourage fresh growth and may be mulched with manure to advantage.

Seeds to Sow Now

For the fall flower display sow at once stock, godetia, clarkia, nemesia, linaria and mignonette.

Chrysanthemums

Rooted cuttings of these should be planted out where they are to flower in rows or groups at least 18 inches apart in good rich soil.

Hydrangeas and Rhododendrons

These should now be coming into flower and will need plenty of water and a mulching of manure. They will repay for extra care and require a moist semi-shaded position.

Lawns

These should be sprinkled regularly and weeds kept out, especially in new lawns.

This Month in the Vegetable Garden

Northern California

By A. R. Gould



MATERING, cultivating and weeding will be first and foremost this month, and extended plantings may also be made of corn, squash, melons, etc. Where it is desired to save seed of peas and broad beans these may be collected and stored in a dry place. Plots on which the peas and beans were grown may be well trenched and prepared for a crop of beets or lettuce later on.

Corn

Make a further sowing of Country Gentleman and Golden Bantam in rows three feet apart each way. Keep the hoe busy between the plants as this will help conserve the moisture.

Beans

Make successional sowing of Golden Wax, Kentucky Wonder, Refugee and Stringless Green Pod. Davis White Wax is also a good late bean and useful as a shelled bean for winter use. Aphids may become very troublesome and should be sprayed with black leaf 40. The aphids usually are found on the young tips. Cultivate frequently between the rows of the early crop.

Turnips

Sow early Snowball and White Egg as thinly as possible in rows 18 inches apart.

Beets

Sow Detroit Blood Red which will be valuable for winter storing. Swiss

chard or Sea Kale beet may also be sown for use as greens.

Potatoes

These should be hoed frequently and the soil drawn up to the plants in the rows. Any plants showing signs of being diseased should be promptly removed. A good late crop variety such as Gold Coin may be planted now where water is available to irrigate liberally.

Tomatoes

Hoe around the plants, and those grown on the single stem system should have all the axil shoots pinched out. Spray for black aphids with liquid nicotine.

Squash, Melons and Cucumbers

Still time to plant a few of the above if sown at once, three or four seeds to a mound. Sow squash, Early White Bush, Scallop and Perfect Gem; muskmelon, Honeydew; watermelon, Chillian and Georgia Rattlesnake; cucumber, White Spine and Long Green.

Parsnips

More of this useful vegetable should be sown as it has a high food value. Sow Hollow Crown variety in rows 18 inches apart. It is easily stored for winter use so look ahead. One quarter of an ounce will sow a 100 foot row.

Leeks and Celery

These may now be planted in trenches which have been well prepared with manure. Set 9 inches apart.

Cauliflower

Sow Early Snowball and Autumn Giant in a small seedbed, and in the meantime prepare your plot by trenching with manure.

Onions

These should be thoroughly well cultivated between the rows and a dressing of soot or wood ashes applied.

Carrots

Towards the end of the month a successional sowing of Danvers Half Long and Oxheart may be made on good rich soil.

Berries

Irrigate these at least twice this month and cultivate thoroughly.

Southern California

By D. F. Reichard



HOSE who started their garden early in the spring are beginning to bring in fresh vegetables. Notwithstanding the cold backward spring the hardy vegetables are coming on in fine shape, and the more tender things are doing well since the weather has warmed up. Keep the ground moist and well cultivated to insure good tender stuff.

Where there is room prepare the ground for planting summer growing stuff. June is particularly timely for starting winter squashes. The Hubbard is the standard, but for texture and flavor Pike's Peak or Sibley and Banana or Fence Post can not be surpassed. Plant Early White Bush and Fordhook squash, Davis Perfect cucumbers, muskmelons and watermelons, casabas, sweet corn, and string beans for late summer use.

Plants of peppers, tomatoes and egg plant, sweet potatoes, roselle and other vegetables may be set the early part of this month. Be sure to wet

Do You Want Duty-Free POTASH?

Recently a United States Senator, who is actively engaged in trying to defeat the "joker" in the Free List which puts a 100 per cent duty on agricultural Potash, asked why the farmers were not represented at the hearings before the Senate Finance Committee when the subject was under consideration. A man, who attended these hearings, called the Senator's attention to the fact that three owners of farms had appeared, representing New Jersey, Missouri and Indiana; that the New Jersey Federation of County Boards of Agriculture, and the Representative of the New Jersey State Grange appeared; that the Representative of the National Grange made a statement; that the National Farm Bureau Federation and the Representative of the National Bureau of Farm Organizations had been actively working for free Potash, and that the Washington Representatives of these Agricultural Organizations represented millions of real farmers, who paid good money to belong to these organizations and to support their representation in Washington, upon whom they depended to look after legislation affecting farmers' interests.

Later on it developed that other Senators had this same thought—that the farmers were not asking that Potash remain on the Free List. There can be no question that all farmers most strongly object to paying two dollars for a dollar's worth of Potash.

Ten people, representing farmers, fertilizer manufacturers, producers of imported potash, and former producers of American potash, appeared before the Senate Finance Committee, or filed briefs on the subject.

Of these, nine asked that Potash remain on the Free List and one asked for the duty.

Why then have the Senators come to believe that farmers are indifferent about the matter?

The explanation is to be found in the fact that

the "United States Potash Producers' Association" maintains in Washington an organization which is very active in urging a duty on the farmers' Potash. At the hearing their propagandist shouted: "Where was the American farmer yesterday? Where was the farmer of the South, who uses more Potash than any other farmer in the country? . . . Where was the American Farm Bureau Federation, which has its offices in Washington? Where was the National Bureau of Farm Organizations, representing thousands of farmers?"

This was clear bluff, for these organizations were represented and they have taken their stand squarely for Free Potash.

But the bluff, constantly repeated, seems to have made an impression that will be costly to the consumers of Potash, unless immediate steps are taken to show the Senators that farmers are very much in earnest about the matter. The farmers' representatives in Washington must be supported by the farmers at home.

The only effective way to do this is for farmers to write to both of their United States Senators at Washington, urging them to see that the "joker" at the end of Paragraph 1635 be struck out and that Potash used in fertilizers remain on the Free List, where it always has been.

The Senate is now considering the Tariff Bill. Write your Senators today.

During the time when foreign Potash could not be obtained, Potash sold at more than ten times the prewar or the present prices. Then the American producers, some of whom are called the "Borax Brigade", had the opportunity of profiteering to the limit, and of selling at very high prices Potash of an inferior, and sometimes injurious kind.

Now they ask for "protection" in the form of one of the most excessive duties in the whole Tariff Act. Unless the farmers act promptly, they are likely to get it.

SOIL AND CROP SERVICE, POTASH SYNDICATE

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New York

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the ground around each plant well after planting to settle the dirt around the roots. All of these things will require water to carry them on to maturity. The ground should be well soaked before it is worked and planted. Be sure that the seed are in damp ground when planted so that they will be well up before they need watering. Always cultivate after irrigating so that your ground does not dry out.

Apply fertilizer to backward plants. Spray with Bordeaux mixture when there are any signs of rust, mildew or blight; with Black Leaf 40 for aphids and thrips; and with arsenate of lead for chewing insects; for red spider dust with sulphur.

Southern Arizona

By M. E. Bemis

JUNE is another month of preparation, and if the signs are an indication one may not injure his reputation as a prophet by prognosticating an unusual interest in fall gardens. Already some are planning to plant land to cow peas that will in late August or early September be turned under and made ready for lettuce. This will be the practice of some of the larger lettuce growers. It is a good practice for the small gardener, and the humus and the nitrogen added by the cow peas will help other succeeding crops just as much as the lettuce.

Probably there is no better preparation for the fall garden than the clearing up of weeds and planting to cow peas. Plowing and manuring is of course also a good preparation. Chicken yards are better for being cleaned, corrals also and all accumulations that will make manure can and should be gathered up now and put on the land where it will do good. Compost heaps may be made, but water will have to be added as here there is not enough rain to rot the vegetable matter that is usually a part of compost heaps.

June is a good month to make the first plantings of Mexican June corn. This, as I have had occasion to say several times, is probably our most valuable corn for roasting ears as well as for a general field crop for silage or for grain. There is certainly no other variety that one year with another will do as well.

July is the month for planting the general corn crop, also some beans should be planted, and plans should be made now for the corn and beans to be planted next month. Vacant places in field or garden which for one reason or another one does not care to plant to cow peas may be planted to any of the summer crops, such as milo, kafir, or the new grain sorghum hegari, which is taking the place largely of milo in the Salt River valley. Sudan grass is a valuable forage crop, and where summer green feed for poultry is desired, I do not know of anything that grows much faster in the summer, and that all things considered is any better to supply a steady supply of green feed at a time when the refuse from the garden such as lettuce, cabbage, etc., is getting scarce. A corner of the garden may be profitably devoted to the growing of a little Sudan. Fertilizer may be spread on the grass from time to time, and irrigated, thus preparing the land for planting in the fall when the grass has served its purpose. The rank and rapid growth of Sudan, like cow peas, has a tendency to smother out weeds.

DON'T CUT ASPARAGUS TOO CLOSE

By W. H. Payne, Montecito

In your advice to Subscriber, Santa Barbara, regarding the cutting of an asparagus bed I fail to see any scientific reason for depriving the asparagus roots of their life-giving foliage for so long a period as the cutting season lasts, which as a general rule runs to June 1 and in some cases longer.

It certainly seems to me that the system you advise only means the weakening of the plant itself. All nature is more active in the spring time than at any other season of the year and no plant can live for any length of time if it is deprived of its foliage.

Every plant takes most of its sustenance through its foliage.

In your reply to Subscriber you say to cut the tops back in August. This gives less than three months for the plant to recover from the strain it has been under by the cutting process.

It appears to me that a treatment of this kind must naturally shorten the life of the bed, whereas there is no reason why an asparagus bed should not last for 30 or more years.

One fine bed of asparagus I know of was cut your way but after some years the grass was becoming smaller and smaller. My opinion was asked and I gave my system of growing asparagus at which I have been very successful. This was to let some of the grass grow from the time the bed started, in other words to continue treating the plants just the same as I treat a bed from its first planting, and I have seen no authority who does not advise cutting a bed sparingly until it is four years old. If then it is an injury to heavily cut a young bed, in the same ratio it stands only to reason that it must be detrimental to older plants to deprive them of the one essential thing that the young plant needs for the growth of the roots.

In the fall I allow the tops to grow as long as they will except that I cut out any of the seed bearing grass before the seed ripens and falls to the ground and grows as the young ones are not needed and become also a detriment. If rust appears of course I would cut it down on its first appearance.

I think you must admit that in the event of having to cut the tops on account of rust earlier than ordinary under my system the bed would suffer less than under yours.

My advice was taken regarding the bed mentioned above and in a couple of years the bed came back to normal and improved right along.

I am always open to conviction and should be glad to stand corrected if you can give any scientific reason for cutting "everything from the bed during the cutting season."

WILT RESISTANT TOMATOES DEVELOPED

The only successful means of controlling tomato wilt is through the development of resistant varieties, says the United States department of agriculture. The wilt fungus lives in the soil and invades the tomato plant through its roots. Spraying the plant has no effect on the disease, and no important results have been obtained in the control of the trouble through soil treatment.

Four varieties of tomatoes have been developed which will produce heavy crops of excellent fruit on land so badly infested by wilt that ordinary tomatoes can not be grown upon it. They are selections from the Greater Baltimore, Stone, and Merveille des Marches, (Marvel of the Market), three of the best commercial varieties grown. They possess, in addition to wilt resistance, all the good qualities of their parent varieties. Extensive field tests have shown them to be well adapted to all parts of the United States in which tomato wilt is present. The work done in connection with the development of these varieties is described in a new department bulletin, No. 1015, Development of Wilt Resistant Tomatoes, by F. J. Pritchard, physiologist, which may be obtained upon application to the United States Department of Agriculture, Washington, D. C.



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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Bermuda Pest

I had a small patch of Bermuda or Johnson grass along the wheel track of one of those roads which are donated, 20 feet by each owner, just a few square feet. I was not aware of it till last fall. I aimed to wait till it was dry and burn the long tendrils, shake out the roots and try to smother it by burning off the top every time it grew up green. But two neighbors while it was wet forked it against my levee, leaving a mass of short rootlets

and burying the long tendrils which soon became nicely rooted. Then others against my advice disked it thoroughly and used the road drag with the result that it became thickly scattered. I've been over it numerous times with a fork and springtooth but there are still thousands of nicely rooted sprouts for some distance along the road, some close to my levee which by the way is two or three feet back from the line. Can these men continue this practice of disk and putting the road drag on this road, and how rid the roadbed of it? Are they liable for damage or must I continue my efforts to check it, and what is the best way?—A Woman Rancher, Hughson.

No. Refer the matter to your county horticultural commissioner who has authority to compel abating of the nuisance. Meanwhile on your own land continue use of the springtooth and when the weather gets good and hot the killing of Bermuda is comparatively easy when the cultivator is persistently used.

Catching Pigeons

A subscriber asks how to catch stray pigeons. I have caught them by making a square frame 18 inches each way and covering with chicken wire. Use a figure 4 trap and bait the trigger with a piece of bread fastened firmly. Or prop the front on a center stick to which is attached a string. Lead the birds in with wheat and pull out the prop, or set the wire box flat on the ground and dig a trench under one side large enough for the birds to walk through as they eat the trail of wheat. When they get in they will try to get out the top. I have caught pigeons, quail and doves by all three methods.—Subscriber, Oilfields.

Peach Leaf Curl

Will you please advise me as to what to do to cure leaf curl on peach trees?—Subscriber, La Crescenta.

Turn time backwards in its flight and spray just before the leaves come out or before the blossom buds swell with Bordeaux or lime-sulphur mixture. Or better, jot down on next year's calendar some similar memorandum so that in February spraying may save next year's leaves. As to this year spray with weak solution of Bordeaux. This will help prevent further spread of the disease. However, the season is now so far advanced that there will be but little trouble with the new leaves.

Mildew on Peas

Am enclosing stalk of sweet pea. The vines have grown very rank and thrifty until lately when they seem to blight. Vines look pinched at ends and blossoms are small and blighted. Have tried dry sulphur without results. Sweet peas I had last year were affected in the same manner and they soon quit blooming and died.—Subscriber, Hemet.

The warmer weather will prove beneficial but in any case it will be well to scatter liberally high quality sulphur over the vines.

Trees Dying

Some of my prune trees come out in full bloom and then die. Some put out a few leaves which turn brown around the edges. I examined the roots and found some with root knot and others apparently all right. My peaches are about the same; prune trees that were affected with red spider are the worst. Can I get expert inspection of my orchard? To whom should I go?—Subscriber, Porterville.

Perhaps this trouble may be due to the complete girdling of the tree by crown gall or it may have been occasioned by lack of moisture after crop was removed last fall. Thousands of trees die every year in California from causes which are not definitely known, but presumably some of them because of lack of thorough irrigation and tilth of the soil in the fall. Too many believe that when the fruit is removed the draft on the tree is ended and no further moisture will be needed until next spring's growing period. On the other hand, it is a fact that the completion of the summer's growth, the storing of sufficient starch and other nutrients are necessary if the tree is to have sufficient food material to start the next spring's growth. Keep the trees growing this

coming fall though of course good judgment is demanded not to crowd them until there is danger of frost. If the fall season is very warm and excessively heavy irrigations are continued, tender growth may be secured which will not stand the nippy nights which sometimes come in November. Your county horticultural commissioner or farm adviser at Visalia can give you expert information or direct you to some one in your vicinity with whom you can get in personal touch.

Pruning Watermelons

How are watermelon vines pruned? I have 20 acres planted this year.—Subscriber, Fresno.

As a rule they are not pruned at all. Some have felt, however that where growth is very rank, going through the field and cutting off tips of the longest runners with a sharp spade has resulted in more fruit and less leaf growth.

June Drop in May

If San Luis Obispo subscriber who inquired in our issue of May 20, page 550, will send his name and address we will be glad to give it to one of our contributors who is interested in the same question and believes the answer, or at least a part of the answer, to June drop may be had in soil conditions. June drop subscriber please send address.

Feed Pumpkin Seeds

Will you please tell me if feeding seeds with pumpkins will decrease the cow's milk.—Subscriber, Lankershim.

Pumpkin seeds contain much more nutrition for dairy cows than does the pulp or flesh. The question of injury from feeding seed has been up for many years and various experiment stations have given thorough test and there has never been any injurious effect noted. We believe all dairymen are now saving this valuable food.

Getting Rid of Weeds

Please tell me what will kill out malva weeds? I have tried for three years pulling out and plowing but they come up fresh every spring.—Subscriber, Delano.

The quickest relief in a case like this may be had through crop rotation. Plant corn, beans, beets, or any row crop which will permit of thorough and clean culture of the soil. The hoeing and cultivation required for those crops will clean up almost any land.

Killing Stumps

How can I kill eucalyptus stumps?—Subscriber, Arcadia.

We repeat answer to a similar question given in a former Cultivator:

"Arsenate sprayed over the leaves will perhaps end their existence, but why go to such great expense? A man with either an ax or mattock will kill or at least discourage the growth on these stumps much faster and cheaper than can be done with chemicals. If the stumps are attacked before the growth becomes larger and woody and while the old stump is struggling to get sufficient leaves to support life, it is a serious shock to have these few leaves quickly removed. Of course they will start again but a similar operation a few weeks later takes but a minute or two to each stump. As to saltpeter we think it would have but little value in killing the stump, but if large hole is bored down in the top of it and this filled with the saltpeter it permeates the

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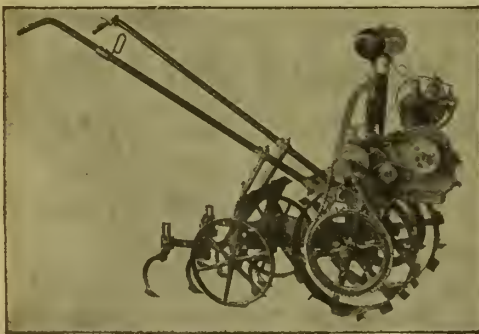
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wood and makes it combustible so that later when the stump is entirely dead a fire built alongside of it will sometimes consume to the ends of the larger roots.

Pumping for Irrigation

In using walking beam in pumping water for irrigation if water stands 12 feet from top of ground and I place a six inch cylinder 30 feet from top of ground and four feet higher so water will run in reservoir, should the water get as low as 30 feet in well, making extreme lift 34 feet, how large a windmill would I need to operate two wells? About how many gallons per minute could I expect with a 16 inch stroke with a medium wind, say 20 or 30 miles per hour? Is there a double acting pump in the market that would give same amount of water, using only one well?—Subscriber, Rosamond.

The pumps mentioned could not be satisfactorily driven by a windmill. If the pumps made 25 strokes per minute they would require about two horsepower and would pump about 6,000 gallons per hour with pumps in good condition. Wind wheels give cheap power while the wind blows but cannot be depended on for irrigation. Then too a small amount of sand in the water will cause frequent renewals of valves. A small centrifugal pump with a capacity of 10 miners inches placed in a pit as low as it is possible to get it, with a three horsepower gas engine, will be much more dependable and satisfactory. A triple pump, that is with three plungers on one shaft, will be better than a double acting single cylinder pump, but the trouble with valves will remain.—J.B.N.

Radio Instruction

I see by issue of May 6, Page 483, your comments on radio. Are there any instruction books for the beginner to learn about radio?—Subscriber, Satcoy.

There are now several publications on radio. One in particular which may prove of value to you is "The A. B. C. of Radio," by Waldemar Kaempfert, published by Martin H. Ray, 165 Broadway, New York, at 25 cents. Or we believe it can be had from any book store or dealer in radiophone supplies.

Budding Apricots

I planted several thousand apricot pits last year, from which grew good seedlings. These trees should have been budded this last fall but was unable to get buds and budder. I pruned back and suckered them to one stem. They are doing very well and am wondering if they would make A-1 trees if they were budded this next month. Could they be sold?—Reader, Earlimart.

Your chief difficulty now would be in getting good buds. If you can secure buds of apricot which have been kept in cold storage the season is good enough for the work. The only alternative for the present (or June) budding would be to secure buds from the earliest apricots and take the basal buds, though we fear these will prove rather soft. Failing in this you would have to wait until fall and put in dormant buds. If you are successful in getting buds "to take" at present time there is no reason why they should not make good trees.

Dead Walnut

A young English walnut, set out this spring developed young branches to the length of five or six inches, when the little leaflets began to turn black at the tips and soon not only the leaflets but the whole leaf dropped off. Even the coming buds dropped away. The young shoots do not seem to be much affected but seem inclined

to wilt or show lack of vitality. The tree near by seems not to be affected in any way. What is the trouble and the remedy?—Subscriber, East San Diego.

Your young walnut tree is no doubt dead by this time. It simply did not grow except in the top; the roots did not start. Enough sap was in the tree to start leaf growth, but as the roots did not act your tree is now dead or dying, due perhaps to lack of good roots when planted. There is no doubt no disease, hence no remedy.

Prunes Gumming

Could you please tell me what causes the sap to run out on the prune trees and what could I do for it?—Subscriber, Gridley.

Sap or gum runs from plum or prune trees with less provocation than from any other trees. Yours may have lacked water last fall before rains came or they may now be suf-

fering from too much water. Examine the cambium or inner white bark. If this is not affected the trouble is probably at the roots, as suggested above, and may be removed by corrected treatment. If the inner bark or cambium is discolored you may have brown rot, the treatment for which is to cut out worst affected branches and spray with a Bordeaux mixture of seven and a half pounds copper sulphate and eight pounds lime to 50 gallons of water. Then spray again in spring just as flowers are opening.

EXCLUSIVE WAVE LENGTH FOR WEATHER, CROP AND MARKET REPORTS

All weather, crop, and market reports broadcast by radio by private broadcasting stations, including stations operated by state agricultural colleges and state bureaus of markets, are now broadcast on a wave

length of 485 meters. The United States department of commerce, which is charged with licensing operators and stations and with assigning wave lengths, believes that the exclusive use of 485 meters wave length for broadcasting weather, crop, and market reports will eliminate much of the interference heretofore encountered by persons receiving the reports. The wave length of 360 meters for general broadcasting of entertainment programs and the like has not been changed.

The assignment of these wave lengths, while only temporary, will be in effect pending the passage of federal legislation relating to radio broadcasting. A list of radio stations that regularly broadcast weather, crop, and market reports can be had upon application to United States Department of Agriculture, Washington, D. C.



horse profits



No. 3 of a Series

Published Monthly in the Interests of Better Horses and Better Harness

Louis Lichtenberger, Editor

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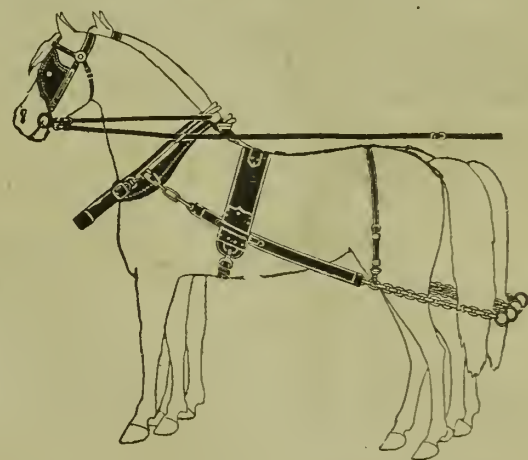
It has been apparent for sometime that a new day has dawned for the horse. Experience has proved his all-around superiority over other forms of power. The most economical power unit on the farm—whether for plowing, discing, harrowing, sowing, cultivating, harvesting or trucking—is the horse. The national average cost of feeding a horse is approximately 45c per day—and less when you grow your own feed. This cost alone is less than the cost of depreciation for a power machine. The horse is the age-long friend of man. He deserves good harness.

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Household Department

THE CARELESS SMOKER

By Harris A. Reynolds

(Apologies to Kipling)

A fool there was and his pipe he lit,
(Even as you and I),
On a forest trail where the leaves were fit
To become a blaze from the smallest bit
Of spark—and the fool he furnished it.
The day was windy and dry.

The forest was burned to its very roots,
Even beneath the ground,
With the flowers, the birds and the poor
dumb brutes,
Old hoary oaks and the tender shoots
Which might have made logs but for such
galoots
Allowed to wander around.

The lumberjack has now passed on,
His payday comes no more;
And the screech owls haunt the camp at
dawn
Where the cook's tin pan woke the men
of brawn.
But the mill is silent, the trees are gone,
The soil and the forest floor.

A deadly sight are those hills of rocks,
Which once were beds of green;
No hope for human, no food for flocks,
The floods must be held by expensive
locks.
And the harbor is silted to the docks,
The ships no more are seen.

But the fool smokes on in the forest still.
Leaves campfires burning, too,
While the patient public pays the bill
And the Nation's wealth is destroyed for
nil.
If the law doesn't get him, Old Satan will
When his smoking days are through.
—From the "Open Road."

JAMS, JELLIES AND PRESERVES

By Mrs. Belle De Graf, Domestic
Science Director, California Prune
and Apricot Growers
Association

 HIS is just the beginning of the jellymaking season. Currants and loganberries will soon be plentiful and the thoughtful housewife will want to make jellies and jams. The addition of sugar to cooked fruit increases the nutritive value, and the cooking of the sugar at a high temperature, combined with the acid of the fruit, causes the inversion of the sugar, which is the first step in its digestion. For this reason jellies, jams and marmalades are considered one of the most wholesome forms in which to eat sugar. Children crave sweets and this desire may be gratified in wholesome jellies, jams and marmalade. Unless combined with sugar, the actual food value of fruit is low; but the acids and salts in contains are most important. They are needed to keep the blood pure. There is nothing more wholesome for children and no food the average child enjoys more than bread and jelly or marmalade.

In securing fruits for making jelly, always procure those which are somewhat underripe. The jellymaking constituent in fruit is known as pectin and is present when the fruit is either ripe or just turning ripe. If the fruit is overripe the pectin disappears, and it will be impossible to make satisfactory jelly. This pectin is somewhat like gelatin, as it dissolves in boiling liquid and stiffens upon cooling. The fruits best suited for jelly making are currants, loganberries, plums, quinces, crabapples, grapes and apples. These fruits will make a perfect jelly if not used overripe. Fruits in which pectin is lacking must be combined with those rich in this jelly making quality. The novice in housekeeping usually shrinks from jelly making, but if rules are carefully studied and only a small quantity attempted at one time the process will be found very simple and the results satisfactory.

Good Jelly Should Retain Shape of Mold

A good jelly should be bright in color, and clear. When removed from the glass it should retain the shape of the mold and be tender enough to quiver without breaking.

When making currant jelly use from two to four quarts of fruit for one utensil. A greater quantity takes too long to bring to the right heat and both the color and flavor of the jelly will be impaired. Wash fruit well, remove stems and discard all that is imperfect. With watery fruits, such as grapes, loganberries and currants, use no water. Cut hard fruits into small pieces and use about three cups of water to each pound of fruit. Cook the fruit slowly until the juice begins to flow, then crush with a wooden potato masher.

As soon as the fruit is tender remove from the fire and pour into a jellybag to drain. A pointed three cornered bag is best, as it lets the juice drain from the corner with the pressure of the bulk of the fruit on the small end. Hang the bag so the juice may drip. When nearly all the juice has been strained through the bag may be squeezed. This last juice which has been squeezed through the jellybag should be kept by itself, as the jelly made from this juice will not be quite as clear as that which has been allowed to drip. If the fruit is overcooked it will produce a cloudy jelly.

Long Cooking Tends to Destroy Pectin

Measure the juice, and for each cup allow three-fourths cup sugar. The sugar should be placed on shallow pans and warmed slightly in the oven. Reheat the fruit juice, and when it reaches the boiling point add the sugar immediately. Cook rapidly about five minutes, removing scum as it appears. Long cooking will darken the jelly and tends to destroy the pectin, which will cause the finished product to be less firm.

To determine when the jelly has cooked sufficiently, drop a teaspoon of the syrup on a cold plate. If the jelly stage is reached the syrup will thicken slightly in a few seconds. Remove from the fire at once and pour into hot, sterilized jelly glasses and set aside to cool. Cool as rapidly as possible to avoid dust, which will cause mold. When cold, pour melted paraffin over the top, cover, store in a cool, dark, dry place.

Jelly Deteriorates if Stored Too Long

Jelly deteriorates in color, texture and flavor if stored for too long a period. When jelly is soft and syrupy, too much sugar has been used, or the syrup has not been cooked long enough after sugar was added. If tough or stringy too little sugar has been used or the syrup was boiled after the jelly stage had been reached.

The cleaner the fruit, that is, of stems or leaves, the brighter and clearer the jelly will be. Prepare glasses before making the jelly. After washing well, place glasses in a pan of cold water, set over the fire and, when boiling point is reached, allow to boil fifteen minutes. Just before filling glasses with the boiling syrup, set them upright in a pan of hot water, placing a thick pad of cloth in the bottom of the pan. This method of handling glasses will prevent breakage.

Currant or Loganberry Jelly

Pick over currants, stem and wash, discarding all the imperfect fruit. Place in a preserving kettle, crushing slightly. Cook slowly until fruit is tender. Pour into the jellybag and strain. Measure juice and reheat. When boiling point is reached add

heated sugar, three-fourths cup to each cup of juice, and cook rapidly about five minutes, when the syrup may be tested by dropping a spoonful on a cold plate. If the jelly stage is reached, remove from the fire at once and pour into hot jelly glasses. Cool, pour melted paraffin over the top, cover and store in a cool, dry place.

Grape Jelly

Remove the grapes from the stems, wash and put in a preserving kettle over a slow fire and allow to simmer until the fruit is tender; then pour into a bag and drain off all the juice. For each cup of juice allow three-fourths cup of sugar. Heat sugar in the oven. Bring grape juice to the boiling point, then add heated sugar and let boil until a little of the syrup will jelly when dropped on a cold plate. Pour into hot glasses and cool; pour melted paraffin over the top, cover and store in a cool, dry place.

Currant and Raspberry Jelly

Use two-thirds currants to one-third raspberries and proceed as for currant jelly.

Plum Jelly

Select underripe plums; wash and cover with boiling water and cook until tender; pour into jellybag and drain. Measure three-fourths cup sugar for each cup juice, finishing as for other jellies.

Gooseberry Jam

Steam and wash gooseberries, mash and cook very slowly until fruit is tender. Add equal parts sugar and fruit and simmer until thick. This fruit contains so much acid that it requires an equal weight of sugar.

Strawberry Jam

Wash and hull berries; allow three-fourths pound of sugar for each pound of hulled fruit. Place fruit in a kettle and mash. Set over a slow fire and cook slowly, stirring and mashing fruit until it is thoroughly cooked. Then add sugar and cook very slowly until thick. Watch carefully and stir frequently to avoid burning. An asbestos mat will lessen the chance of burning. It is not advisable to make a quantity of jam at any one time. Even if you have a quantity of berries needing immediate attention it will be found much easier to make the jam in small amounts. Several small kettles of fruit can be cooked at one time more quickly than when cooked in one large utensil. Raspberry and loganberry jam are made in the same manner.

Plum Butter

Use plum pulp left after drawing juice for jelly. Press through a coarse strainer. Use half as much sugar as plum pulp and simmer until sugar is dissolved.

Fig Jam

Plunge figs in boiling water then in cold water. The peel can then easily be removed. Cut in half, add three-fourths measure sugar for each measure of fruit. Simmer until thick. A little lemon juice can be added for flavor.

Bar-le-duc Currants or Gooseberries

Use only firm fruit. Currants should be large. After fruit is stemmed and washed, measure and for each measure of fruit allow an equal amount of strained honey. Heat the honey then add the fruit. Simmer about five minutes then remove fruit with a skimmer. Cook syrup slowly until it becomes very thick. Add fruit and pour in sterilized jelly glasses. Cool and seal.



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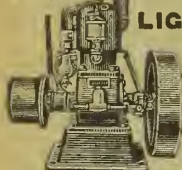


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Strawberry and Gooseberry Preserves

Use three parts strawberries to one part of green gooseberries. Measure fruit but do not mix, allow an equal quantity of sugar. Put gooseberries in a kettle and add one cup of hot water for each quart of fruit. Cook gooseberries slowly, about five minutes, add sugar and when it is dissolved add the strawberries and cook slowly about 20 minutes, taking care not to break the fruit. Pour into sterilized jars, cool and seal.

Spiced Cherries, Currants or Gooseberries

4 cups prepared fruit, 1/2 cup cider vinegar, 2 cups brown sugar, 1 teaspoon whole cloves, 3 inch sticks cinnamon. Add sugar and spices to vinegar; bring to the boiling point then add fruit. Cook slowly until fruit is tender but not broken. Skim out the fruit and boil down syrup until thick. Add fruit and pour into sterilized glasses and seal at once.

Cherry and Currant Jam

Equal quantities of pitted cherries and stemmed currants. Measure and add three-fourths as much sugar as fruit. Mix all ingredients. Cook very slowly until mixture is thick. Pour into sterilized jars, cool and seal.

Seedless Raspberry or Blackberry Jam

Wash and prepare fruit. Mash with a wooden potato masher. Set over the lowest possible fire to become thoroughly heated, then press through a fine sieve. Use the potato masher or a small press that comes for this purpose. Add a small quantity of boiling water to pulp remaining in sieve in order to extract all the pulp possible. Measure and add three-fourths as much sugar as fruit. Heat to the boiling point, pour in sterilized jars and seal.

Rhubarb Jam

Wash, remove ends but do not peel fruit, cut into inch slices. Measure and add an equal quantity of sugar and let stand several hours, over night if desired. Add grated rind and juice of one lemon for each quart of rhubarb. Let cook over a low fire and bring to the boiling point then simmer slowly until mixture is thick. Pour into sterilized glasses and seal.

French Conserve

Take equal quantities of strawberries, rhubarb and pineapple. Cut rhubarb in inch lengths without peeling. Remove peel from pineapple, cut in slices and then in pieces about the size of the rhubarb. Place rhubarb and pineapple over a low fire and cook gently until fruit is quite soft. Add no water. When fruit is cooked add the strawberries and cook slowly until fruit can be mashed. Measure and add three-fourths as much sugar as fruit. Also add one cup of blanched shredded almonds. Cook slowly until very thick then pour into sterilized glasses; cool and seal.

Rhubarb Marmalade

Wash, remove ends from rhubarb but do not peel, cut in one-half inch slices. Wash orange, and grate a small portion of the peel then cut off peel with a sharp knife removing all the white portion and cut in thin slices, then cut each slice in quarters. For each cup of sliced rhubarb allow one sliced orange, 2 teaspoons of grated orange rind, one tablespoon of lemon juice and one-half cup of blanched shredded almonds. Mix fruit, sugar, grated rind and lemon juice. Let stand an hour or more until sugar is dissolved. Place over a slow fire and cook until thick; add almonds and pour into sterilized glasses and seal.

MRS. GRAHAM'S MOTHER

(Concluded.)

"Such a harrowing time!" she exclaimed. "So many things went wrong and there was so much extra work that we hadn't counted on! I'll never take charge of a booth again."

She had to dress hurriedly after she had eaten in haste. But for her mother's assistance she would not have been ready for the opening hour.

"What would I do without you, mother? I'm so glad you don't have to work at this festival."

In spite of all the vexations that usually precede such an event, the festival was a huge financial success, even if most of the women in charge spent the next day in bed.

The flower booth was the most profitable of all, and the strange part of it was that no one appeared to know just who had managed it. Everyone spoke of how charming Mrs. Graham's mother looked and what an addition she was to the booth. When finally it did leak out that Mrs. Tate had been the mainspring of that booth, everyone was amazed.

"Here I've been supposing Mrs. Graham's mother was next door to invalidism," said Mrs. Benson. "Her years do not seem to take away her ability to do things. She has surely made the rest of us sit up and take notice."

Helen could hardly believe her ears when she heard of her mother's escapade.

"I've had the best time doing that booth that I've had since I came to Springfield," her mother said.

"But you've worn yourself out."

"What if I have? It isn't the first time I've been guilty of that offense. You would make a good-for-naught of your mother if she listened to you."

The daily paper reported the success of the community festival in glowing terms, enlarging especially on the beauties of the flower booth under the direction of Mrs. Pate, Mrs. Graham's mother and guest.

Mrs. Tate groaned when she read it.

"Pate! As if Mrs. Graham's mother' was not bad enough. It's a wonder they didn't make it Fate. If I'd die tomorrow I suppose my obituary would list me as Mrs. Graham's mother."

A few days later Mrs. Tate returned from a walk to catch the last of a telephone conversation.

"Mother is here to rest and take life easy and I can't allow her to take hold of a church fair. Yes. I know her ability, but she isn't strong enough. Yes, she did make a success of that flower booth, but I knew nothing about it until it was over. I'm sorry to refuse you the loan of my only mother, and I'm sure she would be even more sorry. I know she'll appreciate your asking her more than my refusal."

When Helen had explained the matter to her mother, Mrs. Tate looked as piqued as a spoiled child.

"You won't let me do anything, Helen. People will think I haven't sense enough to do anything."

"Nonsense! They understand that I want you to rest and have a good time."

At that Mrs. Tate hurried off to her room and did not appear again until dinner was ready. All evening she wore a nettled look.

The next morning Mrs. Graham and her husband drove off to a neighboring town, she to a conference, he to attend business.

"I wish I might take you," Mrs. Graham apologized, "but it will be a tiresome day."

chocolate strength

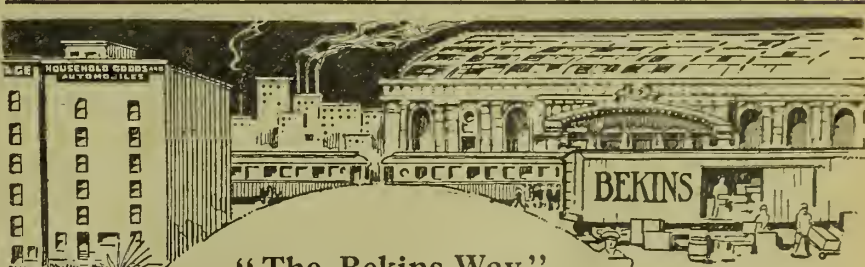


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With troubled wrinkles on her brow, Mrs. Tate sat down to think.

"It's plain my daughter thinks my work in the world is done. Back home people don't think so. When I came here I supposed I might fit into some chink and do something useful. If only I could have helped at that church fair! I wish I'd never left Wessington. There I had a place in the village life. It makes me homesick to think of all the things I did there. I know what's the matter with me—I'm homesick for

work. I'm going home this very day. If I don't go now, I never will get away."

She went to packing her suitcase. Her trunk was in the storeroom and she laboriously carried her belongings to it rather than call anyone to move it for her. At noon she went to buy her tickets. Lest the cook should hear her if she telephoned, she engaged a taxicab and baggage man while down town. She wrote a note to her daughter and left it on the hall table. Long before train time she was ready.

The next morning she alighted from the train at Wessington and was greeted by various people at the station. The welcome they gave her was music in her ears. One by one her neighbors ran in to greet her.

"What a surprise you gave us, Mrs. Tate! If you had let us know, we might have opened your house and had it ready for you."

"I didn't know it myself. By the way, it sounds good to hear my name again."

"Hear your name again! What do you mean?"

"Oh, I've been called 'Mrs. Graham's mother' until I have almost forgotten the sound of my own name!"

"You wouldn't if you'd heard us wishing you back to help with the big church meeting next week, and to help us plan the work for the Improvement League, and the district federation which comes next month. We didn't see how we were going to get along without you."

"I'm glad that you won't have to. The sooner I can get to work the better. And when the Journal announces my arrival, I know I shall not be called 'Mrs. Graham's mother.'"

EDUCATION IN ECONOMY

"Education in Economy" by C. A. Spooler, Pomona. Published by the author at \$1.

The book is written by a practical butcher who has studied the food values of meat and gives his readers in clear statements the benefit of his findings. He says: "From an economical standpoint, meat is the one item which must be watched more than any other article used in the house, unless it is fuel. If the husband or father has been working hard all day he must have good wholesome meat for his meals, and with the proper knowledge of how to buy and what to buy he may always have a good variety at a very low cost. Please keep in mind that the fore quarter is for quality, the hind quarter for quality and price; sirloin steak is 25 and 28 cents a pound, skirt steak is 12 1-2 to 15. There is more real food value in meat than in any other form of food you may buy. Study the cheaper cuts, use the fireless cooker and judge for yourself. I guarantee you a saving of 50 per cent on your meat bill if you follow instructions in my book."

The book has 22 colored plates illustrating points made as to different cuts of meat, time tables for cooking and for use of fireless cooker, with more than 200 practical recipes, 40 pages of practical, well balanced menus and numberless hints furnished by Mrs. Spooler on successful economy in cooking.

Mr. Spooler is now giving daily demonstrations on meat buying and preparation at Barker Bros. auditorium in Los Angeles. With carcass before him he gives actual demonstration of cutting of meat and explanation of different parts. As he states it, his purpose is "to educate the public so that they may know a bargain when they

see one without taking the word of the butcher."

"Often inferior or cheaper cuts of meat are attractively rolled or arranged on trays and sold at higher price than they are worth. For instance in buying prime rib roast don't buy rolled plate boiling meat which may look just as attractive as prime rib when rolled. The best way to distinguish the difference between the two is by the layer of fat covering the prime rib cut while the plate boiling meat has reddish colored dry flesh on outside.

"Economy is selecting meat in different seasons is important. During hot summer months the demand for steaks and chops and other frying and broiling meat is great and larger cuts of boiling and roasting meat are therefore cheaper. Often 20 per cent reduction in price is result. Besides advantage of economy in buying these large cuts of meat the left over roast is always attractive when sliced and served cold in summertime.

"Tender meat can always be known by its rich color and fine compact fiber. Flesh should not be coarse and stringy. Many times a tough piece of meat may be made just as juicy and tender as very choice expensive piece. On the other hand, a fine tender cut may be just as easily spoiled if not correctly prepared and cooked.

"If it seems necessary to clean meat before cooking never wash under running water but wipe off with damp cloth. This will not open pores of meat and allow juice to escape.

"The main idea in roasting meat is to sear both sides of the piece by placing in pan with hot fat. After both are well seared the crust formed holds in all juice.

"In broiling steaks, the heat applied from above does not allow the juice to rise and evaporate so readily as when fried on top of flame. Season steaks just before removing from pan because salt tends to draw the juice from the meat. Larger pieces of meat should not be seasoned until two-thirds done.

"Suitable utensils and stove equipment are great help in saving time and labor."

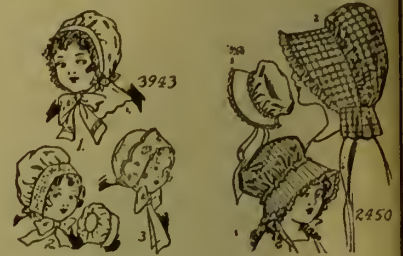
From his long experience as a retail butcher Mr. Spooler has come in contact with many famous French and Italian chefs and from them has learned the trick of many a delicious meat dish or sauce which he passes on to his readers in his book. Nor does he confine himself to meats for he gives also some of Mrs. Spooler's best recipes for cakes and pies and salads, with other recipes collected from this neighbor and that for "Mothers Boston Baked Beans," tomato catsup, tamales, enchiladas. "Economy Salad." German dressing, tongue mince meat, egg nog, noodles, dumplings that won't fall, a super extra cake icing—in fact, it's a thoroughly practical, delightful helper for any housewife.

We would like to give many of the recipes, but just for this one time we can't refrain from giving:

One-Egg Icing

Break white of one egg into large platter. Break white and scatter over platter by giving 8 or 10 strokes of spoon. Place one full cup sugar in shallow pan. Add two-thirds cup water. Place over fire. Let come to boiling point but do not allow to boil. Remove from fire, add one-third teaspoon cream of tartar, and one-half teaspoon baking powder. Place on fire and simmer. Do not boil. Take one large spoon of syrup and beat into egg white with a flat wire beater. Continue to add syrup a little at a time until all used. Add flavoring. This fluffs up and makes plenty of icing for a three layer cake.

The Cultivator Patterns



3100. Set of Infant's Clothes.—Cut In One Size: It will require 2 1/2 yards of 36 inch material for the Dress, 2 1/4 yards of 27 inch material for the Petticoat and 2 yards of embroidery for the ruffles. The slippers require 1/2 yard of 18 inch material and the Harem cap 1/2 yard of 27 inch material for Band, and 1 yard 40 inches wide for Skirt. Price 10c.

3943. Child's Bonnets.—Cut In 3 Sizes: 6 months, 1 year, 2 and 4 years. A one year size will require 1/2 yard for No. 1 of 36 inch material, 1 1/2 yard for No. 2, of 20 inch material, and 1/2 yard of 20 inch material for No. 3. Price 10c.

3743. Child's Coat and Cap.—Cut In 4 Sizes: 6 months, 1 year, 2 and 4 years. A 2 year size will require 2 1/2 yards of 27 inch material for the coat and 1/2 yard for the cap. Price 10c.

3441. A Set of "Short Clothes."—Cut In 5 Sizes: 6 months, 1 year, 2, 3 and 4 years. A 2 year size will require 3 1/2 yards of 27 inch material for the Dress, 1 1/2 yard for the Slip, and 1 yard for the Drawers. Price 10c.

3675. Child's Play Suit.—Cut In 4 Sizes: 2, 3, 4, and 5 years. A 4 year size will require 1 1/2 yard for the bloomers, and 1 1/2 yard for the waist, of 27 inch material. Price 10c.

2186. Infants' Set, consisting of a Cap, a Sack, a Night Gown and a Dress.—Cut In one size: For the dress of flouncing it will require 1 1/2 yard of 36 inch material with 1 1/2 yard of plain material for yoke and sleeves. Of nainsook or lawn 36 inches wide it will require 2 1/2 yards. The Gown will require 2 1/2 yards of 24 or 27 inch material. The cap 1/2 yard of 18 inch material. The sack requires 1/2 yard of 27 inch material. Price 10c.

2450. Sun Bonnets for Ladies and Girls.—Pattern including both styles is cut in one size—Medium for ladies, and girls. It requires for No. 1, 1 1/2 yard; for No. 2, 1 1/2 yard of 32-inch material. Price 10c.

3505. Child's Short Clothes Set.—Cut In 4 Sizes: 6 months to 1 year, 2, 3 and 4 years. A 1 year size will require 1 1/2 yard for the Dress, 1 1/2 yard for the Petticoat, and 1/2 yard for the Drawers of 36 inch material. Price 10c.

3863. Child's Set.—Cut In 5 Sizes: 6 months, 1 year, 2, 3 and 4 years. The dress requires 2 1/2 yards of material; the petticoat requires 1 1/2 yard, and the drawers 1 yard for a 2 year size. For ruffles of embroidery on petticoat and dress, 2 1/2 yards for each will be required. Price 10c.

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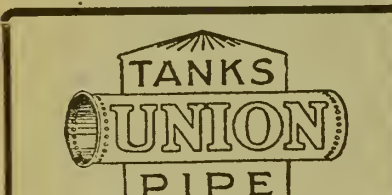
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HOUSEHOLD QUERIES

Maud Muller

Will you please publish the original poem Maud Muller?—Subscriber, Co-vina.

MAUD MULLER

By John Greenleaf Whittier

Maud Muller on a summer's day
Raked the meadow sweet with hay.

Beneath her torn hat glowed the wealth
Of simple beauty and rustic health.

Singing, she wrought, and her merry glee
The mock-bird echoed from his tree.

But when she glanced to the far-off town,
White from its hill-slope looking down,

The sweet song died, and a vague unrest
And a nameless longing filled her breast,

A wish that she hardly dared to own,
For something better than she had known.

The Judge rode slowly down the lane,
Smoothing his horse's chestnut mane.

He drew his bridle in the shade
Of the apple trees, to greet the maid.

And asked a draught from the spring that
flowed,
Thru the meadow across the road.

She stooped where the cool spring bubbled
up,
And filled for him her small tin cup,

And blushed as she gave it, looking down
On her feet so bare, and her tattered
gown.

"Thanks!"—said the Judge; "a sweeter
draught
From a fairer hand was never quaffed."

He spoke of the grass and flowers and
trees,
Of the singing birds and the humming
bees;

Then talked of the haying, and wondered
whether,
The cloud in the west would bring foul
weather.

And Maud forgot her brier-torn gown,
And her graceful ankles bare and brown;

And listened, while a pleased surprise
Looked from her long-lashed hazel eyes.

At last, like one who for delay,
Seeks a vain excuse, he rode away.

Maud Muller looked and sighed: "Ah me!
That I the Judge's bride might be!

"He would dress me up in silks so fine,
And praise and toast me at his wine.

"My father should wear a broadcloth
coat;
My brother should sail a painted boat.

"I'd dress my mother so grand and gay,
And the baby should have a new toy each
day.

"And I'd feed the hungry and clothe the
poor,
And all should bless me who left our
door."

The Judge looked back as he climbed the
hill,
And saw Maud Muller standing still.

"A form more fair, a face more sweet,
Ne'er hath it been my lot to meet.

"And her modest answer and graceful air
Show her wise and good as she is fair.

"Would she were mine, and I today,
Like her, a harvester of hay.

"No doubtful balance of rights and
wrongs,
Nor weary lawyers with endless tongues,

"But low of cattle and song of birds,
And health and quiet and loving words."

But he thought of his sisters, proud and
cold,
And his mother, vain of her rank and
gold.

So, closing his heart, the Judge rode on,
And Maud was left in the field alone.

But the lawyers smiled that afternoon,
When he hummed in court an old love
tune;

And the young girl mused beside the well
Till the rain on the unraked clover fell.

He wedded a wife of richest dower,
Who lived for fashion as he for power.

Yet oft, in his marble hearth's bright
glow,
He watched a picture come and go.

And sweet Maud Muller's hazel eyes
Looked out in their innocent surprise.

Oft, when the wine in his glass was red
He longed for the wayside well instead.

And closed his eyes on his garnished
rooms,
To dream of meadows and clover-blooms.

And the proud man sighed, with a secret
pain,
"Ah, that I were free again!

"Free as when I rode that day,
Where the barefoot maiden raked her
hay."

She wedded a man unlearned and poor,
And many children played round her door.

But care and sorrow, and childbirth pain,
Left their traces on heart and brain.

And oft, when the summer sun shone hot
On the new-mown hay in the meadow lot.

And she heard the little spring brook fall
Over the roadside, through the wall,

In the shade of the apple tree again
She saw a rider draw his rein.

And gazing down with timid grace,
She felt his pleased eyes read her face.

Sometimes her narrow kitchen walls,
Stretched away into stately halls.

The weary wheel to a spinnet turned,
The tallow candle an astral burned,

And for him who sat by the chimney lug,
Dozing and grumbling o'er pipe and mug.

A manly form at her side she saw,
And joy was duty and love was law.

Then she took up her burden of life again,
Saying only, "It might have been."

Alas for maiden, alas for Judge,
For rich repiner and household drudge!

God pity them both! and pity us all,
Who vainly the dreams of youth recall.

For of all sad words of tongue or pen,
The saddest are these: "It might have
been!"

Ah, well! for all some sweet hope lies
Deeply buried from human eyes.

And, in the hereafter, angels may
Roll the stone from its grave away!

Cowboy Songs

Would you please print the words
in the next Cultivator of "For I'm a
Tough Cowboy." I am not sure whether
or not this is the name of the song.
The chorus starts:
:"Don't bury me in the lone piairie
Where the cyotes howl o'er me."

Please print any other cowboy songs
you have on hand.—E. and F., Elsi-
nore.

We are mailing these inquirers copy
of the Cultivator of March 25 which
contained cowboy songs.

"Rock Me to Sleep, Mother"

Will you please publish Rock Me To
Sleep, Mother. I am very anxious to
get the poem and come to you for
help.—A Subscriber, Huntington
Beach.

"Rock Me to Sleep, Mother"

Backward, turn backward, O Time in
your flight,
Make me a child again, just for tonight;
Mother, come back from the echoless
shore,
Take me again to your heart as of
yore;
Kiss from my forehead the furrows of
care,
Smooth the few silver threads out of
my hair;
Over my slumbers your loving watch
keep;
Rock me to sleep, mother,—rock me
to sleep!

Backward, flow backward, O tide of
the years!
I am so weary of toil and of tears;
Toil without recompense, tears all in
vain;
Take them and give me my childhood
again!
I have grown weary of dust and decay,
Weary of flinging my soul-wealth
away;
Weary of sowing for others to reap;—
Rock me to sleep, mother,—rock me
to sleep!

Tired of the hollow, the base, the un-
true,
Mother, O Mother, my heart calls for
you!
Many a summer the grass has grown
green,
Blossomed and faded, our faces be-
tween;
Yet with strong yearning and passion-
ate pain,
Long I tonight for your presence again.
Come from the silence so long and so
deep;—
Rock me to sleep, mother,—rock me
to sleep!

Over my heart in the days that are
flown,
No love like mother love ever has
shone;
No other worship abides and endures,
Faithful, unselfish, and patient like
yours;
None like a mother can charm away
pain
From the sick soul and the world
weary brain.
Slumber's soft calms o'er my heavy lids
creep;
Rock me to sleep, mother,—rock me
to sleep!

Come, let your brown hair, just lighted
with gold,
Fall on your shoulders again, as of old;
Let it drop over my forehead tonight,
Shading my faint eyes away from the
light,
For with its sunny edged shadows once
more,
Haply will throng the sweet visions of
yore;
Lovingly, softly, its bright billows
sweep;—
Rock me to sleep, mother,—rock me to
sleep!

Mother, dear mother, the years have
been long
Since I last listened your lullaby song;

Sing, then, and unto my soul it shall
seem
Womanhood's years have been only a
dream;
Clasped to your heart in a loving em-
brace,
With your light lashes just sweeping
my face,
Never hereafter to wake or to weep;—
Rock me to sleep, mother,—rock me
to sleep!

Easy Way to Wash Windows

If the housewives who dread window
cleaning—and it is some task in the
ordinary way—will use a piece of
chamois—a whole chamois skin is best,
wrung out of clear cold water, and
simply wipe the windows off when
needed, they can be kept bright and
clean with little effort. If windows
are greasy they should first be washed
clean and then wiped with the chamois
which should be wrung out as dry as
possible before using.—Subscriber,
Del Mar.

**PRUNE GRIDDLE CAKES—AND
OTHERS**

Prune griddle cakes! Sound par-
ticularly fascinating, don't they? More-
over, they taste that way. And prune
squares for breakfast! In addition to
these two new recipes we give prune
pudding and prune soufflé. All four
should be tried and then added to your
Cultivator recipe book.

Prune Griddle Cakes

Soak two cups of bread crumbs in
two cups of hot milk fifteen minutes.
Then add two wellbeaten eggs and
two tablespoons of oil, then half a cup
of flour sifted with one teaspoon of
salt, three teaspoons of baking pow-
der and half a cup of sugar. Lastly,
add half a cup of stoned and chopped
prunes. Bake in cakes on a hot grid-
dle.

Prune Squares

Prune squares will be relished by
everyone. Wash and soak the prunes,
let simmer until so tender they may
be pressed through a sieve. Add the
sugar to the pulp and cook again for
a few minutes. Toast and butter neat
squares of bread and spread the
prune pulp over them. If served for
luncheon or dinner a teaspoon of
meringue may be placed on each and
delicately browned.

Prune Pudding

Soak a pound of prunes over night
in water to cover, then cook until ten-
der, sweetening to taste. Add half a
package of gelatine which has been
soaked and dissolved and a little lemon
juice. Turn into a mold lined with
split blanched almonds and serve cold
with cream.

Prune Soufflé

Run through a sieve enough cooked
prunes to make a cup. Mix with a
cup of sugar which has been sifted
with a teaspoon of cream tartar. Fold
in the stiffly beaten white of eight
eggs, turn into a buttered baking dish
and bake for twenty minutes. Serve
with cream.

CATALOGUE NOTICE

Send 15c in silver or stamps for our
Up-To-Date Spring & Summer 1921 Cata-
logue, containing over 500 designs of
Ladies, Misses and Children's Patterns, a
Concise and Comprehensive Article on
Dressmaking, also Some Points for the
Needle (illustrating 30 of the various,
simple stitches) all valuable to the home
dressmaker.

PATTERN DEPARTMENT
California Cultivator
Los Angeles, Calif.

RAISIN ICE CREAM

The appeal of raisins has recently
become so universal that it is not sur-
prising to note the appearance of a
new raisin delight, this time a summer
delicacy, cool and delicious. What
could be more tempting on a warm,
oppressive day than a delicious dish
of ice cream, made with luscious
raisins? An energizing food—just the
thing for summer weather.

How to Make It

Soak until plump 1 cup Sun-Maid
Seeded Raisins with 1 tablespoon lem-
on juice in 2 cups water. Then simmer
slowly, while closely covered, un-
til raisins are tender, and 1-2 cup
water remains. Dissolve one table-
spoon cornstarch with few grains
salt in four tablespoons cold
water; add to the raisins, cook until
clear, being careful not to crush rais-
ins while stirring. Add 3-4 cup sugar,
remove from fire, keep covered and
let it get cold. Whip 1 1-4 cups heavy
cream until stiff. Then fold raisins
with 1 teaspoon vanilla into the cream
and freeze.

Raisinut is the latest put out by the
Sun-Maid Growers. This is a choco-
late coated raisin and nut confection
put out in 10 cent cartons similar to
the "Little Sun-Maids."

PEP

"Nobody without some pepper is worth
his salt!"
That's pep!
Vigor, vitality, vim and punch—
That's pep!
The courage to act on a sudden hunch—
That's pep!
The nerve to tackle the hardest thing,
With feet that climb, and hands that
cling,
And a heart that never forgets to sing—
That's pep!

Sand and grit in a concrete base—
That's pep!
Friendly smile on an honest face—
That's pep!
The spirit that helps when another's
down,
That knows how to scatter the blackest
frown,
That loves its neighbor, and loves its
town—
That's pep!

RING TRUE

Don't be what you ain't,
Jes' be what you is.
If you is not what you am,
Then you am not what you is,
If you're just a little tadpole,
Don't try to be a frog;
If you're just the tail,
Don't try to wag the dog.
You can always pass the plate,
If you can't exhort and preach.
If you're just a little pebble,
Don't try to be the beach.
Don't be what you ain't,
Jes' be what you is.
—The Labor Union.

RIGHT OF WAY WRONGS

"The pedestrian always has the
right of way."
"Yes," replied the timid individual,
"but what's the good of a right of
way that's always filled up with mov-
ing vehicles?"

BUILT TO ORDER

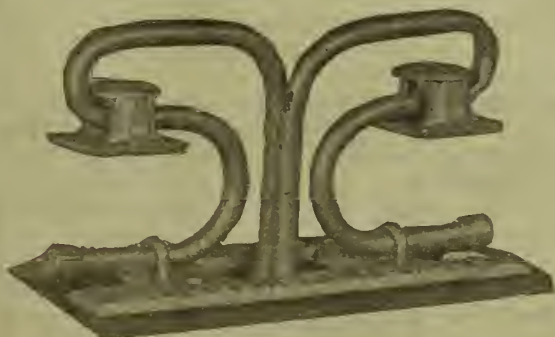
"What's the matter with Smith? Got
lumbago or spinal curvature or some-
thing?"
"No; he has to walk that way to fit
some shirts his wife made for him."

SHE DIDN'T ACCEPT

"I ask you to be my wife. I don't
know of any greater compliment I
can pay you."
"Well, we'll take it as a compli-
ment Ferdy, and let it go at that."

TO SAVE TIME

Mutter—In printing the directory,
why do they always put the address
before the number?
Mumble—So you can write if you
haven't got time to phone.



Keep Cool

these hot summer days by burning
oil in your cook-stove.

Save yourself time and trouble from
dirty stoves, and carrying of coal
and ashes.

Save yourself money and have the
convenience of gas together with the
cooking qualities of coal and wood.
The NEW SUPERIOR is the solu-
tion of your difficulties and the
safest and most modern way to cook
and heat.

Write for our large illustrated
catalogue of oil-burning equipment.

Big Price Reduction Lowest in 14 Years

Realizing that farm equipment must be reduced to the same level as the prices of farm products the SHARPLES SEPARATOR CO. have reduced the prices of their separators to less than one-half of the former price and have not in any way decreased the quality. The new price will produce such a large volume of business that a satisfactory profit will be realized by the manufacturer. The new SUCTION FEED SHARPLES skims clean at any speed, is easy to operate, does not require an expert, easily cleaned, long lived and thoroughly dependable. It is in constant use by more than a million satisfied users. It skims to 1/100 of 1 per cent clean all the time,—the same even quality of butter fat today as tomorrow. Put a SHARPLES to work for you. Write to the nearest distributor for detailed information and name of nearest dealer.

Note the knee low supply tank which saves heavy lifting, yet the suction feed supplies the correct quantity of milk at all speeds.

Northern California:

Pacific Pump & Supply Co.

853A Folsom St., San Francisco

Southern California:

The Joy-Reams Company.

1908 S. Main St., Los Angeles

SHARPLES
SUCTION-FEED
CREAM SEPARATOR



"There are no substitutes for dairy foods."

FIFTY REGISTERED HOLSTEINS AT AUCTION

Scappoose, Oregon, Wednesday, June 14, 1922

This offering is one of the best to ever go under the auctioneer's hammer. The most of them are young cows; a few heifers, heifer calves and young bulls. They are nicely marked, in good condition, of conformation that would command attention in any show ring and they are heavy producers.

PRODUCTION

A Senior yearling producing over 62 lbs. milk per day.

A mature cow producing 90 lbs. per day.

Others producing from 50 to 90 lbs. Straight top lines, free from disease, square udders and right in every way.

Not a cow in the herd but what should produce 50 lbs. per day under ordinary herd care. The average percent test is high. Everyone a profitable producer.

Seldom if ever has as grand a lot of cattle gone over the auction block as will at this sale.

Sale to be held on the Wist Farm, one mile north of Scappoose, Oregon, just off the paved highway, easily accessible by train, stage or auto.

Catalog will be published, giving full information. Mailed upon request to Sale Manager.

One year's time will be given to responsible parties (see catalog for details). Do not overlook this opportunity to secure these ultra valuable Holsteins at a price set by the buyers.

WIST BROS, Owners, Scappoose, Oregon

Auctioneers: Col. Geo. A. Gue, Yakima, Wash.; Col. J. W. Hughes, Forest Grove, Ore.
Sale Manager: E. A. Rhoten

BLOOD LINES

A number of the offering were sired by Pietertje Beauty Segis, he a full brother to Segis Pietertje Prospect, 1448.68 lbs. butter; 37381.40 lbs. milk, world's record milk producer.

Others, close descendants of such bulls as King Segis, King of the Pontiacs, Lord Netherlands De Kol, King Segis Pontiac, Beauty Pietertje Prince, Aaggie Cornucopia Johanna Lad, Colantha Johanna Lad, and other noted sires.

State Record Broken

The Los Angeles County Farm advises that another state record has been broken in its dairy herd by the famous senior four year old Hollywood Lillith Palmyra Abbekerk. This helper will freshen within approximately 13 months from last calving, thus qualifying for the 305 day class which is now attracting particular attention of breeders and dairymen throughout the country because of being made under more natural conditions than many of the yearly tests. In 230 days "Hollywood" has 653 pounds fat, equivalent to 816.2 pounds butter, which already exceeds the former 305 day state record by over 30 pounds butter. As the county farm contender still has two and one-half months to go, and is at the present time making approximately 90 pounds butter per month, it may be seen that she will raise the state production mark by more than 200 pounds butter in the ten months. Early in May she will be again placed on seven day test for the eight months after calving class.

The production attained by Hollywood Lillith Palmyra Abbekerk is a remarkable example of the kind of breeding which may be relied upon to produce consistent performers. She herself has a senior four year old record of 30 pounds butter in seven days and has given more than 700 pounds milk in a single week. Five of the nearest dams in her pedigree are 30 pound cows, the nearest three averaging 960 pounds butter in yearly test. She completes three consecutive generations of cows, all making more than 30 pounds in seven days, and her sire has six daughters that have made records from 30 to 38 pounds butter in seven days, all under full age. Individually she is a very excellent example of dairy type, although she weighs approximately 1,500 pounds. She is an excellent feeder, and the fact that she has made these wonderful records after having twin calves indicates a strength of constitution which promises still greater accomplishment within the next two or three years.

American Berkshire 100 Years Old

The Berkshire hog came to America just 100 years ago, according to the best authorities, being landed in 1823 or 1825, an English emigrant to New Jersey bringing some of his favorite breed with him to the new world. A second importation came with another English emigrant who settled near Albany, New York, about 1832. This man, Sidney Hawes, sold a sow and a boar to Munson Beach of Ohio three years later, and the two did much to spread and establish the breed in the West.

The early specimens of the breed were very large, reports of animals weighing 1000 to 1100 pounds each being common in their native Berkshire of England. Choice hams, shoulders and bacon for the early English trade brought the Berkshire hog into prominence in England and gradually established its supremacy throughout the British Isles from where it has spread over the world, especially throughout the British colonies. In Canada, Australia, New Zealand, South Africa, as

well as in the South American countries, it has been planted to flourish as the leading breed of hogs.

In 1839, the breed received a great impetus in the United States when a group of English farmers in Orange County, New York, formed a corporation and brought in a large number. Two years later, A. B. Allen made an importation of 40 head of the best to be found in England, and he did much to advertise and popularize the breed in the new world. A little later, the dispersion of the New York importation through the states of Missouri, Kentucky and Tennessee did much to spread the Berkshire into the great farming empire being opened up at that time.

The Berkshire of today is scattered throughout the United States, fitting into corn belt, cotton belt, dairy belt and range territory with equal adaptability. He is classed as a medium to large type, quality and evenness not being sacrificed for excessive size.

Morgan Breed Improved on Government Farm

There has been a steady increase in weights and heights of horses maintained in the stud at the United States Morgan Horse Farm at Middlebury, Vermont, says a recent department circular, No. 199, Breeding Morgan Horses at the United States Morgan Horse Farm. In 1911 the average height of mature stallions was 14.3 hands and of mature mares 14.2½ hands. By 1916 these figures had been raised to 15.0 and 14.3, respectively, and by this year to 15.1½ and 14.3½. The average weight of mature stallions in 1911 was 1,025 pounds; in 1916, 1,040 pounds, and in 1921 it had been increased to 1,200. During the same period the weights of mares went from 1,025 to 1,049 to 1,063.

At the same time, however, the other qualities received just as much consideration as size. A frequent objection raised against the Morgan has been that it is too small, but the steady improvement in scale and weight is making the modern Morgan a handy and desirable horse for use on farms, for pleasure saddle horses, for

police mounts, and for cavalry purposes. It has good speed and exceptional endurance.

The government farm at Middlebury was established to insure the preservation of this famous American breed, and the stock at the farm is a fountain head where good blood will always be available. The circular just mentioned contains information concerning foundation animals, the story of the movement to conserve the breed, methods of breeding and management, showing records, and the records made by Morgans in endurance contests held in recent years.

Since the early days of the breed up to the present time the Morgan has repeatedly demonstrated his endurance, one of the most desirable qualities in any horse, particularly a light horse. In this publication attention is called to the great reputation made by the First Vermont Cavalry in the Civil War. This regiment was mounted on Morgan horses, and official reports made to the war department stated that the horses stood the hardships of the campaigns better than any others.

DIAMOND G HEREFORDS

13 choice yearling heifers, sired by a son of an International Champion, well grown and just the sort for starting a profitable herd. Also 10 yearling bulls. Come and see them; the price is right.

H. H. Gable Esparto, Cal.

Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means \$1000 extra in ordinary years, double that in dry years. No risk—no experience needed. Outfits for Getting Water Anywhere. Earth augers, rock drills and combined machines. Engine or horse power. Write for easy terms and free catalog. LITTLE MFG. COMPANY Box 716 Clarinda, Iowa

Also their short, strong legs, round, full muscled bodies and beautiful heads called forth universal admiration. What applied to cavalry horses then applies today.

The Morgan still has the endurance. Castor, a Morgan gelding bred by the U. S. Morgan Horse Farm, made the second best time in the 300 mile endurance contest in 1919. He carried 200 pounds and made the trip in 51 hours and 18 minutes. The next year he carried 245 pounds and finished in 58 hours and 40 minutes, taking seventh place. In the contest for 1921 he was fourth out of 17 entries, carrying 245 pounds and making the 300 miles in 51 hours and 38 minutes.

This circular, which is well illustrated with halftone reproductions of beautiful Morgans, may be obtained free by addressing Department of Agriculture, Washington, D. C.

BARLEY FOR HOG FEED

Barley as a hog feed is coming on the markets in increasing amounts, probably for the reasons that its use for brewing purposes has fallen off and the hog industry has been moving into the barley producing districts. The United States department of agriculture has taken up the problem of finding out the relative feeding value of light and heavy barley. There are no federal standards for this grain, but light and heavy grades are recognized on the market.

During 1921 the department made feeding tests of the two grades, and the trials will be repeated. Not enough data are available yet for definite conclusions as to the relative merits of the light and heavy grain, but the results have shown that high-class barley has a feeding value only slightly lower than good shelled corn. When these tests are completed the department will have additional information on the methods of feeding barley, whether or not it should be fed whole, rolled, dry, or soaked.

It is expected that barley will be used much more in the future as a hog feed, especially when there is a scarcity of corn and when barley is comparatively cheap.

BLACKLEG

This disease is produced by the blackleg germ which is found in infected soil and bodies of animals sick or dead of the disease. Blackleg is regarded as a true soil disease and is transmitted most frequently from this source. The possibility of direct transmission of the infection from one animal to another is probably very rare.

After soil has once become contaminated with the germs of the disease it is not known how long they will remain alive but a given soil once infected should always be looked upon with suspicion. When a pasture is infected, the disease is likely to occur at any time even though several years may elapse between outbreaks.

Blackleg is most prevalent in the spring and fall. The heaviest losses occur in animals between the ages of six months and two years. It should be borne in mind, however, that younger or older animals under certain conditions contract the disease. Cases in young calves are not rare and outbreaks in cattle older than four years have been noted. Observations have demonstrated, however, that the influence of age with regard to susceptibility cannot be questioned and that we are justified in regarding animals free from danger of contracting blackleg when they have reached the age of approximately three years.—J. P. Iverson.

WHY MEAT IS A VALUABLE FOOD

The contention is often met that meat eating is responsible for a number of human ills. When one seeks to have this verified it will be found that meat is neither the cause nor regarded as a factor in producing the abnormal conditions. Eminent authorities on dietetics have refuted many of the claims made that meat eating produces this, that, or the other disease. In many other human ailments the causes for which we do not know we find that certain individuals attempt to enlighten the public on vital food problems which challenge the skill of our most learned dietitians.

It is universally accepted that protein is one of the essential requirements of the body tissue but it should also be borne in mind that this necessary tissue constituent is made up of many factors each of which is required in order to properly supply the tissue demands. The California department of agriculture calls attention to the fact that though an edible product may contain a given amount of protein it does not necessarily follow that this amount can be utilized by the body. We know that protein in the food eaten, in order to be assimilated, must be of the right kind and quality, and since animal tissues so nearly resemble those of the human we can reason that by eating them we are consuming the kind of protein demanded and utilized by the body.—S. O'T.

BREED PRIZES

A futurity show will be held at the 1922 state fair which will carry \$1,000 in prize money, the fair board and the Poland China Breed Promotion Committee each guaranteeing 50 per cent of the purse. This, in addition to offering in open classes by the fair board, will supply nearly \$2,000 for that one breed alone. Other breeds will have similar amounts offered in awards, which will assure a large exhibit of swine. Secretary Paine of the state fair board says that to assure a futurity show breeders must nominate their herds with their respective breed organizations. A breeder in an adjoining state where there is no futurity show is eligible to enter the California futurity, and all futurity entrants are eligible to exhibit in the open classes.

KEEP GRAY AND DARK WOOL SEPARATE

Quite often when examining pieces of white cloth we notice here and there black threads in the fabric, which mar considerably the attractiveness of the cloth. Fred A. Ellenwood, president of the California Woolgrowers' Association, has discussed quite extensively the reasons for the misplaced black threads and how such accidents may be prevented.

He warns the woolgrowers that if they expect the highest market prices for their wool they must exercise precaution in keeping the black and gray wools separate. He gives the following as his reasons for advising precautionary measures in this respect: "Pieces of the dark wool when they become mixed with the white must be picked out in the processes of grading, scouring, and sorting before the wool can be manufactured into cloth. In order to accomplish such separation it is necessary to employ experts. This unnecessary expense can be avoided if the gray and black fleeces are kept separate."

Pomona is planning a Los Angeles County fair this fall.



"She filled them all in 30 days"—a selling photograph

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Ranch

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Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

Hampshire Rams
Registered—FOR SALE
Address
C. Harold Hopkins
Woodland, Calif.

Straloch Farm
(2½ miles west of Davis, Cal.)
DAVIS RAM SALE
June 15-16

Also 10 Shorthorn
HEIFERS
Manager
J. I. Thompson
Davis, Calif.

S. M. S. RANCH, STAMFORD, TEXAS

California cowmen who wish to improve their cow herds have a rare opportunity to draw from the 1,000 bred twos S. M. S. heifers and unbred yearling heifers in lots of one or more cars. Write for particulars.

S. M. S. RANCH, SWENSON BROS., OWNERS
Frank S. Hastings, Manager

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HOLSTEIN

Fred Hartsook
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Livestock News Notes

LIVESTOCK SALE CALENDAR

Sheep

June 15-16, Annual Ram Sale, California Woolgrowers' Association, Davis.

Little Beauty 2nd, a Guernsey cow belonging to the Brant Rancho at Owensmouth, has just completed her fifth yearly test and is the seventh Guernsey cow to have done so. Two of her records were made in heifer form and for two of the five years she was milked with a machine. In five years she has produced 56,729 pounds milk and 2,902 pounds butter fat. As her milk was sold at an average price of 28 cents a quart the income from her total milk production was nearly \$8,000. Her last record is the highest of the five as she made 679.5 pounds butter fat from 14,575 pounds milk. She has been a regular breeder and one of her daughters has lately finished a record of 552.4 pounds fat from 13,571.7 pounds milk as a junior two year old.

The Italian Vineyard Company is developing a great show prospect in the junior yearling boar, Guasti's Rival. This boar, commonly known as "Bobbie" because of an accident to his tail early in life, was first in his class in six shows last fall and was four times junior champion. The day he was a year old he weighed 510 pounds in breeding condition and without an ounce of excess fat.

Walter H. Dupee, the former owner of Edgemoor Farm near San Diego and now located at Riverside, was the lucky purchaser of four fine Guernsey heifers in the recent Western National Guernsey Sale at Chicago. One of them is Lone Pine Luxury who was sired by Langwater Warrior and is a double granddaughter of Imp. King of the May. Another is a daughter of the sensational bull King of Chilmark and another carries a double cross of the blood of Don Bernardo of Linda Vista. It is Mr. Dupee's intention to have a herd of about a dozen of the finest Guernseys to be procured at his new place.

The Hartsook Holsteins continue to do their duty by making good records for their owner, and during the past week Rosamaines Korndyke Beauty, who broke the junior two year old world's milk record last year, and freshened again at the age of three years and eight days, finished a seven days record of 34.22 pounds butter, from nearly 700 pounds milk. Burbank Uneeda Maid, another junior three, made 29.47 pounds butter in seven days and Athenia Roderick Luecke, a full aged cow, made 36.03 pounds butter in the same time.

J. A. Brown of Capitola in Santa Cruz County, who bought the Guernsey herd formerly owned by the late Judge Lindley of San Francisco, is doing excellent work in testing his cows. He has just lately finished some very good records and has more in view.

SMALL STOCKMEN WORK TOGETHER

Another story of practical cooperation appears in the Fresno Republican of April 30, describing an experiment which has been tried for two years and is being enthusiastically continued by a group of stock owners living at and near O'Neals in Madera County.

Each of the 17 stock owners forming the association is a "small man," the largest band of cattle counting 200, a majority having 100 and under. Before the association was formed each man took care of his own bunch, each one wanted a range as near the west front of the forest as might be, and each was jealous of the others' progress. While this was the case, one of the largest and best of the unit ranges in the Sierra national forest fell vacant. It was the famous old Jackson Meadow range, a series of rich and beautiful meadows with many timber hill slopes furnishing the necessary browse feed and shade. But this range would feed 1,200 or more head of stock, and no one small owner could handle it.

It was then that a suggestion was made to this group of O'Neals men that they should form an association

and take their cattle to the Jackass range. Many meetings, much heated discussion and two summers of experience have developed a plan that a recent meeting shows to be working in first class shape. The report of the treasurer shows that the association's assessment in 1921 of \$2 per head of stock accomplished the following results:

Paid the grazing fee required by the forest service of 54 cents a head for the season (June 15 to September 30).

Bought material for the construction of two holding pastures.

Built 50 A 1 salt logs and purchased sufficient salt for the cattle.

Bought the subsistence supplies for the men making the salt logs and building the fences.

Paid \$125 a month to two range riders for the season.

Paid the insurance on these two men.

Bought a supply of black leg "ag-gressin."

Bought barley and shoes for the saddle horses used.

Bought feed for the stock en route from the summer to the winter ranges, besides a number of small miscellaneous items.

And there is a balance in the treasury of 15 cents per head of stock.

The association now has appointed a committee to look into the question of obtaining cheap and satisfactory feed for their stock during the hardest months of winter, when these foothill stockmen lose most heavily in poor years. The same committee will also look up buyers who will go in to the range and bid on the beef cattle.

By working in cooperation, these stock owners have the greater part of their own time for their ranches or other business; the forest range is used to much better advantage; they can market their beef to better advantage, having enough to induce several buyers to look it over instead of having to drive a few head a long way. They are themselves enthusiastic over their success, and there is not a man among them who would now give up his share of the Jackass range for any other range on the forest.

They work in close cooperation with the forest rangers, driving in their stock carefully, keeping them moving on the range as one area after another begins to show that it is "fed out," buying high grade bulls, and, in fact, becoming first class stockmen. In their part of the foothills, the "scrub cattle" are disappearing and pure bred stock is taking their places. Instead of a few head of stock "on the side," drifting into the forest in summer and out in winter, such as were the type a few years ago, the foothill ranchers are owning good sized bunches of good stock.

THE DAIRY RATION

By A. C. Ragsdale, Missouri College of Agriculture

Farmers wish to know what is the "best" dairy ration. The answer must always be in terms of the conditions existing on each man's farm. On the average farm that ration may be classed as the "best" which will return the greatest production at the least cost.

In formulating an ideal ration, these six factors may be regarded as essential: Balance of nutrients, succulence, palatability, variety, bulk, economy.

Balance of nutrients to keep cows at their maximum production means one pound of digestible protein for each four and one-half to seven pounds of digestible carbohydrates and fat according to the cow's rate of production.

A succulent feed when given with other roughages and grains renders them more palatable and aids in their digestion. When good pastures are not available corn silage is the cheapest succulent feed that can be given. Beet pulp and linseed oil meal, also, have somewhat the same qualities.

Palatability is most important, as it is essential that a cow's feed appeal to her appetite. Make the feed palatable by keeping the mangers clean and by feeding three or more different grains.

Variety. While for low producing cows a variety of feeds is not so essential, maximum production cannot be obtained without at least three grains in the mixture and four plants should usually be represented in the entire ration, including both roughage and grain feeds.



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If you are using a worn-out, inferior cream separator, or skimming cream by hand, you are surely wasting enough cream to pay for a De Laval in a short time.

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A De Laval Separator will:

—Skim cleaner for many more years than any other;

—Skim milk clean at lower temperature than any other separator;

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—And deliver a cream which will make better butter.

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—It lasts longer than any other separator, many giving good service for 15 to 20 years.

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Do not be deceived by separators which are claimed to be "just as good and cost less." When you consider its greater savings, greater reliability, longer life, the extra time it saves, and the greater satisfaction it gives, the De Laval is, in the end, by far the most economical cream separator made.

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Cream Separator and Milker

Bulk is necessary because the cow's stomach is essentially adapted to handling bulky feeds. A ration deficient in roughage does not seem to satisfy the cow, regardless of the amount of grain feed she receives. A good rule to follow is to feed daily one pound of dried roughage and three pounds of succulent roughage for each 100 pounds of live weight.

Economy. Home grown feeds usually furnish nutrients most cheaply. Every dairyman should grow all the feed possible, and when necessary to purchase feed stuffs select those which furnish nutrients most economically.

One of the principles that should be observed in mixing grains is that light grains should be mixed with heavy ones to aid in the more ready assimilation of the latter. Heating feeds such as cottonseed meal, gluten and corn should be combined with cooling feeds such as bran, ground oats or

linseed oil meal. There should also be a sufficient amount of mineral matter. This is usually supplied when three or more grains are used, especially if a leguminous hay such as alfalfa is also used. Bearing these points in mind the following ration is suggested as approaching the ideal:

Corn silage, three pounds for each 100 pounds live weight.

Alfalfa hay, one pound for each 100 pounds live weight.

Grain mixture, 400 pounds ground corn, 200 pounds ground oats, 200 pounds wheat bran, 100 pounds cottonseed meal, 100 pounds linseed oil meal. Feed daily one pound for each three or four pounds of milk produced according to richness. Also make any slight variation that may appeal to the appetite of the individual cow.

HOW A GREAT INDUSTRY DEVELOPED

The great California cattle industry had its inception in a shipment of five head of cattle in the early part of 1600 from Acapulco, Mexico, to the Mission fathers in California.

The mild climate and abundance of wild grasses which covered every hill and valley made the business of raising cattle attractive to the early settlers of the state; large capital was unnecessary; the labor required was easily obtained and gratifying results and profits were certain. The cattle were permitted to roam at will, no care being taken to keep them together except annually in order that the owner might mark and brand the increase of his herd.

The rights of ownership in these cattle were determined by certain marks and brands. The recording of marks and brands was a legal requirement in California under the supervision of the recorders of each county. This jurisdiction was transferred in 1917 to the director of agriculture, and since that time all marks and brands are now required to be recorded in the office of cattle protection of the division of animal industry.

SELF FED HOGS GAIN FASTER

Self fed hogs gain 7.4 per cent faster than when hand fed, according to thorough tests at the Missouri agricultural experiment station. Yet hogs self fed require no more feed to produce a given amount of gain than when hand fed. Hence the practice is a labor saver. When each feed is placed in a separate self feeder the hogs will choose the different feeds so that the gain will be both rapid and economical.

Experiments here have shown that the proper use of supplementary feeds like tankage, linseed oil meal or wheat middlings increase the profits derived from swine feeding. A ton of tankage saves 169 bushels of corn. A ton of linseed oil meal saves 90 bushels, and a ton of wheat middlings saves 33 bushels.

These experiments have shown that fattening hogs gained 23 per cent faster on a ration of corn and wheat middlings than on corn alone, 32 per cent faster on corn and linseed oil meal, 32 per cent faster on corn and tankage, and 33 per cent faster on corn and soybeans.

The saving of grain resulting from the use of pasture crops is found to be from 20 to 50 per cent.

TOO FAST

"Is this a fast train?" the salesman asked the conductor.

"Of course it is," was the reply.

"I thought it was. Would you mind my getting out to see what it is fast to?"—Sonora Bell.

HOW TO CLEAN A MILKING MACHINE

With the advent of spring the milking machine will be used more extensively. For this reason the division of animal industry, California department of agriculture, calls attention to the fact that such a contrivance is not regarded as an efficient labor saving device unless operated under sanitary conditions.

A very timely report on the methods of cleaning a milking machine has been recently made by Dr. A. F. Hanna, field veterinarian. For the benefit of those not familiar with the details required in order to maintain a milking machine in a sanitary condition, the following procedure, as carried out by a Swiss cheese plant at Alton and noted by Doctor Hanna, is considered quite satisfactory:

When through milking run warm water through tubes.

Thoroughly brush with hot water and washing compound all parts with which the milk comes in contact.

Place tubes, etc. in water which has reached the boiling point and permit them to remain therein for 30 to 60 minutes. Do not resort to further boiling.

Place tubes etc. in brine and chloride of lime solution and drain three to five minutes before the next milking period. They will then be ready for use.

Small top pails are used for stripping the cows.

The four main points are observed daily in the morning, and only the third point is omitted in the evening.

The brine and chloride solution is made as follows:

Five gallons saturated solution of sodium chloride to which is added a 12 ounce can of ordinary household chloride of lime. To keep this up to strength, a stock solution is made by dissolving a 12 ounce can of chloride of lime in one gallon of water and adding one quart of the stock solution to the bath each week.

INCREASE IN PUREBRED FEMALE STOCK

Noteworthy progress during the last three months in the federal-state campaign for livestock improvement is reported by the bureau of animal industry, United States department of agriculture. The most striking development is the increasing tendency for purebred sire users to acquire purebred female stock as well. In the period, January 1 to March 31, of this year, 970 persons filed with the department signed enrollment blanks, endorsed by county agents, showing the use of purebred sires exclusively for all classes of livestock kept. This number is an increase of 254 over the previous three months and is nearly three times as many as for the same period in 1921.

Although the department has stressed chiefly the use of purebred sires, records of the "Better Sires-Better Stock" campaign show a gradual rise in the proportion of purebred female animals, including cattle, horses, swine, sheep, goats, and poultry. The proportion of purebreds to the total of female animals kept now exceeds 35 per cent. A decline in the proportion of scrub females in herds headed by purebred sires accompanied the rise in purebreds.

SOUTHERN PURE BRED MEN MEET AT LA HABRA

The regular monthly dinner and meeting of the Southern California Pure Bred Live Stock Association was held on Saturday at La Habra, the association being the guest of the La Habra business men and D. J. Bastanchury whose Berkshire ranch is only a little way from town. An excellent dinner was provided by the hosts in which roast Berkshire garnished with frijoles was the main article of diet.

At dinner a hidden secret mark on a napkin was eagerly sought as the holder was to be the recipient of a Berkshire pig given by Mr. Bastanchury. The lucky man proved to be Bert Blackmore whose name appears on most of the livestock pictures in this state. As this is Blackmore's first pig, her progress will probably be recorded photographically as carefully as that of the ordinary first child.

The next meeting will be held in the San Fernando Valley.

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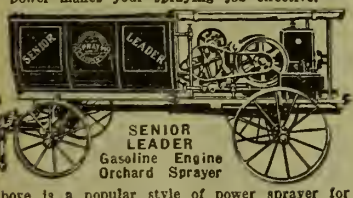
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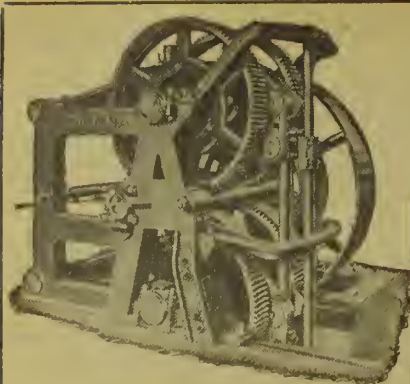
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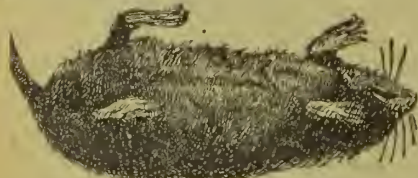
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Here's how! Send \$1.00 today (currency, M. O. checks, etc.) and we will give you by return mail, postpaid, two regular, full sized (double strength) \$1.00 bottles of Imperial Virus. Use one to rid your place of these pests, and sell the other to a neighbor, thus getting yours free. Special inducements to represent us.

If more convenient, send no money, just your name and address to Imperial Laboratories, Dept. 435, 2110 Grand Ave., Kansas City, Mo. Pay postman \$1.00 and few cents' postage when two bottles arrive. Guaranteed to do the work to your entire satisfaction within 30 days or your \$1.00 will be cheerfully refunded.



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Control of the Argentine Ant in Orchards and Homes

By Bureau of Pest Control, Department of Agriculture

The chief importance of the Argentine ant in orchards is its habit of protecting mealybugs and other scale pests from their natural enemies, thus permitting them to increase rapidly and do serious damage to the trees and fruit. It is extremely difficult to control these pests unless the orchard has first been freed from the ants. In homes they make themselves obnoxious by gaining access to refrigerators, pantries and other places where food is kept.

The Argentine ant is one of the social insects having habits somewhat similar to the honey bee in that the colony is produced by a queen who lays all the eggs. This is a fact of first importance in the control of the pest, since unless the queen is destroyed the colony will continue to increase regardless of the fact that the workers are destroyed. For this reason it has been found that the best way to control the pest is to provide the worker ants with a food in the form of a dilute poison syrup which they carry back to the nest, feeding to the queen and the young and thus destroying them. The best formula for this purpose is that worked out by the U. S. department of agriculture, and is as follows:

Granulated sugar 12 pounds; water (distilled) 10 pints; tartaric acid (crystallized) 1-4 ounce; boil 30 minutes. Cool. Add distilled water to allow for evaporation. Dissolve sodium arsenite (C. P. only) 3-4 ounce in hot

water (distilled) one pint, cool. Add poison solution to syrup and stir well. Add to the poison syrup, honey (strained) two pounds. Mix thoroughly.

The success of this syrup depends primarily upon the ingredients used, their purity, accuracy of measurement and combination. Do not accept a single substitute for any article included. Sodium arsenite chemically pure only should be used. The so-called technical grade handled by druggists is unsuitable for ant poison. We prefer cane sugar to beet sugar; glucose should not be substituted for the granulated sugar. The strained honey should be entirely free from crystallization. Use distilled water, as very hard water contains material that affects the solubility of the arsenic. Boil in a clean vessel. Keep in a tightly closed, clean receptacle while temporarily stored.

This syrup should be placed on the trunks of trees in cans or in ant runways about the house. The best containers for this purpose are two ounce spice cans. They should first be dipped in hot paraffin to prevent rusting. A nail hole should be made near the top of the can, through which the ants may enter. Place a small amount of clean excelsior in the cans and then add about one inch of poison syrup. These cans may be hooked onto the trunk of a tree by driving a small finishing nail into the latter. They should be inspected frequently and the syrup replenished when necessary. They should also be labeled "Poison."

Arizona Crop Report for May, 1922

The condition of the Arizona wheat crop on May 1, as reported by crop reporters of the U. S. bureau of markets and crop estimates, was 92 per cent of normal. This compares with 95 per cent one month ago, 80 per cent one year ago, and 92 per cent, the ten year average on May 1. The acreage remaining for harvest on May 1 is reported at 49,000 acres, which compares with 40,000 acres last year and 36,000 acres two years ago. Based on a condition of 92 per cent, the forecast is for a total production of about 1,330,000 bushels. The condition of the crop by counties is as follows: Maricopa, 92; Graham, 90; Pima, 70; Yuma, 92; Greenlee, 85; Apache, 93; Navajo, 90, and Coconino, 91.

The condition of alfalfa and grain hay in Arizona on May 1 was 90, compared with 80 one year ago, 90 two years ago, and 94 the ten year average condition on May 1. The total acreage of tame hay is estimated at 180,000 as against 150,000 acres in 1921 and 123,000 acres in 1920. Counties reporting the largest acreage are as follows: Maricopa, 90,000; Yuma, 18,000; Graham, 13,000; Apache, 7,000; Coconino, 3,200; Pinal, 12,000; Yavapai, 8,000; Pima, 6,000; Cochise, 6,500, and Navajo, 4,300.

Arizona pasture conditions on May 1 were 87 per cent of normal, compared with 55 per cent one year ago, 96 per cent two years ago, and 90 per cent, the ten year average condition on May 1. County estimates of the condition of livestock ranges and farm pastures on May 1 are as follows: (Figures for May 1, 1921, are shown in parentheses): Maricopa, 93 (57); Yavapai, 84 (57); Coconino, 84 (74);

Navajo, 86 (47); Apache, 94 (60); Pinal, 97 (50); Gila, 90 (80); Graham, 70 (50); Greenlee, 87 (50); Cochise, 84 (36); Santa Cruz, 89 (58); and Pima, 97 (52).

Arizona farmers report that 80 per cent of the spring plowing was completed by May 1 this season, compared with 80 per cent last season, and 88 per cent, the ten year average on May 1. Of spring planting, 70 per cent was completed by May 1, compared with 70 per cent May 1, 1921, and a ten year average on May 1 of 70.

The condition of Arizona cotton on May 1 was 77 per cent of normal. The condition of Pima was reported at 75, and short staple at 85. Conditions have not been favorable for cotton, the late spring and cool weather together with late frosts and damage from insects having prevented the normal development of the plants. Much replanting has been necessary and many fields show a poor stand.

Arizona fruit on May 1 was reported in better condition than last year, due to the excellent prospects for apricots and peaches in Maricopa County, the principal producing county in the state. Late frosts greatly reduced the prospects for peaches in the higher altitudes. The prospects for both apples and pears on May 1 was very good in the principal producing counties.

GOVERNMENT BULLETINS OF INTEREST IN JUNE

Copies may be obtained free by addressing the Division of Publications, United States Department of Agriculture, Washington, D. C. Specify number and name and whether Farmers' Bulletin or Department Circular.

Farmers' Bulletin 444, Mosquitoes—Remedies and Preventives; 691, Grasshoppers, Sugar Beets, and Trucl

A&M
reliable
SEEDS



Note the compact head

A&M
Selected
Dwarf Milo Maize

In heading Maize you experience a feeling of satisfaction when you grasp a large, well-filled, heavy head; one after the other all the same height from one end of the row to the other. It counts in the profits, too, and the cost per acre for seed is a mere trifle.

A & M Selected Strain Dwarf Milo produces fields of this description.

Packed in even weight, branded, 100-pound bags.

Ask Your Dealer

Aggeler & Musser Seed Company

622 So. Spring St.
Los Angeles Calif.

JOHNSTON
TURBINE
CENTRIFUGAL PUMPS

Installation can be made in wells 8 in. or larger. Produce 100 to 4,000 gallons per minute. Ask for Folder No. 4.

Johnston Pump Company
407 E. 3rd St., Los Angeles



No. 838, Harvesting Hay with the Sweep Rake; 872, The Bollworm or Corn Earworm; 876, Making Butter on the Farm; 903, Evaporation and Drying of Fruits; 943, Haymaking; 956, Curing Hay on Trucks; 975, The Control of European Foulbrood; 984, Farm and Home Drying of Fruits and Vegetables; 1,225, The Potato Leafhopper and Its Control.

Department Circular 35, Home Garden Diseases and Insects, How to Control Them, Boys and Girls Club Work; 96, United States Grades for Potatoes; 98, The Installation of Dust Collecting Fans on Thrashing Machines for Prevention of Explosions and Fires and Grain Cleaning; 162, Some Rules for Poisoning the Cotton Boll Weevil.

NATIONAL INSTITUTE OF PROGRESSIVE FARMING

The tractor and implement people of the United States have effected a new organization which will be of value to farmers and especially to those who are supplying farmers with implements and power. Guy H. Hall, director of the National Tractor and Implement Show held in Los Angeles some years ago, is made director of this new institute.

One feature of the work contemplated is shown in the following letter from the manager of a branch office of the institute, touching upon the valuable aid which can be rendered by agricultural colleges.

"We were especially well pleased with the suggestion you make that we use our agricultural colleges as a means to educate and sell the present and future generation on power farming. We solicit your assistance * * * to teach the farmer boy the things that he should learn and sell him on the idea that the farm is the best place to live. Supplement the efforts of the agricultural college by furnishing a competent farm engineer to report to the industry, make a state institution the clearing house where the farmer can come and get reliable unselfish information with regard to any equipment he might want. Protect the farmer from buying tools without company or service behind them. Make it plain to the industries that they shall furnish a product that will render service that will enable the purchaser to make a profit. Teach the farmer how to care for and operate his tractor, impress upon him his responsibility and that any delay, damage, or breakage for which he is responsible should be paid for by him.

"Have the salesmen sell service. Have in mind when making sales, the result to be accomplished, and sell only such equipment as is suitable to the farmer's use and under the conditions it is to be operated. Put himself in the farmer's place and sell him what the salesman would buy himself.

"There are too many instances where salesmen simply extract the price from the customer without any regard for the purchaser's interests, which reacts on the industry and retards progress. You cannot take a man's money and give him less value in return without injuring him, yourself, and the community at large, but it is possible for every one connected with the sale of power farming machinery to make a profit, the purchaser included, and all prosper, if the right goods are conscientiously sold to the right man, to be operated under suitable conditions in the right way. All of which is under the control of the manufacturer and distributor.

"This country is full of opportunities, we have only scratched the surface—look back for 40 years and see where we were then, and imagine where we will be 40 years hence."

Director Hall writes: "Those who know say it is the most comprehensive and practical program ever presented to make use of the proper power and give the farmer time to devote his labors to raising more pure bred animals that will bring more returns from the crops through milk, meat and wool producing animals. No talk of increasing production to flood the markets, but turning the crops, planted, cultivated and harvested efficiently and on time, into better livestock."

WHEAT IN FOREIGN LANDS

The condition of the winter wheat crop is generally fair in Western Europe and good in Central Europe, according to advices received by the United States department of agriculture. Warmer weather is needed to aid growth in France and Great Britain. The area sown in Italy is 288,000 acres less than last year but 510,000 acres more than the last 5-year average. The crop is up to the average in Egypt but rain is needed in Algeria, Tunis, and Morocco. Very little winter killing is reported in Canada.

The first estimate of wheat production in British India is 365,235,000 bushels which is 140.4 per cent of the corresponding estimate for 1921, and also above the 5 year average (final estimates) which was 346,737,000 bushels. It is expected that the Argentine production will exceed the original official estimate of 154,873,000 bushels. Recent reports indicate that production in Australia will probably not equal the early official estimate of 134,184,000 bushels.

CALIFORNIA GRAIN STANDARDS

California grades for shelled corn, wheat, oats, barley and grain sorghums become effective June 10, 1922. In accordance with the provisions of the California grain standardization act, the standards for shelled corn, wheat and oats, established by the United States department of agriculture, become California standards. Tentative United States grades for grain sorghums have been adopted by the California department of agriculture. Under the provisions of the California grain standardization act the grading of these grains in accordance with the established standards is not compulsory. However, whenever grain is bought or sold on the basis of these standards it is necessary that it be graded. Certificates of grade can be secured either at point of shipment or at destination, or on the basis of agreed samples which may be submitted to any state grain inspection office. These inspection offices are maintained at 11th & K Sts., Sacramento; 2200 Ford St., Oakland; 38 West Weber Ave., Stockton. An inspection fee of \$1 will be charged for all samples so submitted.

HAIRY PERUVIAN ALFALFA HAY MARKETS READILY

Farmers in the Yuma Valley and vicinity apparently are not different from those elsewhere. When their products bring good prices they always ask for more, but nevertheless they took the slump in hay prices this spring with general good humor and through their dealers marketed several hundred cars of alfalfa hay, which brought top prices on the Los Angeles market. This is the first time alfalfa hay from this district has been sold in such large volume on this or any other market, and the fact that 90 per cent of this hay was Hairy Peruvian and well received by the dairymen and dealers speaks well for this variety of alfalfa. Reports received from dairymen concerning its feeding qualities are uniformly good. However, it is not intended to convey the impression that Hairy Peruvian alfalfa can be cut, cured and baled any old way and make good hay, for it is little different from other alfalfa in this respect, but it has been amply demonstrated that good Hairy Peruvian alfalfa hay sells for top prices and does not last long on the Los Angeles market.

Saving a Nickel a Mile



STATISTICS show that even the most economical automobiles cost at least seven cents a mile to run. Compare that with the Harley-Davidson's average—50 miles for a dollar—(gas, oil, tires and all)—and you'll see why so many farmers are using motorcycles for business errands.

You, too, will find a Harley-Davidson the "handiest rig on the farm"—a time saver as well as a money saver. The roomy side car will carry a surprising lot of luggage from store, railroad station, post office, or from neighboring farm. Save your automobile for family use. Ride a Harley-Davidson on business errands. Swift, comfortable, dependable, easy to operate—even on the worst roads.

Do you know the reduced Harley-Davidson prices? Write us for FREE illustrated literature. No obligation to you.

Attractive dealer proposition for unassigned territories. Address Desk A-2.

Harley-Davidson World's Champion Motorcycle

HARLEY-DAVIDSON MOTOR CO.
MILWAUKEE, WISCONSIN

YOUR WANTS FULFILLED AT THE STORE OF RICH BUDELIER, 2531 SOUTH MAIN STREET, LOS ANGELES

We have the Harley-Davidson motorcycle, both new and used; many riders trade in their machines for the new model, but the older models are as good as new—we guarantee them as the factory does the new ones—they will give you the best of service.

RICH BUDELIER

Los Angeles Harley-Davidson Dealer
Main Street at Adams

Insure Your Crop by Using

Trade Mark **TIZIT** Registered
Tree Spray

(Basic Arsenate of Lead Base)

The Premier Insecticide and Fungicide for the Control of Black and Citricola Scale, Thrips, Red Spider and Fungi

Manufactured By

Tizit Spray Manufacturing Co.

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WESTERN SURFACE =IRRIGATION PIPE=

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

Western Pipe & Steel Co.

1758 N. Spring St., Los Angeles

424 Market St., San Francisco

Fresno, Bakersfield, Taft

Classified Liners

The direct selling method from producer to consumer, and a clearing house for California's prosperous farmers. Weekly liner rates: Each insertion 4½ cents per word. No ads accepted for less than ten words. Cash with order. Mail all classified copy to Los Angeles Office.

POULTRY

Profitable Poultry News—Capacity 200,000 chicks, hence prices surprisingly low for quality. County farm advisors, county agents, large, small ranchers, city people have for years bought these 180-290 egg Leghorns, Reds, Rocks, Minorcas, Anconas, Wyandottes, Andalusians, Ducks, Turkeys. They lead many egg-laying contests, are growing in popularity yearly. Why? **ELECTRIC HATCHED**, vigor, growth, winter-laying, profit, guarantee. All feel as this customer writes: "Count me among your boosters." Very low May, June prices. Smallest, largest orders welcomed. Chicks, Turkeys now grow quickest into profit. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

Better Baby Chicks—Assuming you are anxious to get the Best Chicks for your money we are offering you our "BETTER CHICKS" from thoroughly hoganized stock and hatched by electricity in a scientific manner. Why not get the best when they cost you no more. Let an order prove our claim. Quality our motto. Rhode Island Reds, Barred Rocks, White Rocks, White Wyandottes, Anconas, Black Minorcas, Brown Leghorns, White Leghorns, Single Comb White Leghorns, Turkeys and White Pekin Ducklings. Artesia Hatchery (Electric), Artesia, California. Phone A422. Capacity 125,000 eggs. (World's original electric hatchery.)

BABY CHICKS

Every Day—Ducklings, turkeys, hatching eggs—dogs, cats, birds, rabbits, pullets.

Write for prices.

FANCIERS' EXCHANGE

640 So. Main St. Los Angeles

White Leghorn

BABY CHICKS

\$10 per 100

May, June, July

STEELE'S EGG RANCH

Phone Gardena Exchange 692
Moneta, California

BABY CHICKS

White Leghorns, Anconas, R. I. Reds. Special prices for May-June-July

THREE MONTH OLD PULLETS

All selected—no culls

"QUALITY SUPREME"

ORANGE COUNTY HATCHERY

Santa Ana, California

Certified S. C. White Leghorn Baby Chicks from heaviest laying stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June, \$3.50 per 25, \$6.50 per 50, \$12.00 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. Member Sonoma County Farm Bureau Accredited Hatchery List. **MUST HATCH INCUBATOR CO.**, 438 Seventh St., Petaluma, California.

White Leghorns—Eggs for hatching; 100% fertility guaranteed. Absolutely first class cockerels and pullets ready soon. Finest laying strain. Prices very reasonable. Send for folder "Secret of Success." Curtis White Leghorn Ranch, R. 2, Box 29, Gardena, California.

Baby Chicks—Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box C, Compton, California.

Baby Chicks during May and June. Prices reduced. Several open dates. Not too late to raise good pullets. R. I. Reds, Barred Rocks, White Leghorns. Write for circular. Brown Leghorn pullets ready for shipment now. Stubbe Poultry Ranch & Hatchery, Box 67E, Palo Alto, Calif.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

S. C. White Leghorn Baby Chicks from our own bred-to-lay stock. Now booking for January to July delivery. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. Charles H. Voden, Los Gatos, California.

"Eastman's Bred-to-lay" Hoganized and trap-nested Barred Rocks. **BABY CHICKS**. Fairmead Poultry Farm, Fairmead, California.

FOR SALE

GOOD PAYING HATCHERY

3000 hens and pullets, beautiful home, terms. Write Moneta, California. Box 11.

Beautiful Chinese Ringneck Pheasant Eggs, \$3.00 per dozen. El Nido Pheasantry, Fair Oaks, California.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Pit Games—Old and young trigs. R. H. Crane, Santa Rosa.

POULTRY

White Leghorn Sale—Add new blood to your flock and increase your egg production. 10,000 pullets and cockerels from trap nested stock with egg records from 200 to 333 eggs. 2000 one and two year old hens now laying better than 65% from our famous breeding pens. 500 of our breeding cocks. All at bargain prices. Send for list. Yesterday Egg Ranch, Kent, Wash. "Home of the 300 egg hen."

Baby Chicks from My Pure Bred, heavy laying strain of S. C. White Leghorns, a result of 17 years of most careful breeding for laying and standard qualities, June and July delivery at \$12.00 per 100, and \$11.00 per 100 in lots of 300 and more. Vigorous, strong chicks at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$11.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Union District Hatchery is now booking orders for the best thoroughbred baby chicks at the right price. White, Buff and Brown Leghorns, Rhode Island Reds, Black Minorcas, Anconas and Barred Plymouth Rocks. F. & L. Downing, Los Gatos.

Watch Us Grow—Baby Chicks. We are now booking orders for the season of 1922. Brown and White Leghorns, Rhode Island Reds, Barred Rocks and Anconas. Safe arrival and satisfaction guaranteed. F. W. Oakes, Campbell, California.

Ancona Pullets, laying, \$1.50, 616 Sierra Vista Ave., Alhambra, Calif.

CATTLE

For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old mules and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. Chas. Hubbard, Owner, Riverdale, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Guernseys—Grape Wild Farms—Berks-shires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

For Sale—Thirty-seven Durham dairy cows. All milking good. Price seventy-five dollars per head. Address Harry E. Marquart, Templeton, California. Telephone 4-F-2-2, Templeton.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Bargrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

Registered Herefords—Anxiety IV strain. Breeding stock for sale. Chas. Rule, Duncans Mills, California.

TREES

For Sale—Valencias, several thousand one and two year olds in one of our nurseries at Garden Grove, untouched by frost. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale—Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 63110, Los Angeles.

For Sale—Royal Apricot and other deciduous Fruit Trees. Also Palmetto Asparagus roots. Van Nuys Nursery Company, Van Nuys, California. Phone 12.

Nursery Stock for sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. phone 75-W-1.

For Sale—Navel and Valencia Nursery stock—not frosted. W. B. Ames, 9th floor, Merritt Bldg., 8th and Broadway, Phone Pico 1156, Los Angeles.

For Sale—Avocado trees, unfrosted, Fuerte, Spinks, Dickenson, Sharpless. Milo Hunt, Whittier, Phone 250.

For Sale—Two Year Valencia Trees in quantity—no frost. York Nursery, Highland, California.

Beeman Tractor Cheap—Young man learn trade. Cash Nursery, Sebastopol.

SEEDS AND PLANTS

SUDAN GRASS SEED
(The Great New Hay Crop)
First introduced in the United States 1909 from Sudan, Africa.
Culture. Strictly an annual, may be drilled or broadcasted, 15 to 25 lbs. per acre. It screws 8 to 10 ft. high, yields 3 to 10 tons per acre, two to four cuttings.
Pasturage. It will yield food for six times as much stock as any other forage without irrigation. For milk cows and hogs there is no better and more abundant pasture than sudan. It will solve the hay proposition as nothing else can or will do in this climate. This seed is grown on our farm and is free from Johnsongrass.
Price—5 lbs. \$1, 10 lbs. \$1.50; 50 lbs. \$5; 100 lbs. \$8; 500 lbs. \$35; 1000 lbs. \$50.
BOWMAN'S SEED CO. & IMP. CO.
721 J St. Sacramento, Calif.

A Few Thousand New Stone Tomato Plants. (No others.) Large sweet peppers soon. Outdoor grown. Home Nursery & Seed House, Maywood, Los Angeles. Route 1, Box 1335, Slauson and Cudahy.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery, Jordan and Casey, Box 40, Manhattan Beach. Phone 4951 Redondo.

For Sale: Guaranteed Banana Squash Seed, Two Dollars Pound. Prompt delivery. Mrs. Wilkerson, 7050 Kester Avenue, Van Nuys, California.

Sweet Potato Plants—Yellow Jersey, \$2.50 per 1,000, F.O.B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, Calif.

Several kinds of grape rootings cheap for sale in good shape for replant. Box 501, Fowler, Calif.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, California. Telephone Downey 1186.

For Sale: Yellow Sweet Potato Plants, strong stock, \$2.00 per 1,000, F. O. B. Santa Ana. S. D. Teel, R. D. 3, Box 8.

MACHINERY

Rebuilt Windmills, Tanks, Pumps, Cylinders. Make New Galv. Tanks 300, 600, 1000, 2000 gal. WE SELL FOR LESS. WHY PAY MORE? Mile Surface Irrigating pipe. New 3-in. \$12.90 per 100, 4-in. \$16.75, 700 ft. used 8-in. 2000 ft. new 6-in. 24½¢. Don't wait 'till dry weather and expect to find this pipe in stock. 15 HP engine rebored fine shape \$250. Deep well double acting Ames pump \$225. Many other bargains. DEMMITT CO. Upstairs 120 N. Main, Yds. 816 Yale, L. A.

Yuba Tractor in good running condition for sale or will trade for horses or hay. Santa Monica Dairy Company, 346 Rose Avenue, Venice, California.

MISCELLANEOUS

Save on Radio Magazines. Radio News and Ladies Home Journal \$3.50. Write for clubbing circular. F. Harvey Fisher, 531 Phillips Building Los Angeles. Any combination.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picoting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

3-Pound Box Absolutely Boneless Codfish, fine white, new catch fish, delivered by mail, \$1. Coffin Fish Co., Seattle, Wash.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Tobacco—Natural Leaf Chewing and Smoking. Rich, ripe two year old. 6 lbs. \$1.75; 10 lbs. \$3. Sample 20 cents. Maddox Brothers, Dept. 30, Mayfield, Ky.

Posts, Lumber, Shingles direct to you. Ask for delivered prices. Kirk Company, Tacoma, Washington.

WANTED

Wanted: Men With Spare Time to represent established California company selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

Wanted Throughout California, men with autos to represent established farm publication selling and collecting subscriptions. Flat salary. Write or call. J. H. Yetter, 317 Central Ave. Los Angeles.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdway 5401. Los Angeles, Calif.

DUROC-JERSEYS

Weaning Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

FARM LAND FOR SALE

\$750 SECURES EQUIPPED FARM WITH 38 ACRES GROWING CROPS. Only mile high school town; 40 acres; easily-worked fields; spring water; valuable wood; orchard peaches, apples, cherries, grapes; good cottage, porch, pleasant view; barn, wagon shed; mules, cows, poultry, implements, 38 acres corn, potatoes, peas, fruit, garden truck, etc. included to close; all \$1,500, only \$750 down. Details page 106 Illus. Catalog 1200 Bargains FREE. STROUT FARM AGENCY, 831 H K New York Life Bldg., Kansas City, Mo.

IRRIGATED LAND ON GOOD TERMS. You can't beat the terms we offer to farmers who know how to farm rich, irrigated bottom land. This land will grow heavy crops of alfalfa, fruits and vegetables. It is ideal for intensive farming. Transportation and irrigation, the best. It is in the heart of the Sacramento Valley. A real opportunity for you. Write now.

SUTTER BASIN COMPANY
Calif. Fruit Building
Sacramento, California

Best Value Around Los Angeles—Poultry Ranch, 2 acres, close in, all conveniences, 6 room house, 2900 layers, brooder house, colony; paying plant, bonafide bargain, \$16,500—terms. Also 5 Acre Ranch, 400 chickens, a real home. \$11,000, terms. 616 Sierra Vista Ave., Alhambra, California.

For Sale—258 Acres Land situated one mile north Somis, Ventura County, on an elevation of Mesa land. Is good grape or fruit ranch. With all modern ranch improvements. Present crop Lima Beans. For particulars write M. V. R. A., Box 306, Oxnard, California.

Dairy Ranch—140 acres, 13 miles from San Diego, Cal. Pumping plant plenty of water; 40 head stock; improvements; stock worth \$15,000. All for \$30,000. Owner, Oscar Lehner, 3120 Colton Avenue, San Diego, California.

For Sale: A Whole or Part of well improved 400 acre stock, fruit and grain ranch, near highway, town and railroad. Terms. Address owner, S. J. Gummow, Box 274, Soledad, Monterey County, Cal.

25 Acres Citrus Land, 800 pedigreed navels being put out, plenty water, pumping plant \$7,500. Oscar Lehner, Owner—3120 Colton Avenue, San Diego, California.

Florida—Indian River Orange Lands and groves. Booklet and list and local paper 5c. Goodwin & Baker, Realtors, Ft. Pierce, Fla.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale: Good grape land, 20 acres \$225 per acre. No. 27 Shawmut, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TURKEYS

Mammoth Bronze Turkey Eggs 25 cents each, \$20 per hundred. W. L. Duval, Pomona, Calif.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A Surtman, Petaluma, California.

BURNING SOIL DESTROYS ORGANIC MATTER

Something over a hundred years ago it was a common practice in some parts of Europe to burn soils to improve their physical condition. This was often done by digging a series of trenches parallel to each other and building a fire in them. In this manner the soil between was heated to a relatively high temperature. The heat generated was sufficient to destroy a large part of the soil colloids, giving better physical condition to heavy soils in which clods had previously been a problem. This kind of treatment, however, in the light of present day science, is known to be destructive of organic matter, and hence the use of fire as a means of ameliorating the difficulties caused by colloids has become nearly obsolete. It has been suggested by Ehrenberg that the beneficial effect known to accrue from partial sterilization of soils by steam or other heat may be due in a large measure to the effect of heat on colloids.

One of the most common causes of a poor seedbed is the presence of clods. By decreasing the surface of the soil particles with which the roots of plants may come in contact and interfering with proper moisture relations, they contribute to poor germination and later limit growth. They may be formed either by working the soil too wet or too dry. By working the soil too wet the particles are pressed tightly together and remain so until they dry out, when the soil breaks up into coarse chunks. When allowed to become too dry before plowing, the soil is usually quite compact and due to lack of moisture it breaks into coarse lumps instead of being sheared into fine crumbs. Clods formed by the first process are usually harder, denser and more difficult to pulverize.

Legal Queries

Louls B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Rescinding Deed

In 1912 I deeded property to a brother. Is it now too late to bring action against him to recover the property?—Subscriber, Red Bluff.

If in some manner a trust could be established the statute of limitations would not commence to run until the date of repudiation of the trust. If, as is sometimes the case, however, the transfer was made to place the property out of reach of creditors the law would give no redress.

Judgment on Contract

I purchased a ranch on contract and for the last two years have been unable to pay the interest. Could the owner take the crop, tools or horses if I cannot pay this fall? How long a notice will I have before being advised to vacate?—Subscriber, Camarillo.

If the contract is recorded it would be necessary for the owner to bring suit in the superior court and have either a judgment rescinding the contract or one quieting title. This form of action can be taken in three different ways, two of which may result in a personal judgment against the contract purchaser. Under such personal judgment execution may be levied in the usual manner. As to the crops growing upon the land at the time of the entry of judgment those probably would be forfeited to the owner of the land as being a part of the real property. In any event execution could be levied upon them. The ordinary agricultural implements and two horses are exempt from execution.

Weeds on Adjoining Property

Adjoining owner some time since leased his land to other parties who allowed it to grow up to brush and thistle, the seeds of which blow on to my land and have caused me much expense in eradicating them. Could I collect damages for the time it took me to pile and burn this brush and could I attach the land to pay such damages?—Subscriber, Ontario.

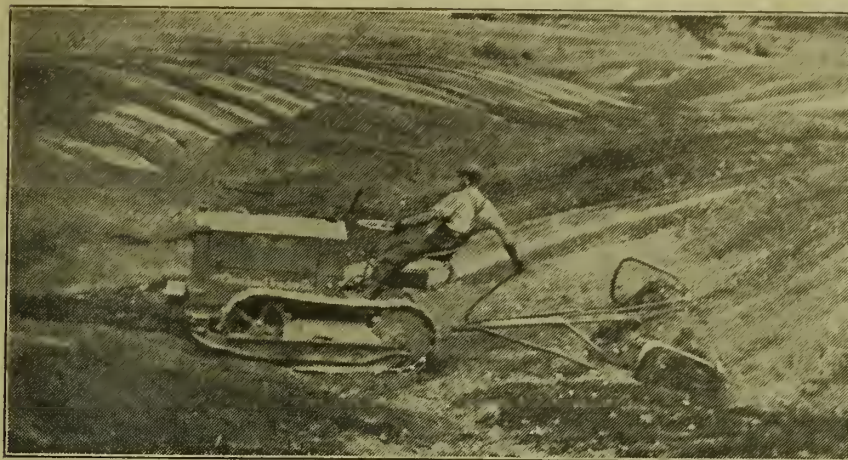
There are several general principles of law which might indicate that some such action might be taken, but apparently there is no record of such case ever having been prosecuted. However it would seem that as far as the owner of the land is concerned, where a lease was made, he would be in no wise responsible, for the possession of the land is out of his control. The immediate remedy is by making application to the county horticultural commissioner who is vested with power to compel the destruction and eradication of these noxious weeds, either requiring the land owner or lessee to effect their destruction or in case they fail to do so, he is given power to enter the land himself and clear it himself, and for the expense thereof a lien against the land is given which may be foreclosed in an action brought by the commissioner in the superior court.

BERRIES IN INTERIOR VALLEYS

Imperial and other valleys with similar climatic conditions have given but little attention to strawberry or small fruit culture, but one Imperial experimenter, Wm. Von Mueller, has maintained a most practical experiment plot in his "Berry Gardens," not only with blackberries but with rhubarb and strawberries, and finds that if right selection of berries is made strawberries do very well in the early spring and fall months. He is now investigating as to a sub-irrigation plan.

ONE MAN'S TIME SAVED

Dirt moving has always been a more or less expensive proposition. With the coming of tractor power it was handled with more speed and economy but required a tractor operator and a man to "buck" the scraper.



Pull the String—The Automatic Does the Rest

W. W. Tolman leveling sandy loam soil for orange grove in Ojai Valley, using automatic scraper hitch. With Cletrac, 6 foot Fresno scraper and automatic hitch which loads and dumps from the driver's seat, earth is moved at a cost not exceeding 15 cents per cubic yard, or about half the expense of moving with teams.

An automatic scraper hitch has been patented by a California man that makes it possible for the tractor operator to load, spread and dump the scraper while operating the tractor. A feature that appeals especially is the ability of the hitch to spread or level to any of three desired depths.

It can be attached to any tractor, the hitch and Fresno scraper being made up to 7 foot size.

AN ELECTRICAL COTTON PICKER

Picking cotton by electricity was recently demonstrated in a field near Little Rock, Arkansas. The machine is mounted on a tractor whose engine provides the electric power to operate pickers and fans of the cleaner.

The principle of the picker was suggested to the inventor by watching a trespassing cow clean out the bolls of newly opened cotton. The neatness and dispatch with which her rough tongue extracted the white morsels gave him the initial idea for a picker which 14 years of experiment has brought to completion. A writer in St. Nicholas describes the machine:

"It consists essentially of two revolving brushes (which pluck the cotton lightly, but cleanly, from the open seed pod), of a suction system, and of a set of electric motors, together with an electric generator and a switch-board or panel board.

"It is the brushes, of course, which play the part of the rough and flexible tongue of the cow. They are enclosed in a small metal frame about as big as your two fists, and they revolve toward each other. When these are placed in contact with the cotton they instantly pull it free, without collecting any part of the boll or leaves of the plant, as a human picker is only too apt to do.

"Connected with the revolving brushes are flexible tubes, known as pickers tubes, which carry the cotton by means of suction to the collecting bags just as the dust and fluff picked up by a vacuum cleaner are carried to a collecting bag."

The machine can be operated by one man and will pick eight rows in one passage across the field.

FREIGHT RATES REDUCED

Rail rate reductions amounting to ten per cent of present levels become effective July 1, under decision of the interstate commerce commission announced May 24. The statement is made that this cut will reduce the national freight bill by \$400,000,000 a year. Western grain and grain products are included in commodities carrying this lower rate. Farm products in general have already received reductions, but the present ten per cent cut includes practically all other classes of freight.

Comfort is largely a matter of habit. If our particular brand of it requires too many ingredients—just the right kind of weather, of companionship, of surroundings—we shall seldom be comfortable.

SHADE AND ORNAMENTAL TREES OF CALIFORNIA

Book Review

"Shade and Ornamental Trees of California" by Merritt B. Pratt, state forester of California, published by the state board of forestry.

PLANTING OF CITRUS TREES

By R. R. Snowden



OR the past 12 years the writer has been trying to show the citrus growers of California an unfortunate error in the planting of their trees. Many of the citrus trees in this state have been planted with the root crowns from six to 18 inches below the surface of the ground. From observations covering many years it seems obvious that this error is responsible for more citrus troubles than any other one cause. In nature all trees grow with their root crowns at the surface, and this condition is so necessary that the deeply buried crown roots will send up branches toward the surface, and in time a citrus tree will endeavor to produce a new net of crown roots at the surface. In the wild state we find the cypress of the southern swamps, although an aquatic organism, sends up from its submerged roots "knees" into the air, presumably to obtain the air so necessary to root action, and which it cannot get under water.

I have found this unnatural condition closely associated with gum disease and scaly bark of the citrus, showing a constitutional weakness in the trees, caused by such abuse, which renders them an easy prey to the fungus pest. Even in the same orchard may be seen the diseased buried trees and others which have fortunately had the earth removed by adventitious circumstance, enjoying freedom from the trouble.

The excuse for this practice is said to be an effort to protect the bud union from the action of the sun while the tree is unable to shade it properly. But it would be far better to correctly plant the tree and then protect the bud union by banking up the earth or otherwise shielding it from the rays of the sun until a large enough top is produced and then removing the protecting medium.

I venture to predict that should all new citrus orchards from this time be planted at the proper depth, in accordance with the above, 20 years hence many old orchard trees will be replaced with new ones, being unable to compete with the properly planted ones.

CANNING STANDARDS ANNOUNCED

Partially as a result of a suggestion offered by the extension service, the Southern California Cannery Bureau has recently published a little booklet, "A Message to Growers of Deciduous Fruit," which consists of a clear cut statement pointing out the mutual interest of the grower and canner in the production of a first quality product, announcing the standards adopted by the canners for apricots and peaches for the coming year and urging special attention to those practices which result in the production of a better quality product. Every grower of deciduous fruits who expects to handle any part of his crop through canneries should have a copy of this publication which may be had from the manager of the bureau, S. W. Cunningham, 612 Homer Laughlin Building, Los Angeles.

SOIL TEMPERATURES

During a time when we are studying the effects of atmospheric temperatures on lowland and upland it is interesting to note permanent soil temperatures at different elevations.

A report from the University of Illinois states it was determined that soil in bottom land forests is constantly colder than in the upland forests, the average difference, at the depth of three inches, being two and a half degrees, the greatest difference, three and a half degrees, being noted June 24, the smallest difference occurring in July and August. The average difference in air temperatures was still greater, over four degrees.

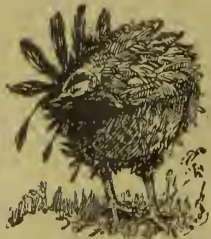
Shipments from the 1921 California orange crop will be about 13,050,000 boxes, according to the final estimate received by the United States department of agriculture. The loss due to the wind damage of last December was 2,250,000 boxes and to the freeze of last January, 7,200,000 boxes. This loss of 9,450,000 boxes was 42 per cent of the production.

Wooden cars were responsible for many holiday deaths in New York. Wood alcohol for more. Wooden heads for still more.—Syracuse Post-Standard.

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy
in Drinking Water Does It—No
Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 558, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

Moe's Poultry Supplies



Use Moe's Good Poultry Yard Fixtures. Practical, Money-Saving Devices. Star Fount 10c. Round Feeder, 6", 15c; 8", 25c. Ask your dealer and write for catalog.

HOEFT & COMPANY, INC.
220 No. Alameda St. Los Angeles, Calif.

Baby Chicks

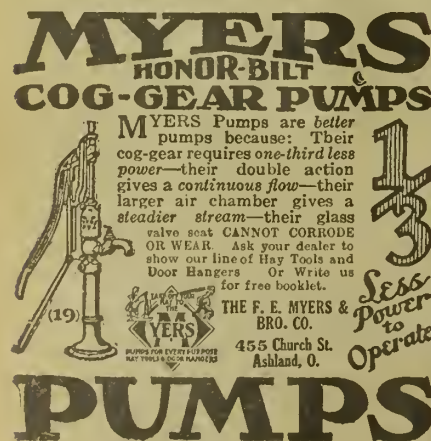
We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. All popular breeds: Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc. Also our famous Oregon-Corvallis White Leghorns. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner Ducklings, Mammoth Bronze baby turkeys. All kinds of pullets supplied—anytime. Incubators and brooders. Careful attention to every order, large or small. Send today for prices.

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Sick Baby Chicks? GERMOZONE is a positive remedy for roup, colds, bowel trouble and such costly ailments. Preventive as well as curative. A wonder worker for poultry. On market over 20 years. Endorsed by many thousand users. Don't lose your baby chicks. Get GERMOZONE TODAY. At drug and seed stores. If no dealer, order by card. 75c and \$1.50 sizes. Postman will collect. No extra charge.
GEO. H. LEE CO., Dept. R-30 Omaha, Nebr.



Feeding Baby Turkeys

By Jean A. Koethen



HERE is no one "best feed" for little turkeys. So many rations are used successfully, both for the first few days and afterward that one wonders if there is not more in the methods of the feeder than in the actual fare. Possibly more depends on the frequency and amount of meals and the way in which they supplement the food found on range than on the mixture used or the way in which it is prepared. Certainly we will do well to remember that the little turkey thrives best on what it is able to pick up for itself, and that the more it picks and the less it stuffs itself with prepared food the more likely is it to survive. As I have watched my little turkeys the past two weeks peck here and there at a bit of green or an elusive fly, here a little and there a little more, I have wondered if the main fault in our feeding is not the rapidity with which we permit them to stuff their crops.

The young turkey naturally eats rather slowly, but when we "keep them hungry" as we are constantly advised to do, and they come piling onto the tray, ravenous with hunger, each one doing its best to get a little more than the others, their crops fill with wonderful rapidity. This year I am making no attempt to time their eating or to limit the amount set before them. Instead I watch their crops. As soon as I can feel the crop beginning to bulge like the half of a small marble away goes the food. If some crops bulge more than others I allow the slower eaters a little more so that all crops will feel about alike. Perhaps I shall find that this is not the best way, but I am sure there should be some bulge to the crop. The question is, just how much. At the Rhode Island station when time feeding was practiced the poultts were allowed to eat from two to three minutes. This is all right at first when they are learning, but at two weeks old it is too long. One minute is nearer to what they can stand.

Different Rations

Farmers' Bulletin 791 of the department of agriculture gives the following list of the most commonly used rations for little turkeys:

Hard boiled egg chopped fine and corn bread crumbs the first week, then whole wheat and hulled oats.

Stale bread, soaked in milk and squeezed dry, for the first few days, then common chick feed.

Clabbered milk seasoned with salt and pepper, corn bread crumbs.

Equal parts pinhead oats, whole wheat and cracked corn.

Cracked wheat.

Corn meal and wheat bran mixed in the proportion of 3 to 1 and baked into bread.

Bran or middlings one-half, cracked Egyptian corn one-quarter, wheat and hulled oats, one-quarter.

Skimmed milk and buttermilk are often used in addition to any one of the above rations.

A study of the list quoted convinces the reader that it came from and was prepared for Eastern and Middle West farmers. In our climate we dare not feed corn meal as they do in the East. Perhaps we could use it more than we do, but I have met only one turkey raiser who used corn in any form for little turkeys. Even chick feed,

which contains a little corn, we avoid. Hard grain, especially wheat, which seems to be in considerable favor East we might, I feel sure, use more freely than we do. I have been throwing a handful of wheat once or twice a day to the hen that is mothering my poultts, and from the eagerness with which they eat it I am convinced they are ready for it. Hens, we are told, must have some hard grain daily to keep their digestions in order. Why should not the same thing be true of turkeys?

What might be called the standard feed for baby turkeys here in Southern California is the bread and egg mixture, which may be prepared in several ways, supplemented with onions and other greens. It is important that the egg be thoroughly boiled. Put it on in cold water and boil from 15 minutes to a half hour. When it is cold chop shell and all with an equal amount of very stale bread, wheat flakes or rolled breakfast oats, or a mixture of two of them. I have raised a good many turks on this mixture, using rolled oats exclusively, but the objection is made that oats may become sticky in the crop and digest less easily than the drier wheat flakes. After trying all three I prefer bread to either wheat flakes or rolled oats because it makes a drier mixture. Take very stale white bread (the dark breads are too moist) and dry in the oven till it is crisp like zwieback. Chopped with the eggs and greens it soaks up the moisture in the green and still remains dry. I have met one man who dries this mixture with bran, and that may be just as good as the white bread.

Now for the green part of the mixture: Onions in some form have long been considered a sine qua non in feeding turkeys. Perhaps it makes little difference whether dry onions are used, or young onions or onion tops. My own practice is to use the tender young onions, cutting up both onion and whatever of the top is green and succulent. If I raised many turkeys I might find young onions too expensive, and very likely the dry are just as good. Sometimes I wonder if our use of onion is not just a superstition like not starting on a journey on Friday or avoiding 13 at table. For the other green which is used with the onion nothing is better than alfalfa, and for most turkey growers that is the easiest green to provide. I used to use lettuce but have avoided it since I heard that it sometimes makes chicks "dopy." This year, as I have no alfalfa, I am mixing alfalfa with the onion and egg and bread, and the little poultts have certainly thriven on it. It makes a less moist mixture than either alfalfa or onion.

The proportion of egg, bread and green is one which nobody is able to give exactly, and it is not important. The green should be at least half the mixture, and is generally more. For seven or eight poultts half an egg, with an equal amount of bread or a little more, and as much green as you have egg and bread together, should make a day's feeding the first week. The second week they will eat an egg a day.

I fed four times a day for ten days, then dropped to three, but some turkey growers never feed more than three times a day, and some drop to

three meals after four or five days. It has seemed to me better to feed less at a meal and more frequently than to allow the turks to get so very hungry that it is hard to keep them from stuffing their crops. Something depends, of course, on the hour of feeding. If breakfast is given before seven o'clock it makes the three meals a long way apart. If the meals are given at eight, twelve and five o'clock the interval is not so great.

A Fresno man who is very successful with his turkeys follows the following schedule:

First day, nothing but grit. Second day, grit and hard egg once. Third to seventh, 2 parts bran, 1 part corn meal, egg, moistened slightly and fed five times a day.

Second and third weeks same as above 3 times a day.

Fourth week, Same with more meal 3 times a day.

Fifth week, Omit egg. Twice a day.

Sixth week, Part corn. Twice a day.

Seventh and after, all corn.

For ten poultts he uses 2 handfuls bran, 1 handful corn meal, 2 hard boiled eggs, just enough water to hold the mash together.

A Vacaville subscriber, whose method I have mentioned before, gives her turkeys till they are three months old a morning mash consisting of 1 medium sized onion chopped fine, 1 quart chopped green, 1 pint bran and 1 pint hulled barley or oats.

A Hemet man who has had much experience raises his poultts on a johnny cake made of ground oats, ground barley, ground milo, bran, corn meal, meat meal, (a very little) charcoal, Cayenne pepper, salt and baking powder, mixed into a batter with water and baked. This is crumbled and mixed with chopped green one fourth of which is always chopped onion. At two weeks he begins giving a good grade of chick feed for every other meal.

The above sample rations will serve to show what a diversity of methods there is in feeding baby turkeys. Very likely they are all equally good if used with gumption, which seems to be the one secret of turkey feeding. Sour milk may be set before the little birds in addition to the regular ration, if it is available, but experience has shown that it is not an essential part of the feed. I used to put cottage cheese in my feed mixture instead of egg, and at the first I was successful. Later I lost so many poultts on the same mixture that I was convinced the turkey's life depends on something more than cottage cheese or clabbered milk. At the Rhode Island station for a time milk was considered a preventive of blackhead, but I believe that theory has been entirely abandoned.

The addition of grain to the ration as soon as the poultts are old enough to digest it would seem the natural thing since turkeys live naturally by foraging. I have sometimes used cracked wheat to pave the way for larger grains but see no object in it when poultts two weeks old can eat and digest whole wheat. After the age of two months, if not before, dry bran should be before the poultts for at least a part of the day. A Gardena man whose method in this respect I followed last year, feeds his turkeys the bread and egg (only I believe he uses rolled oats instead of bread) mixture for two months, then works them into bran and rolled barley which are kept constantly before them. I do not remember that he used wheat as an

interlude, but such an interlude seems reasonable because wheat is more easily digested.

One thing I failed to mention in describing my own feed mixture, that is the chick grit which I never fail to sprinkle over it. This, I believe, is very important, for the little turkey does not like grit very well and is in danger of overlooking it if he is not compelled to eat it. Grit and shell are kept before the birds in their yard, and ultimately they learn to like it.

It hardly seems necessary to say that no young bird should be fed for a day or two after it is hatched. Keep the poults quiet and warm for 48 hours, and longer if the weather is cold or they do not act very hungry. I believe one reason my poults have done so very well this year (so far) is that they came off in a very cold spell, and I had to keep them and the mother closely confined for two days. The cold spell was followed by a very warm spell, and this gave them the start they needed. Now that the fog has come again they do not seem to mind it except in early morning and late afternoon, when I confine the mother securely in her small coop and make her cover them whether she wants to or not.

FEEDING EXPERIMENTS AT SOUTHERN CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The birds in the experimental pens at the Southern California Farm Bureau Egg Laying Contest at Pomona have been on their respective rations for six months now and changes are still being made in the order of total production. The fresh buttermilk pen is still in the lead with a total average production of 84.09 eggs per bird for the six months, but the dried skim milk pen which has held second place for sometime has now been replaced by the dried milk albumen pen. The birds in this latter pen did not seem to like their mash at first but since the first two months have been eating it well and gaining steadily in egg production. For April they gave an average production of 24 eggs each, a lay of 80 per cent. The birds in Pen 4, which are given the semi-solid reduced to the equivalent of fresh buttermilk to drink, do not drink the semi-solid in this dilution readily and are now consuming very little of it. Their average egg production has increased a little each month but their total egg production is now the lowest of all the experiment pens. It will be noted that of the four highest producing pens only one is fed liquid milk and that one is the fresh buttermilk pen. The birds in this pen have, however, consumed the least amount of grain and mash and are giving the highest percentage of eggs, averaging twenty-two ounces or more per dozen.

Feed	Ave. No. Eggs per Bird			Feed Consumed to Date per Bird	
	5 Mos.	April	Total	Lbs. Gr. & Mash	Milk
Check Pen	50.91	21.66	72.57	34.49	
Buttermilk	62.28	21.81	84.09	31.60	46.79
Dried Skim Milk.....	56.91	21.85	78.76	35.27	
Semi-solid 1-2.....	47.01	16.18	63.19	30.60	10.51
Semi-solid 1-25	49.88	19.74	69.62	32.66	45.89
Dried Milk Albumen.....	55.46	24.00	79.46	32.24	
Semi-solid 1-25.....	47.76	19.02	66.78	32.30	44.79
Lactein 1-25	46.73	18.72	65.45	32.96	39.29

Pen 7 is fed the same mash as the check pen, plus a solution of 1-25 semi-solid buttermilk to drink. Pen 5 is fed no meat scrap in the mash.

Clackamas County, Oregon, has paid 75 bounties on bobcats this year.

COOPERATIVE EGG HANDLING PROGRESS

The Pacific Cooperative Poultry Producers (the Oregon poultry corporation) announces the consolidation of the Oregon and Idaho egg pools and the closing of the Caldwell, Idaho, office. The directors of the association decided to do this as a means of economy. It is estimated that there will be a monthly saving in expenses of \$800 and perhaps more in general overhead. In the past the Oregon and Idaho eggs have been handled separately. Now they will be combined, the association paying the same price in the two states and merging the costs and receipts.

Beginning with the 13th pool all Oregon-Washington members, and beginning with the 15th pool, all Idaho members, who have signed the cold storage agreements, will be paid 75 per cent of the current market price for their selects, browns and pullets.

POULTRY SHOW AT RIVERSIDE

Manager Hammond of the poultry show at the Southern California Fair to be held in Riverside, October 9-16 writes.

"We have selected to date two Eastern judges, one for poultry and one for bantams. E. C. Branch of Lee's Summit, Montana, will handle all of the poultry, and he is considered one of the best judges we can secure. He has acted as judge in some of the greatest shows held in the United States and is also chairman of the committee on New Standard of the American Poultry Association.

"R. P. Krum of Stafford, Kansas, will handle all the bantams. He is regarded as the greatest bantam judge in America, and has been secured to judge the bantam show for the American Bantam Club at Chicago.

"With these two well known judges secured, we have already figured on enlarging our tents, and while we covered fully 22,000 square feet of ground last year, we no doubt will occupy 30,000 square feet this year. We will have a tent in which specialty clubs can hold their meetings, and have already secured the Pacific Coast Bantam club and several others to meet with us during the week. Rabbits and covies will be stronger than ever.

The poultrymen's department of the Los Angeles County farm bureau has arranged for a series of poultry culling demonstrations the week of June 26. R. B. Easson will conduct some of the demonstrations.

NEW ROAD INTO SEQUOIA PARK

The first step toward the realization of a new road into Sequoia national park will be taken with the letting of a contract by the state highway commission to extend the road from Three Rivers seven miles toward Hospital Rock. This road will afford a paved highway to the park boundary. The national park is already at work in grading the road from the boundary

into Grant forest. It is estimated that when this road is completed fully six weeks will be gained in the earlier opening and latter closing of the park.

Sonoma County tomato growers are contracting at \$15 a ton.



Drive Out Disease

Your flocks and herds represent a cash investment. Good sense suggests that you keep them in living-quarters where they are not exposed to their ever-ready enemies—contagious disease, lice and mites.



makes the job of whitewashing and disinfecting a matter of one operation—turns a mean job into easy, rainy-day work. It increases the light more than whitewash and helps make buildings clean and sanitary—a condition necessary if poultry and livestock are to be free from the losses and troubles caused by lice, mites and contagious diseases.

Use it Instead of Whitewash and Disinfectants

Carbola comes in powder form with a disinfectant already combined. It is ready to use as soon as mixed with water and can be applied either with a brush or sprayer to wood, brick, stone, cement or over whitewash. Carbola doesn't blister, flake nor peel off. It doesn't clog the sprayer and it dries out clear white. Carbola can be kept in powder form or mixed and left standing in pail without spoiling. One gallon covers 200 square feet.

And don't forget that the dry powder is unexcelled as a louse powder and costs less than most brands. Use it on poultry, cattle, horses, hogs, etc., just as other louse powders are used. Carbola is harmless to the smallest chick or to stock that licks a painted surface.

Your hardware, seed, drug or paint dealer has Carbola or can get it. If not, order direct. Prompt shipment by post or express.

10 lbs. (10 gals.) \$1.50	20 lbs. (20 gals.) \$3.00	50 lbs. (50 gals.) \$6.25
200 lb. bags \$22.50	Trial Package and interesting booklet 35c postpaid	
GERMAIN SEED & PLANT CO., Los Angeles, Calif.		

Poultrymen Attention!

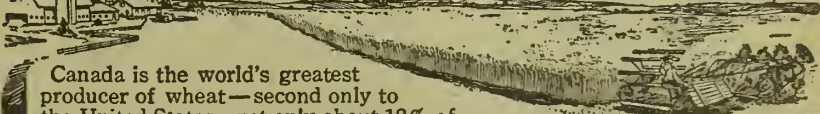
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WESTERN CANADA for Big Wheat Crops



Canada is the world's greatest producer of wheat—second only to the United States—yet only about 12% of the tillable area has been worked. Yields of 40 bushels of wheat per acre are not uncommon. Oats have given as high as 100 bushels per acre, while 40 to 50 bushels per acre are ordinary yields; barley and rye in like proportion. Cattle and horses thrive on the native grasses which grow abundantly and corn and sunflower culture are highly successful.

Stock Raising, Dairying and Mixed Farming

secure for the industrious settler ample returns for his energy. Clearing the cost of one's farm with a single year's crop has an appeal, and has been done by hundreds of Western Canada farmers. Taxes only upon land (not on improvements). Perfect climate, attractive social conditions, good neighbors, churches, schools, telephones, excellent markets and shipping facilities make life happy as well as prosperous.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, Alberta and British Columbia, reduced railway rates, etc., write

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160 ACRE FARMS IN WESTERN CANADA FREE

When Writing Advertisers Please Mention the Cultivator.

Los Angeles Markets

Los Angeles, May 31, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 40 cents.
Prices extras past week:

May	25	26	27	.....
	40	40	40	.....

CHEESE

Brokers' prices:

California flats, 18@20.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 28; case count, 23½; pullets, 22.

May	25	26	27	.....
	27	27	27	.....

POULTRY

Price to producers: Hens, 20; colored, 30; broilers, 24@30; roaster, 35; old roosters, 12; fryers, 30; ducks, old, 30; ducklings, Pekin, 3½ up, 25; others, 25; geese, 20; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 10@14; old, 8.

LIVESTOCK

Los Angeles, May 29.—Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 150 to 175 lbs., 10.75; 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 7.00; medium, 6.50; cows, good, 5.50; medium, 5.00; calves, 125 to 150 lbs., 10.25; 150 to 225 lbs., 8.50.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, May 29, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market dull. Idahos; Russets, 1.85@2.00; Stocktons, ordinary, 1.60@1.75; few cold storage stock, 2.25. New stock, best, locals, 1.15@1.35; poorer, 95@1.00.

Sweet Potatoes: Movement light, market steady. Locals. No. 1 best, per lug, 65@75. Arkansas: Nancy Halls, 3@4 per lb.; bu., mostly 1.50; Oklahoma baskets, 1.50.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, No. 1 Whites and Yellows, 1.00@1.15; few best, 1.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, May 29, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, best, 75@1.00; @75; best, 1.00@1.25 doz.

Asparagus: Per lb.: Local, best, 12@poorer, low as 25@75; best, 1.00@1.25 doz. 15; Northern, best, 7@9.

Beans: Market weak. Imperial Valley, Ky. Wonder, best, 9@10; San Pedro wax, 8@9; Ky. Wonder, 11@12.

Bunched Vegetables: Per doz. bunches: Turnips, 40@45; beets, 40@45; carrots, 45@50; radishes and spinach, 17½@20; parsley, 15.

Cabbage: Market steady, quality ordinary. Field cr., best, 2.00@2.25.

Cucumbers: Hothouse best, 2.00 doz.; local, 1.75@2.00 cr. 28-35's.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 6.50@7.50 per crate. San Diego, mostly 4.00@7.50.

Corn: Green, Imp. best, 65@75 doz.

Eggplant: Mex., 15@17 lb.

Lettuce: Market very weak. Locals: 35@60 cr.

Peas: San Luis Obispo, 6@7½; San Pedro, 5@6.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 15@18; Bells, Fla., 20; Mexicans: Bells, 15; local, 20@25.

Rhubarb: Local, best, strawberry, packed box, 1.00@1.10; Crimson, 90@1.00.

Squash: Market steady, 4-basket crates summer squash, mostly 60@85; Italian, 1.00@1.25; lugs, Crookneck, 1.50@2.00.

Tomatoes: Market firm. Mexicans, repacked lug, 3.25@3.75; original lugs, best, 2.75@3.25; loose, per lb., best, 12@15; poorer, 8@10. Imperial Valley, 4-basket crates, 3.00@3.50.

Turnips: Sack, 1.50@1.75.

FRESH FRUIT

These are actual prices obtained May 29 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: Imperial Valley, lb., 9@11; Ariz., 10@12.

Blackberries: Cr., 5.00@6.00.

Cherries: Best, 20@24; poorer, 15@18.

Figs: Brown Asiatic, 2.25@2.50 per 7 lb. flat.

Gooseberries: 18@20 lb.

Loquats: Best, 12@14 lb.; No. 2, 8@10.

Raspberries: Cr., 4.00@5.00.

Strawberries: No. 1, 3.75@4.00; few, 4.25; No. 2, 2.75@3.50; San Jose, 1.50 tray 12's.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock May 29 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.25@3.75; market pack, 3.00; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 2.25; special brands, fancy, 6.75@7.50; choice, 5.50@5.75.

Oranges: Demand moderate, market steady. Navels, market pack, 5.50@6.00, according to size and quality; culls, 1.00 per field box; few best, 1.50; Valencia, special brands, 7.50@8.00, according to size.

HONEY

Continued cool and foggy weather with occasional showers has retarded the new honey crop until it is not expected that new stock will be on the market in appreciable quantities before the 20th or 22nd of May. The market is in a waiting position, as the old crop is practically cleaned up and no sales of new stock have been reported. Dealers report few purchases. Extracted honey from growers at 6c for light amber sage, 8c for extra light amber and 9c for white sage.

HAY

Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00

Barley 18.00@22.00

Prices quoted f. o. b. L. A. to producers are:

Rabbit Alfalfa 17.00@19.00

No. 1 Alfalfa 15.00@17.00

Standard Alfalfa 12.00@14.00

Alfalfa Growers of California report: Prices given are merely approximate and are subject to fluctuation of the market in view of heavy cuttings.

Rabbit Alfalfa 20.00@23.00

No. 1 Dairy 17.00@20.00

No. 1 Alfalfa 15.00@18.00

GRAIN

Prices L. A. Grain Exchange, May 29.

Barley: 100 ton lots June Del., 1.17½.

San Francisco Markets

San Francisco, May 30, 1922.

BUTTER

Extras 39½

Prime Firsts 38½

Prices Extras last week:

May 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CHEESE

Dairy Exchange quotations:

California Young America, fancy 24

California Flats, fancy 19

Oregon Trips 20

Oregon Young America 25

EGGS

Dairy Exchange Quotations:

California Extras 26½

Extra Firsts 26

Extra Pullets 22½

Prices Extras last week:

May 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1¼ lbs. 28@29 per lb., 1½ to 1¾ lbs. 30@32. Colored, 32@34.

2 to 2¼ lbs. 32@34. Colored, 43@45.

Fryers: Colored, 2½ to 3 lbs. 53@55.

Young Roosters: Colored, 3 lbs. and up 54@60. Staggy showing spurs 25@30.

Colored Old Roosters: Slow, 17@18.

Leghorn Old Roosters: Slow, 14@16.

Leghorn Hens: 2½ to 3 lbs. 21@23; 3 lbs. and over 24@25.

Large Colored Hens: 28. Off stock 26@27.

Ducks: Young, 20@22. Off stock 26@27.

Geese: Young, 24@26.

Live Turkeys: 32@35.

Dressed Turkeys: Young, 36@40. Off stock 26@32.

Belgian Hare: Live, 14@16. Dressed 18@23.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@3.50 doz.

Old Pigeons: 2.50@3.50 per doz.

Guineas: Young, 8.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighted off cars at our yards in South San Francisco:

Cattle: Steers, first quality, 7@7½ per lb.; second quality, 5¼@6¼; cows and heifers, No. 1, 5@6; second quality, 4@5; bulls and stags, 3@4 per lb.

Calves: Light weight, 8@9 per lb.; heavy, 5@7 per lb.

Sheep: Wethers, 6½@7 per lb.; ewes, 4@5 per lb.

Lambs: 9@10 per lb.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 12 per lb.; 200 to 250 lbs., 11 per lb.; 250 to 300 lbs., 10 per lb.; light sows, 10 per lb.; do, heavy, 9 per lb.

California Farm Bureau Marketing Association reports:

Tulare, May 23, 1922

32 feeders 117\$10.35

65 203 10.30

100 153 9.80

7 251 9.80

93 175 9.75

74 166 9.75

22 166 9.25

18 394 320 9.60

1 170 5.00

412 hogs, 5 cars, 31 consignors, \$6,963.34.

Visalia, May 24, 1922

9 151 10.10

42 feeders 114 10.50

87 162 10.00

3 320 9.50

6 348 80 7.00

1 390 2.00

148 hogs, 1 car, 13 consignors, \$2,262.56.

Hanford, May 25, 1922

40 feeders 110 10.10

91 167 10.05

98 161 10.00

91 188 10.00

18 221 9.25

17 164 8.75

1 270 8.75

1 190 7.00

20	321	360	6.25
1	460	.....	2.10
378 hogs,			
4 cars, 35 consignors, \$6,301.75.			
McFarland, May 26, 1922			
82	184	.....	10.05
84	187	.....	10.05
102	153	.....	10.00
39	219	.....	9.50
19	239	.....	9.00
8	289	.....	8.50
20	375	310	6.00

354 hogs, 4 cars, 19 consignors, \$6,502.20.
Totals for the week: 1,292 hogs, 14 cars, 98 consignors, \$22,029.85.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60@2.00; Oregon Burbanks, nominal; Idaho and Wash. netted gems, 1.75@2.00; Salinas, 2.25@2.75 per cwt.; new, 3½@5½ lb.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: New Crop White, 1.25 crate; Yellow, 1.00@1.15 cwt.; Gr. Onions, 1.75@2.00 box; Stockton Red, 2.00@2.25 cwt.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 22, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00@6.00 per cr.

Asparagus: 3@6 per lb.; white, 5@7 per lb.; graded, 8@10 per lb.

Beans: Ky. Wonder, 15@16 lb.; wax, 10@15.

Bunched Vegetables: Carrots, 60@1.00 per dozen; turnips, 55@60 per dozen; beets, 50@60 dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: River, 3 per lb.

Carrots: 2.75@3.00 cwt.

Celery: River, 2.00@4.00 cr.

Cucumbers: Mexican and local, 75@1.00 per dozen or 2.00@2.50 per small crate; do, English, 2.25; Texas, 4.00; hot-house, 1.50@2.00 doz.

Eggplant: Fla. and Mex., 10@15 lb.

Endive: 20@25 lb.

Lettuce: Local, 25@50.

Mushrooms: 50@1.00 lb.

Parsnips: 3.00@3.25 per sack.

Peas: Bay and Peninsula, 1½@4 lb.

Peppers: Florida and Mexico, Bells, Rhubarb: Box, 1.35@2.00.

Squash: Summer, 35@75 cr.; Italian, 1.00@1.50.

Spinach: Lb., 2@4.

Tomatoes: Mexican, repacked, 4.00@4.25 per L. A. lug; Imperial, 3.00@3.25 lug.

Turnips: 2.00@2.25 per sack.

FRESH FRUIT

Apricots: Lb., 10@12.

Bananas: Hawaiian and eastern, 7@7½ lb.

Cantaloupes: Small lug, 2.00@2.75.

Cherries: Box, 1.50@1.85; bulk, 10@15.

Figs: 3.50@4.00 sm. bx.

Gooseberries: 10@12 lb.

Pineapples: 5.50@6.00 per doz.

Strawberries: Watsonville and Salinas, 1.20@1.30 cr.; locals, 60@70 dr.

Raspberries: 1.00@1.25 dr.

90@1.20 cr.; locals, 45@50; few, 55.

CITRUS FRUITS

Grapefruit: So. Cal., fancy, special pack, 4.25 per box

PURE STRAIN OF COTTON SEED

As conditions now exist in many parts of the cotton belt, farmers find it next to impossible to maintain a superior staple for more than two or three years. The principal reason for this is the general custom of growing a number of varieties in the same locality and ginning the crop at public gins where it is almost certain that seed will be mixed. Modern ginning equipment has increased this difficulty. There is also mixing by flying insects when different varieties are grown in adjacent fields and in the same field as a result of mixing of seed at the public gins.

The most practical way of maintaining pure seed supplies is for farmers to unite upon a single variety so that only one kind of seed will be handled at the gin. If it is not possible to agree upon any one variety, it is still possible for farmers and ginners to cooperate to prevent seed becoming mixed at the gin. One day a week may be devoted to ginning selected stock, after cleaning out the flues, feeders and cleaners, dropping box. The seed should not be allowed to pass through the conveyors, which can not be cleaned thoroughly, but should be collected on the clean floor or on a canvas spread on the floor. If special days can not be arranged for, it may be possible to store the seed cotton and hold it for ginning after the rush season is over. But the most effective method for avoiding mixing and the resulting deterioration of cotton is the organization of one variety communities. The value of such communities has already been demonstrated in the Salt River Valley of Arizona, where the Pima variety of Egyptian cotton is grown exclusively.

CONTROL OF SWARMING

Honey production on an extensive scale makes it necessary sometimes to distribute the colonies of bees in several apiaries to avoid overstocking. Then comes the serious problem of controlling the swarm. Swarm control is less difficult in producing extracted honey than with comb honey. It is less troublesome in some locations than in others. The reasons for these differences are important in devising measures for swarm prevention. These and other problems relating to swarming are discussed in Farmers' Bulletin 1198, issued recently by the United States department of agriculture. This bulletin may be had, free, upon request addressed to the Division of Publications, Department of Agriculture, Washington, D. C.

Some strains of bees have a stronger tendency to swarm than others. So, to some extent, swarming may be reduced by careful selection in breeding. Colonies having large brood chambers are less inclined to swarm than those in quarters too small. Strong colonies having good queens may need 60,000 to 70,000 cells for rearing of brood during the period of extensive brood rearing in the spring, in addition to the cells used for storing honey and pollen. Colonies having good combs throughout are less inclined to swarm than colonies having poor combs. Inferior combs may greatly increase the swarming tendency both by reducing the amount of available brood rearing space and by acting as barriers in the way of a free expansion of the brood nest. The bulletin gives a dozen or more swarm preventive measures to be taken by bee owners.

BEEES BRING WEALTH

The honey bees of California in 1920 supplied a surplus of over five and one-half million pounds of honey, which is enough to supply almost three pounds for each person in the state. California ranked third in swarms of bees in 1920 but first in honey crop. Recent investigations by the University of California college of agriculture have thoroughly demonstrated the need of cross pollination for many varieties of fruit to give a good crop, and bees are exceedingly important in doing this work. Beemen and fruit producers of the state will be interested in a new correspondence course which is now being offered by the college of agriculture. The course was written by a practical bee keeper in this state. Circular 113 describing the course may be obtained from the College of Agriculture, Berkeley, California.

COMING EVENTS
(Corrections and Additions Requested.)

- Peach Day, Yuba City, June 3.
- Western Sonoma-Marin Dairy Cattle Show, Valley Ford, June 10-11.
- Citrus Institute, Pomona, July 14-15.
- California Rodeo, Salinas, July 24-29.
- Sonoma County Fair, Santa Rosa, August 23-27.
- San Joaquin Valley Fair, Stockton, August 24-30.
- California's Pageant of Progress and Industrial Exposition, Los Angeles, August 26-September 9.
- Walnut Growers Field Day, Santa Barbara, September 2.
- State Fair, Sacramento, September 2-10.
- Grape Day, Escondido, September 9.
- Tehama County Fair, Red Bluff, September 11-17.
- Tulare County Fair, Visalia, September 12-19.
- Colusa County Fair, Colusa, September 14-17.
- Glenn County Fair, Orland, September 18-23.
- Kings County Fair, Hanford, September 20-23.
- Fresno County Fair, Fresno, September 25-30.
- Shasta County Fair, Anderson, September 28-30.
- Ventura County Fair, Ventura, October 1-8.
- Kern County Fair, Bakersfield, October 2-7.
- Butte County Fair, Oroville, October 2-7.
- Pork Day, Turlock, October 4.
- Southern California Fair, Riverside, October 10-15.
- San Francisco Livestock Show, October 18-22.
- California Horsebreeders Association, Los Angeles, October 18-22.
- Indio Date Festival, Indio, October 18-22.
- Imperial Valley Fair, October 23-28.
- Orange and Olive Festival, Oroville, November 28-December 2.
- COAST AND GENERAL
- National Foreign Trade Convention, Philadelphia, May 10-12.
- Plant Quarantine Conference, Washington, D. C.
- Rose Festival, Portland, Oregon, June 7-9.
- Southwest Washington Fair, Chehalis-Centralia, August 28-September 2.
- Interstate Fair, Spokane, Washington, September 4-9.
- Washington State Fair, Yakima, September 18-23.
- Oregon State Fair, Salem, September 25-30.
- Arizona State Fair, Phoenix, October 30-November 3.

COMMON NAMES OF USEFUL CHEMICALS

It sometimes happens that a chemical name is given to some commodity that the farmer is advised to purchase. Under its imposing title he wonders what it is, but really the substance is perfectly well known to him by its common name. Nobody goes to the paint shop and asks for two-pennyworth of sodium chloride when he wants common salt, and most of us have learned that methylated spirits are pure alcohol with 10 per cent poisonous methylated or wood spirit added for commercial purposes and to protect the revenue. Still there are many other common substances which are veiled under scientific names. Here are a few, the first name in each case being the common name and the second the chemical name:
Alum, potassium aluminium sulphate; ammonia, ammonium hydrate; baking soda, hydrogen sodium carbonate; bluestone, copper sulphate; borax, sodium biborate; carbolic acid, phenol; caustic soda, sodium hydroxide; chalk, calcium carbonate; chloride of lime, calcium chloride and hypochlorite; common salt, sodium chloride; cream of tartar, potassium tartrate; epsom salts, magnesium sulphate; glycerine, glycerol; laughing gas, nitrous oxide; litharge, lead oxide; liver of sulphur, potassium sulphide; oil of vitriol, sulphuric acid; pearlslash, potassium carbonate; slaked lime, calcium hydroxide; spirits of salts, hydrochloric or muriatic acid; stone lime, calcium carbonate; sugar of lead, lead acetate; sulphate of ammonia, ammonium sulphate; verdigris, basic copper acetate; vinegar, acetic acid; washing soda, sodium carbonate; white lead, basic lead carbonate; white vitriol, zinc sulphate.

Farceur, generally rated as the greatest Belgian stallion ever owned in America and one of the greatest ever produced within the breed, died last month at the home of his owner, C. G. Good, Ogdon, Iowa. Farceur will

be remembered as winning the Belgian championship at the Panama-Pacific Exposition. Later he was sold to Mr. Good for the record breaking price of \$47,500. He was foaled in 1910 and was sired by Bayard de Ruyan and his dam was Lisa de Ruyan.

POTATO SELECTION

In Circular 46 of the Utah agricultural college, entitled "Thirty Years of Agricultural Experiments in Utah," the most interesting record is one of seed potato selection. In the trial all strains were eliminated whose progeny for three to five years did not yield up to a specified standard. As a result of such seed selection this strain has produced for the past six years a yield more than 60 per cent greater than the unselected seed from the same original stock. The precise figures were 307 and 190 bushels, respectively, per acre. The selected strain set 18 per cent more potatoes to the hill, and the average size of the tubers was 24 per cent larger than in the unselected check lot. In every way the selected seed was more vigorous and common diseases and other troubles less apparent.

OPPORTUNITY FOR SOUTH AFRICA

The Fruit Growers' Exchange announces that cable advices received direct from New York indicate that California citrus growers have suffered a 50 per cent loss to their crops by frost. This will materially affect the price for South African exports of citrus during the coming season, as it was known that heavy shipments of Californian citrus were expected to arrive on the European markets. Letter advices dated from Liverpool on February 28 give the following results of citrus sales: Valencia cases containing 300 oranges, 13s. 6d. to 14s.; cases containing 360, 11s. to 13s. 3d.; cases containing 504, 13s. to 14s.; cases of Jaffa oranges, containing 144 fruits, made from 17s. to 27s. per box, according to condition. The whole of the Valencia fruit is therefore failing to realize the prices which are required to cover the cost.—Farmers Weekly of Bloemfontein, So. Africa.

THE ANDES BERRY

In the November, 1921, issue of the Journal of Heredity, Wilson Popenoe, plant explorer, has an interesting article on the Andes berry, Rubus glaucus, a berry which has about a midway "make-up" between the raspberry and the blackberry. Though growing from Guatemala far to the south, it reaches its best development and greatest appreciation in Ecuador. There it is found in gardens as well as in the mountain wilds.

Throughout its extensive range it is found from 4,000 to 10,000 foot altitude and in a great variety of soils. It is generally of very rank growth everywhere. The fruits vary much, especially as to color and flavor. In Ecuador there are three varieties distinguished by color; maroon, light red, and pink. Nowhere does it grow in the region of frosts, and plants sent to Washington, D. C. were winter killed. Its range in this country is therefore limited to California, Arizona, New Mexico and parts of Texas. It may not prove the equal of our best berries, under cultural care, but if not, Mr. Popenoe believes it will prove of great value to the plant breeder in development of new or better varieties, or both.

FREQUENT IRRIGATION TO SET BOLLS OF PIMA

The number of bolls set during July and August largely determines the size of the crop of Pima cotton in the Salt River Valley of Arizona. Experiments conducted by the United States department of agriculture indicate that effort should be made to stimulate the setting of fruit to the fullest extent during the summer months, especially in areas visited by relatively early frosts. It was found that this could be effected by irrigating soon after the first flower buds begin to form and at frequent intervals thereafter.

A professional paper on the Water-Stress Behavior of Pima Cotton in Arizona, by C. J. King, has been is-

sued as United States Department of Agriculture Bulletin No. 1018, and is available upon application to Department of Agriculture, Washington, D. C.

COOPERATIVE MARKETING OF GRAIN

The grain growers of Imperial County have decided to join the California Farm Bureau Exchange and market their grain cooperatively through the grain department of that organization. Over 50 per cent of the grain acreage in Imperial County has been signed up to date and the campaign is going rapidly forward.

The total acreage signed up in the state as reported May 13 was 174,315 acres. This represents only a portion of the grain from eight counties where the campaign has been put on to date. Arrangements will be made to carry the campaign into other grain growing counties and it is expected that 300,000 acres will be signed up before the grain is harvested.

SYRUP FROM BEETS

A process, developed by the bureau of plant industry, U. S. department of agriculture, consists essentially in extracting the juice from thin slices of washed and trimmed beets by heating at 80 degrees centigrade for an hour in sufficient water to prevent access of air, straining the extract to remove suspended material, heating it in an autoclave or pressure cooker at from 108 to 110 degrees for one hour, during which time steam is blown off at 15 minute intervals, straining the extract again, and finally evaporating it to a syrup. Successful results have also been obtained by heating to 110 or 112 degrees for one hour with constant blowing-off of steam. The objectionable odor and flavor of ordinary beet syrup are said to be eliminated by this process, the resulting product being very palatable, although possessing a flavor quite different from other syrups.

In the experimental work reported, the yield from 100 pounds of beets averaged slightly over two quarts of syrup for a single extraction and one quart for a second. With beets at seven dollars per ton the cost of the material would thus amount to only 35 cents for a yield of three quarts. The method is thought to be admirably suited to the preparation of beet syrup in homes provided with ordinary pressure cookers.

MULCH FOR PINEAPPLES

According to a paper read by A. T. Longley, at the annual meeting of the Hawaiian Pineapple Packers' Association, experiments have shown that the use of mulching paper materially increases pineapple production per acre. The idea of a paper mulch for sugar cane was patented some years ago, but no experiments with pineapples were conducted until 1919. It is estimated that there are now 461 acres planted in paper, of which 68 acres will fruit in 1922.

The paper mulch appears to consist of a strip of paper in which are cut holes large enough for the pineapple plants to grow through. The first yields from the method were obtained last year, and according to Mr. Longley it was found that the plants in paper grew uniformly larger, greener, and more healthy, and the fruit larger (equal to a little over 3 1/2 tons per acre) and better conditioned. The paper mulch prevents the growth of weeds and the packing of the soil under heavy rains, thus greatly reducing the cost of intercultivation. In an experiment at the Hawaiian Pineapple Association's experiment station the plant growth on paper mulch was three times greater in weight and much healthier than on other plots.

WEATHER REPORT

San Francisco, Cal., May 27, 1922.				
Stations	Rainfall		Temp.	
	Week	Season Norm	Max.	Min.
Eureka	.08	34.58	44.66	70 42
Red Bluff	.00	16.62	24.45	90 46
Sacramento	T	14.04	19.87	86 46
San Francisco	T	19.65	22.02	82 49
San Jose	.00	14.76	16.63	86 40
Fresno	.00	10.70	9.50	92 46
San Luis Obispo	.00	23.26	20.30	82 46
Los Angeles	.00	19.65	15.53	80 54
San Diego	.00	18.63	9.94	70 52

And Now, Profit in Farming Without the Drudgery

A century ago our grandfathers replaced oxen with horses. Today, a far greater change is taking place. Mechanical power now supersedes the horse!

THE power-farmer of today presents a striking figure, a living symbol of the new agricultural era—the era of Fordson Farming. Now, with mechanical power he accomplishes in *days* what formerly required weeks—sometimes months of labor. His crops are bigger, his profits greater, his time for pleasure doubled. And, what is perhaps the greatest reward, the toil, the slavery, the drudgery of old-fashioned farming is rapidly passing.

This remarkable advance in farming methods is made possible by the perfect combination of the Fordson and the Standard Equipment specially designed to be used with it.

In developing this line of Standard Equipment, the manufacturers have provided economy of first cost and economy of operation that is such an outstanding feature in Fordson Farming.

During the time the Fordson was being perfected, the Oliver No. 7 Plow was undergoing its exacting tests. So, when the Fordson tractor was completed the Oliver No. 7 became its plowing partner.

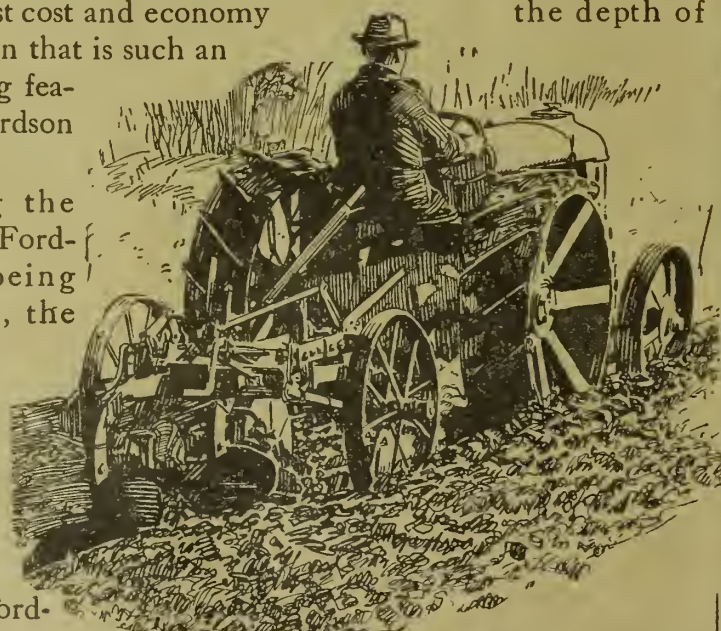
The plow is so constructed that the center line of draft is

in perfect alignment with the center line of draft on the tractor. This scientific alignment avoids side draft, and the plow turns a clean furrow. Nor is there any loss of power.

The Oliver No. 7 is so light running that there is no stress on the tractor. No effort is required by the operator to do the most thorough plowing.

Every unnecessary part has been eliminated. Strength that means long life is built in every detail. Steel parts are heat treated and castings are of tested strength.

To adjust the depth of plowing is merely a matter of working a lever to operate a jack. This jack arrangement—which is an exclusive Oliver feature—gives such a purchase on the lift that it is extremely easy to change the depth of



Oliver No. 7—the plowing partner of the Fordson

the bottoms without stopping or without even slowing down.

The power lift is tripped by simply touching a lever that is



Oliver Single Bottom Sulky
For deep mouldboard plowing in trashy conditions with the Fordson. Similar in construction to world famous No. 7 gang.



Special Oliver Orchard Plow
Fordson orchard plowing is done thoroughly with the Oliver special orchard gang. Branches and trunks are not injured.



Roderick Lean Automatic Harrow
Fitting the seed bed the Fordson way with the Roderick Lean Automatic Tractor Disc—a special Fordson Harrow.



Roderick Lean Orchard Harrow
Orchard discing with Fordson speed with gangs set in or extended with the Roderick Lean Automatic Orchard Disc.



Good Work With Roller Pulverizer
Final Fitting of the seed bed with Fordson power and the roller pulverizer has meant more bushels for many farmers.



The Amsco Tractor Drill
Tractors speed and accuracy utilized by the Fordson owner with the Amsco special drill. Force feed makes positive planting.



The Amsco Two-Row Cultivator
Cultivating corn is easy for the Fordson farmer with the Amsco Cultivator—special for the Fordson. Made for hard work.



Money-Maker Ensilage Cutter
Fordson silo filling with the Money-Maker done quickly and cheaply. Strength and scientific design give perfect work.



The Money-Maker Hay Press
Baling hay with the Fordson and Money-Maker baler is an important operation to the farmer with large hay acreage.



Wood Bros. Individual Thresher
The Wood Individual Humming Bird Threshing and Fordson make short work of threshing. All grain is saved.

so conveniently placed that the operator need not turn his head.

Sixty-five years of plow building experience is one good reason why the No. 7 is built so well that it has been known

from the beginning as Standard Plow Equipment with the Fordson. The long, profitable service built into the plow as a result of that experience is your assurance of plowing satisfaction the Fordson way.

Ford Dealers Everywhere Sell Standard Fordson Equipment

CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

June 10, 1922

No. 23

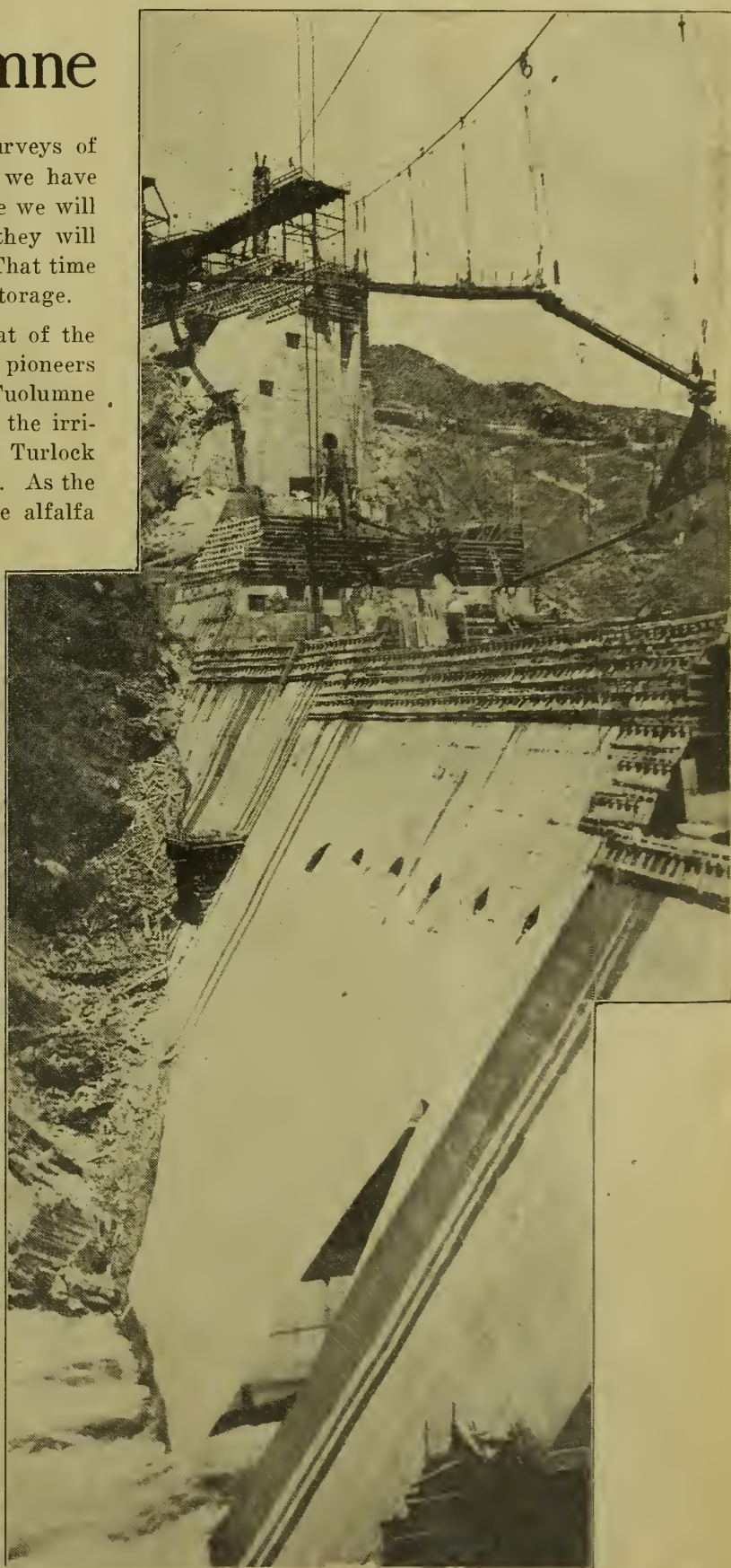
Don Pedro Dam on Tuolumne

AT the present moment there are being made investigations and surveys of almost every nook and corner of the Sierra Nevada. For years we have dreamed of the wealth there going to waste and said: "Sometime we will conserve these waters; we will put them on the land which needs them, they will turn our machinery, lessen our labor, give light and heat in our homes." That time is here; we are actually and actively engaged in providing the means of storage.

This illustration shows one of the projects now under way. It is that of the Turlock and Modesto irrigation districts. These two districts have been pioneers in making use of the waters of the mountains. They went up on the Tuolumne above La Grange and built a diversion dam which has given to them all the irrigation water they needed early in the season. This dam supplied to the Turlock irrigation district some 50,000 acre feet and to the Modesto district, 35,000. As the days lengthened and the snows of the mountains in part disappeared the alfalfa and other fields were left in need of more water. Surveys were made, and some 10 miles above the La Grange dam an excellent site offered itself at what is now known as the Don Pedro dam. The gorge is very narrow and is of solid rock. The storage basin behind is not as large as desired. However, it has a capacity of 250,000 acre feet. This storage was secured by building the dam to a height of 286 feet, but as bed rock was at the bottom of the river no deep excavation through quicksand was necessary. The cost of the dam will be about \$3,750,000, this exclusive of the power house which will cost with its equipment practically another million dollars.

It is some ten months since the work was begun on this great structure. A hint of the method of operation may be had by studying the photograph taken on May 26 with the Cultivator camera. First glance at the extreme lower left of the picture and the method of handling the waters of the river, some 13,000 second-feet. Before dam construction was begun at all, in the midsummer of 1921, a wooden dam was built some hundred feet above the upper edge of the dam. A flume from that dam carried the waters down stream and passed the lower edge of the dam to be built. This left the bed rock at the bottom of the stream entirely dry, and after it was cleared of sand and debris the concrete was placed under the flume, carried up on either side and on above, forming the steep-like opening entirely through the dam. Besides that opening there are six others, three of which may be observed just beyond the main part of the stream. These openings are supplied with gates and are only for emergency purposes. After midsummer when the waters subside so that the six circular openings will carry them all the long opening will be entirely closed with solid concrete and the floods of 1923 may then be held back. After passing through the power house the waters are released into the bed of the stream again and are not diverted into the irrigation canals until they reach the La Grange diversion dam.

The mixers for the concrete are in a large building to the left of the extreme upper left corner of the picture. Running from that to the platform at the top is a track on which cars run which carry the mixed concrete to the great conveyor which is seen supported by cables from the one larger cable running across the canyon. (Continued on Page 631.)



Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877,
Combined with California Cultivator, 1914.
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Frank J. Ironmonger, Pres. and Manager
J. H. Yetter, V.-Pres. and Adv. Manager
W. R. Wood, Sec. and Treasurer

C. B. Messenger, Editor.
Ernest Branton, Associate.
Wm. R. Wood, Associate
R. A. Condee, Livestock Editor.
Jack Klein, Livestock Field Editor.
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Regular Contributors

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Saturday, June 10, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against
loss through dishonesty of any advertiser
in the Cultivator. We do not attempt,
however, to adjust trifling differences
between subscribers and honest, respon-
sible advertisers, nor will we pay the
debts of honest bankrupts. Notice of
complaint must be sent us within 30 days
from date of the transaction, and the
subscriber must have mentioned the Cul-
tivator when writing the advertiser.

If among the more than 40,000
Cultivator's weekly circula-
tion any fail to find any article they de-
sire to purchase advertised in the Cul-
tivator's columns, a special request is
extended to let your wants be known to
the California Cultivator and we will
place you in touch with proper parties.

EDITORIAL ETTES

The illustration on the cover
speaks for itself. It records the build-
ing of a monument which will per-
petuate the memory of an enterpris-
ing, home loving people in that sec-
tion of the great San Joaquin Valley
known as the Turlock-Modesto irri-
gation districts. The lands of these
districts are mostly in Stanislaus
County, a few acres lapping over into
Merced.

* * *

These acres are not of such abun-
dant richness that they exceed all
other acres of California for there are
some which run "a bit light," others
which run "a bit heavy," in other words,
an all-around California average.
But Stanislaus County energy has re-
sulted in bringing from the mountains
the springtime waters which have
given to alfalfa, melon, sweet potato
and other fields power to produce
wonderfully. Not content with these
springtime waters the farmers have
said, "Let us store and secure more
abundant harvests." So the Don
Pedro dam is building, and an addi-
tional 250,000 acre-feet of water will

be conserved and will add to Cal-
ifornia's greatness.

* * *

The ant like figures which appear
in different portions of the construc-
tion work illustrated on the cover are
human beings, in fact, there were
nearly 300 men busy in the various
building operations of the dam as this
picture was taken.

* * *

Sutter County Peach Day proved
most successful from the queen of the
peaches down to the smallest young-
ster. There were no peaches served
excepting those which had already
been placed in cans. In fact, the can-
ning peach and how to make it better
and bigger was the topic of the day
and the real reason for the event.
Sutter County made one big success
of her peach growers' contest last
year and declared the coming year's
successes will far surpass last year's
effort.

ALMOND EXCHANGE WINS

The California Almond Growers
Exchange will operate under the new
five year contract with larger member-
ship, larger acreage than ever. Tele-
grams are being sent out to agents
authorizing them to take subject-to-ap-
proval business for 1922. Reorganiza-
tion was determined upon at the June
1 meeting at San Francisco. Manager
Tucker writes that it will be a "bigger,
stronger and better organization than
ever."

RESOLUTIONS ON JAPANESE

Discussion of the everlasting
fight necessary on insect pests and
fungus diseases which cost Californi-
ans millions was suspended for a
moment in the series of conferences
and conventions held in Sacramento
last week when Senator Inman ap-
peared and asked privilege of a few
words in regard to alien ownership of
lands which is inimical to the best
interests of the people of California.
Senator Inman made strong appeal
for justice and asked Eastern attend-
ants at the conferences to make care-
ful investigation of the blighting ef-
fect which follows occupancy of Cal-
ifornia lands by the Japanese. Fol-
lowing Senator Inman's appeal the
following resolution was unanimously
passed:

"Whereas, recent developments
have demonstrated that Japanese
farmers in the West are rapidly gain-
ing a strangle-hold on the agricultural
industry and by reason of a lower
standard of living are underselling
American farmers and thereby under-
mining this basic industry, and
whereas,

"A continuance of this deplorable
situation will either result in driving
white farmers from the land or in
lowering the American standard of
living to make competition possible,
and whereas,

"Local and state legislation has thus
far proven inadequate to deal with
this acute problem,

"Now, therefore, be it resolved,
that it is the sense of this body rep-
resenting the 11 Western states most
vitaly affected by this menace, that
the federal government take cogniz-
ance of the situation and that legis-
lation be enacted to alleviate these
conditions.

"Be it further resolved, that copies
of this resolution be sent to the pres-
ident of the United States and to all
congressmen representing the 11
Western states."

ALIEN LAND LAW UPHELD

Californians are more hopeful
since the recent decision of the Uni-
ted States circuit court when Judge
Morrow ruled that "California's alien
land law violates no provision of the
constitution of the United States nor

does it conflict with the treaty be-
tween the United States and Japan."
This decision was unanimously con-
curred in by all of the three judges.

The case was one in which an
American owner of stock in the Mer-
ced Farm Company sought to transfer
his stock to a Japanese subject. At-
torney-General Webb secured an in-
junction preventing the transfer. The
Japanese carried the matter to the dis-
trict court, contending that the Amer-
ican constitution and the treaty with
Japan guaranteed to them the right of
purchase.

IT'S TIME TO BEGIN

It's none too early to begin pre-
paration for a hot reception for Jack
Frost. It is yet six months before he
may be knocking at our doors, but
they will be a busy six months for
manufacturers of frost fighting equip-
ment, and the early order gets the
heaters, the tanks, the lighters, the
oil supply, or the wind engine or what
ever has to do with raising tempera-
ture. The Covina chamber of com-
merce, whose committee is one of the
most active in the field, is still push-
ing its investigations and has made
the following preliminary report.

"First—That from our investigations
we believe there are two, possibly
more, well defined principles that have
prospects of better frost-prevention
methods.

"(a) The wind machines, or what
we call the 'windjammers,' to be
operated with and without heat, but
all more or less in the experimental
stage, with the exception of one,
known as the Cobb device, he having
one machine in operation in Lind-
say, Tulare County, for the past three
years, and in this year's operation the
grower claims to have saved 80 per
cent of his crop—at least he has ship-
ped this much, while his neighbors'
were frozen. We have checked up his
statement and find it is correct.

"(b) Heat generating plants, the
heat to be generated by furnace and
blowers from a central plant, also
acetylene generator plant, the heat
to be distributed to each tree by
means of underground or surface
pipes. These various plans are also
largely in an experimental stage,
none having been in actual use. The
Bell plan is now in process of con-
struction in Pomona and will shortly
be ready for operation.

"We are not ready at this time to
make any recommendation and wish
you to consider this as informa-
tive rather than as final. Our future
work will be investigational as well
as experimental and we may from
time to time call upon your body as
individuals to cooperate with and
aid us in putting in some experimental
plant which we might feel would be
for the community good."

WATER RIGHTS ON COLORADO

The supreme court of the United
States has acted in the matter
of settling water rights or filings
on the Colorado River. Cultivator
readers may recall that this paper has
referred to the attitude of the dele-
gates from Colorado and Montana
who were attending the hearings be-
fore Secretary Fall a few months ago.
Both Colorado and Montana insisted
that all the waters within the bound-
aries of those states and all the hy-
dro-electric possibilities were entirely
the property and under the control of
those states. To bolster up that claim
old time state sovereignty arguments
were brought forth and presented at
the hearings referred to and also be-
fore the League of the Southwest.
On Monday the supreme court ren-
dered its decision, and amongst the
findings as reported by the Los An-
geles Times are:

"First—That as between two states
recognizing the law of water power
appropriation, prior appropriation in

time governs. In other words, which
ever state first appropriated power
rights of the water flowing through
two or more states recognizing the
law of power appropriation had the
senior and prior right to such power.

"Second—That all power rights of
such a river as the Colorado not yet
appropriated by the respective state
remain within the federal power and
jurisdiction.

"Third—The contention of Colorado
that it as a state was entitled to all
the power and water that fell within
the state and found its way into the
river was untenable and therefore dis-
allowed by the court.

"Fourth—The contention of Colorado
that the productivity of the acre in
Colorado with the use of acre feet of
water was greater than an acre of
land under the same conditions in
Wyoming was found by the court to
be without merit and was disallowed
on the ground that the citizens of
Wyoming were allowed in law the same
right to production per acre as in
Colorado, and the contention of bette-
use on the part of Colorado would no
be fair in the distribution of water."

JOINT STOCK LAND BANKS

Pacific Coast farmers will now
find greater opportunity to use their
credit in financing farm operations, or
at least they soon will be able to, for
the entire length of the coast is to
have a large number of joint stock
banks which will work in harmony
with the federal farm loan bank. The
farm loan bank loans only on real
estate security for a long time. The
joint stock land bank on the other
hand also handles short time paper and
will deal with cattlemen and others at
a rate of interest only slightly above
the farm loan banks. These banks
will deal directly with the farmers for
no association or other intermediary
is required. Some of the coast's lar-
gest capitalists and banking institu-
tions are uniting in capitalizing these
stock banks.

STANISLAUS BANKERS ENCOUR- AGE BETTER DAIRYING

In an effort to impress upon dairy
men of Stanislaus County the neces-
sity for better methods, the Stanislaus
County Bankers' Association has adop-
ted resolutions urging their members
to show their customers who are en-
gaged in the dairy business that the
time is close at hand when it will be
practically impossible to secure a loan
on a herd from any bank unless the
owner is a member of a cow testing
association and has a pure bred bull.

Under the resolutions bankers are
urged to:

Assist the dairy department of the
farm bureau in calling special meet-
ings of the dairymen to discuss in-
creased production by elimination of
the unprofitable cows, and better feed-
ing methods.

Aid the dairy department in get-
ting signatures to cow testing con-
tracts.

Loan money to members of cow
testing associations for purchase of
pure bred sires out of dams with good
yearly records.

Adopt the new system of dairy loans
based on dairy value of cows, as fol-
lows:

Untested cows—one-half to three-
fourths beef value.

Tested cows—Not to exceed \$50 a
cow.

Insist that land owners insert a
clause in leases requiring lessee to
test his cows monthly during term of
the lease, and to keep pure bred sire
with herd during his tenure on the
land.

The First National bank at Victor-
ville, San Bernardino County, has in-
stalled radio apparatus to receive mar-
ket reports, concerts, etc.

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Los Angeles, June 10, 1922

One Dollar Yearly



THE 21st annual convention of the State Association of County Mutual Fire Insurance Companies recently held at Turlock, Stanislaus County, discussed matters of general interest to mutual fire insurance people but centered most strongly on one subject which concerns every property owner in California. This was Fire Prevention. It was discussed by the chief of the Modesto fire department, representatives of large public utility corporations and by members of the association. The appeal was made to be more careful with camp fires, cigarette stubs and pipes, matches, shot guns, oil, gasoline and gas in the home, chimney and general building construction, and everywhere that thoughtfulness may overcome or at least reduce losses.

Secretary John A. Orr said:

"A fire which destroys a home is a terrible thing. Think of it for a moment! You have a comfortable home, some one is careless or negligent, it takes fire and in 20 minutes what was once a comfortable home is a pile of ashes with here and there a broken cook stove, the remains of a bedstead and a burned and unsightly bath tub. What a change to take place in 20 minutes!

"A vast amount of data has been gathered by various fire prevention agencies, from which we learn that 90 per cent of the fires are the result of neglect or carelessness. So nearly every time there is a fire some one has been careless or negligent. Somewhere over the United States a fire breaks out every minute of every day throughout the year. Enough buildings are destroyed annually to house

Fire Prevention Discussed

By C. B. Messenger

a city of 10,000 people and supply it with schools, churches, theaters, hospitals and other public buildings. Fifteen thousand lives are lost annually through fires. One and one-half million dollars worth of property is burned every day. Five school houses burn every day. Sixty-five per cent of the fires are in homes. The fire waste for a period of five years would build the Panama canal four times over. The fire loss in the United States for 1920 was five hundred and five million dollars or a per capita of five dollars. In 1919 our per capita fire loss was \$3.13, while for about the same period, that of Russia was \$1.16, England 61 cents, France 55 cents, Austria 37 cents, Germany 25 cents.

"Now when we think of the terrible havoc which fire works all about us we come to wonder if these fires can't somehow be prevented. How can this be done? If fires are caused through carelessness, let's be careful, careful about matches careful about burning grass, careful about where we put our ashes, careful to see that there are no dry leaves collected on the roof, careful to clean up the dry grass about the buildings. What would you do first in case of a fire in your home? Had you ever thought about that? Do you have something that you could turn to immediately to use in putting out the fire? If we work together we can do great things toward preventing fires."

In addition Mr. Orr described an educational fire prevention campaign in Stanislaus County high schools. A fund was divided into various purses and prizes were offered to high school pupils for the best paper on fire prevention in the home. The first winner in this contest was George James of the Hughson high school. We hope we may quote this prize winner and others who competed, in later issues of the Cultivator.

The subject next in interest was reinsurance. Reinsurance, which has been made possible by enactment of the last state legislature, has wonderfully strengthened cooperative mutual insurance. It enables the local company to carry any amount of insurance permitted under the state insurance laws, providing it is protected by reinsurance in other mutual insurance companies. Formerly the limit was \$4,500. Under the new law one company which has secured sufficient reserve may carry \$6,000 without reinsurance, but many companies are not taking advantage of that feature and others are carrying above \$4,500 only on written consent of some of the members of the board of directors. This form of insurance has proven absolutely satisfactory and, as noted, has strengthened these companies. Discussion at the state convention had to do only with working details. Two separate committees have been at work in planning these details, one

with members from companies near Stockton and the other representing Southern California companies. Details worked out in each case were almost identical.

Legislation having to do with mutual fire insurance was considered at some length and a strong legislative or law committee appointed to watch after mutual interests. Within the state organization there are two members of California's assembly in the persons of George W. Ashley of San Joaquin County and Assemblyman Smith of Santa Barbara County. Another supporter of cooperation who can be counted on in California's assembly is Assemblywoman Esto Broughton of Modesto. She addressed the insurance people at the banquet held in Prescott Community Hall near Modesto the last evening of the convention.

There were, by the way, two of these banquets, or dinners, tendered the convention delegates. The one on Thursday evening, May 25, was at Hilmar, Merced County, by the members of the Hilmar Mutual Fire Insurance Company of Merced County, Inc.; the other, near Modesto, by the Farmers Mutual Fire Insurance Company of Turlock. The Turlock company, especially its president, W. M. Way, and its secretary, John A. Orr, did some magnificent work in looking after the comfort of the delegates.

The officers elected for the coming year are: President, Bern Barger, Hemet; vice-president, J. E. Copeland, Riverside; secretary-treasurer, L. P. Hathaway, Ventura; delegate to national convention, Dean Johnston, Santa Ana. The next annual meeting will be held in May, 1923, in Riverside, County.

Quarantine and Other Conferences at Sacramento



THE week beginning Monday, May 29, and ending Saturday, June 3, was the great convention week at Sacramento. It had many of the marks of a state fruit growers convention week though there were few of California fruit growers in attendance. The most far reaching event of the week was the quarantine hearing of the federal horticultural board and the hearing of the bureau of markets on standardization. Other features of the week were: Semi-annual state convention of the county horticultural commissioners; meeting of the western plant quarantine board; the perfecting of a new organization made up of state agricultural officials of the western and coast states; and state fertilizer control hearings. Then to give a rousing closing to the week the California State Association of Nurserymen held its 12th annual convention.

To give anything like a complete account of any one of these conventions is beyond the capacity of any paper. We may, however, touch the high spots.

Horticultural Commissioners

The week began on time, almost to the minute, when President Ryan of the county commissioners called for order at 11 o'clock Monday morning. The first session was largely given up to appointment of committees and routine business. The chief guests of the commissioners were L. O. Howard, chief of the bureau of entomology, and Dr. C. L. Marlatt, chairman of the federal horticultural board. Other entomologists, pathologists and specialists from Washington were in attendance. The one "big kick" some commissioners secured out of the week's work was "the phylloxera question"; others, the "standardization question." The phylloxera question had its warmest session when the commissioners met with the nurserymen late in the week. It then developed that the commissioners were not united as to best method of phylloxera control. The southerners were rather inclined to draw the line at the

Editorial Correspondence

Tehachapi. The northerners were, some of them, in favor of a regulation which would permit shipping from a phylloxera free county regardless of which end of the state was entirely free. Other commissioners asked for a showing of hands of those commissioners who would guarantee any counties in the state as absolutely free from phylloxera. Then the nurserymen took the boards and proved that they were not a unit in expressing their wishes, so the question was left more or less open.

As to shipping point inspection there was one hot time in room 118 of the state capitol. The room was not overly large; there was not a single window and no outside door. It was filled with officials representing 11 western states anxious to secure agreement with federal inspectors as to just how fullest cooperation could be secured between state and federal officials.

The discussion was long and the mental temperature compared with the weather which prevailed in Sacramento, especially in room 118 at that particular moment. Miles Cannon, commissioner of agriculture of Idaho, led in a stiff fight on the federal bureau of markets because the bureau presumed to join in the inspection-at-point-of-shipment campaign. Lloyd S. Tenny, assistant chief of the bureau of markets, replied that the bureau would not under any circumstances join in inspection where it was not wanted. Any state which wished to do its own inspection was entirely competent to do so and only those which wished the added advantage of federal inspection would be served. However, Mr. Cannon and representatives from Washington and Montana stood pat and voted for the maintenance of state sovereignty and action on the part of the state officials absolutely independent of the federal bureau.

In the matter of shipping point inspection, Geo. W. Ashley presented the following signed by himself and Frank B. McKevitt and Geo. Cutter:

Whereas: An act of congress effective July 1, 1922, which act definitely

authorizes the bureau of markets and crop estimates to make carlot inspections at shipping point and issue certificates thereof, said certificates being prima facie evidence in any court in the United States, and whereas, we believe this inspection will be more closely in touch with the fruit interests if accomplished through the local state inspection service, thus retaining both as to grades, packages and trade identify the local color, said service to be accredited with authority and under the general supervision of the bureau of markets and crop estimates, therefore be it resolved that we, a committee from the California Growers and Shippers Protective League, representing some 30,000 cars of inter-state deciduous fruit shipments, believe that such inspection, made upon the request of, and the reasonable fee therefor, paid by, a party at interest, will be of untold value to all concerned, and we further recommend that a treaty agreement be made and entered into as between the department of agriculture at Washington, D. C. and the proper departments of the various states interested for the purpose of putting into effect this plan.

Western Directors of Agriculture

This bringing together of commissioners and directors of agriculture from the 11 western states resulted in the completing of a permanent organization. The field to be covered will be much larger than that covered by the western plant quarantine board. In outlining the work possible for such an organization Mr. Hecke said in part:

"For sometime we in California have had a feeling that we had no particular part to play in the national association of state marketing officials other than helping them wherever possible by our friendly cooperation. After consulting with certain of the other Western directors and commissioners of agriculture, I found that the same feeling existed in other

states and the need for a smaller and more compact organization of state departments representing entirely the interests of the Pacific slope became so apparent that this organization meeting was called.

"It is a well known fact that we have reached in the history of our agricultural industry a period when organized action is necessary. In an era of big business the efforts of the individual are not always successful, but through organizations of producers of shippers, of distributors, and even of departments of agriculture, whether they be cooperative or purely for profit, large results have been forthcoming.

"The necessity for an agricultural organization among the states comprising the great Far West is more apparent than ever before. An almost complete collapse in the machinery of distribution and marketing occurred in 1921. Vast supplies of staples were sold at prices far below the costs of production, while the prices of articles the farmer has to buy have remained so high proportionately as to strike a staggering blow at his prosperity. There are, of course, exceptions to this condition, and none of the exceptions were more apparent than those that existed among the organized producers of the Far West. The splendid distributing agencies, both cooperative and otherwise, of California, the Northwest, Idaho and other Western states have proved their stability and worth beyond a shadow of doubt. It is this lesson of organization that should stand out as a beacon of encouragement, pointing the way toward which the thought of the American farmer, banker, and business man should be directed.

It is just as necessary that uniform quarantine regulations be established for the livestock work as for the fruit and vegetable industry. I think that this is a matter to which special attention should be given by this organization and I would suggest an appointment of a committee to consider animal industry and livestock problems, with a view to incorporating

(Continued on Page 639.)

Agricultural News Notes of the Pacific Coast

Northern California

Petaluma shipped 744 cars of eggs to eastern markets in 1921.

Vacaville will ship about 950 cars of deciduous fruit this season.

Santa Rosa reports \$125 a ton being offered for black wine grapes.

Petaluma chamber of commerce is making plans for celebration of its annual Egg Day.

Sun Maid Raisin Growers will build packing plant at Yuba City to handle Thompson Seedless.

The Days of '49 have cleared the clothes out of all the old trunks in Northern California.

The Livermore Valley reports better than normal crop of grain, barley looking exceptionally well.

California alien land law is upheld by decision of the United States circuit court of appeals.

The California Growers Association estimates the state's cherry crop at not more than half normal.

Colfax reports some damage to plums from snowfall early in May through breaking of trees.

Horticultural Commissioner Norton of Nevada County reports fruit five weeks later than the normal season.

The California Cherry Growers Association has fixed price of Royal Anne canning cherries at \$9.20 per hundred pounds.

Grain farmers of Livermore Valley gathered at Livermore, June 3, to discuss the California Farm Bureau Grain Exchange marketing plan.

A tractor is being used by the state highway commission to break a road through the snow between Strawberry and Meyers Station on the Tahoe road.

Fifty delegates from Modoc County attended the good roads meet at Winnemucca, Nevada, June 9-10 in the interests of a northern transcontinental highway.

Canners will take most of the Santa Clara Valley cherry crop so it is estimated that shipments of the fresh fruit from San Jose will not total more than 120 cars.

Fruit shippers of Placer County have agreed to adopt the Los Angeles lug for bulk packing of plums; for cherries, the Pioneer lug, three inches deep, holding 14 pounds.

Sonoma Pomona Grange at its last meeting passed resolution calling for federal legislation to control immigration of Japanese who now "lease control one-eighth of the irrigated lands of the state."

To meet the demand for trained men for positions with California's farm cooperative organizations the state college of agriculture has established a new major line of work designated rural social economics.

At the California Grape Growers meeting held in San Francisco, June 8, it was reported that the estimated wine grape tonnage this year is 350,000. Last year 17,000 carloads of grapes were shipped from California.

The Stockmens Protective Association has appointed a committee to confer with Alameda County supervisors on means of carrying on fire protection work this summer. Lack of county funds to carry on the work after June 30 creates a serious situation.

Central California

Monterey Pomona Grange picnicked at Sherwood Park, Salinas, May 27.

The Big Oak Flat road to Yosemite was opened to automobiles, June 1.

The Modesto chamber of commerce reports inquiry for rye straw, \$40 per ton offered.

A grain elevator is being built at Salinas by the Farm Bureau Elevator Corporation.

The county highway between Ben Lomond and Boulder Creek has been opened to travel.

Thousands of acres of grain in Tulare Lake bed are flooded by waters from Kings River.

Tuolumne County has completed its share of the work on the detour around the old Sonora road.

The Modesto branch of the state employment bureau was opened, May 24. D. W. Reidy is in charge.

A three day agricultural fair will be held at Oakdale, Stanislaus County, the latter part of September.

Oakdale creamery patrons are receiving four to five cents more for butterfat than at this time last year.

Dairymen about Crows Landing have signed up over a thousand cows in the Stanislaus County cow testing association.

Santa Cruz County farm bureau picnicked at New Brighton Park, May 27. The park is half way between Soquel and Aptos.

Proponents of the state water and power act met at Modesto, May 27 to form a country organization to campaign for its passage.

Formation of an irrigation district in the Owens Valley is being discussed by the Owens Valley Protective Association, farm bureau and other interested organizations.

Stanislaus County supervisors have ordered construction of concrete highways from Westley to the Stanislaus-San Joaquin County line and from Newman to Hills Ferry.

The California Peach and Fig Growers has joined with other organizations in protesting against the proposed senate amendment giving jurisdiction over railroads wholly within states to state regulatory boards.

Apple shippers of the Pajaro Valley are watching the box shoo situation. Strikes in mills in the northern part of the state and in Oregon are making for serious shortage. Resort to barrel pack is even suggested.

West Side ranchers at a meeting of the newly organized Fire Protection Association at Newman elected Geo. Delaney, president; C. D. Price, secretary. The association is asking appointment of a deputy fire warden for Stanislaus County.

The 21st Annual Convention of County Mutual Fire Insurance Companies met at Turlock, May 26. C. B. Messenger, editor of the California Cultivator and president of a Los Angeles County Mutual, talked on "Mutual Insurance Publicity."

Horticultural Commissioner Hickman of Monterey County gives warning of danger of poisoning from wild lupine. He says that owing to late season there is unusually large percentage of matured lupine in hay fields and care should be taken to cut around it.

Southern California

Aphis are a serious pest in many citrus groves this season.

Fallbrook, San Diego County, has voted to form a water district.

The Mutual Insurance Associations will convene next year at Riverside.

Construction work is humming on the 40 miles between Banning and Indio.

Lytle Creek Canyon road is open after several weeks of reconstruction work.

The Date Growers' Association is planning to build a packing plant at Brawley.

Cantaloupe shipments from Imperial Valley are expected to reach 15,000 carloads this season.

First figs from Indio sold at \$2 a pound in Los Angeles to the Southern Pacific dining service.

Proposition is again advanced to bring waters of Arrowhead Lake into the San Bernardino valley.

First carload of cantaloupes left El Centro, May 30; last year two carloads left the valley, May 21.

A paved county highway between Thermal and Mecca is to be built. Bids will be opened June 26.

E. C. Merryfield, manager of the Highgrove Orange Growers Association, died suddenly last week.

The Ontario-Upland Rabbit Association held a show at Ontario last week. 500 rabbits and covies were shown.

Rialto Packing Company reports average return of \$5.87 per 100 on all grades and sizes of Navels shipped in March pool.

Two days poultry culling demonstrations were given in Imperial Valley this week by Prof. Newlon of the state university.

Close of the season pool on Navels and odd varieties is marked by Rialto Orange and Lemon Association by sending out checks for \$175,000.

San Bernardino County farm bureau picnicked at Sylvan Park, May 27. Sports occupied the forenoon, agricultural discussion the afternoon.

A strong delegation from towns and farming districts of Southern California has gone to Washington to urge building by the government of Boulder Canyon dam.

Chas. L. Van Wert of Palo Verde has been chosen to succeed W. J. Burton as director of the Palo Verde joint levee district of Riverside and Imperial Counties.

Valencia shipping season will practically end at Rialto the middle of the month. The Brogdex paraffine coating of fruit has been satisfactorily tried out on 100 carloads.

The Covina chamber of commerce committee on orchard heating plans reports "prospects for better frost prevention methods" in wind machines and central heating plants.

Work has begun on building high power electric line to the site of the proposed Warner's dam in San Diego County. 1000 horsepower will be required in construction work.

Dr. L. O. Howard of the U. S. bureau of entomology is making inspection of pest control work in San Diego, Imperial and Coachella Valleys. He is accompanied by Harry S. Smith of the state department.

The Coast and General

"Buy at Home Week" was observed in Arizona, May 22-27.

Oregon Interstate Fair will be held at Prineville, October 4-7.

Early tomatoes are on the market from the Yuma district of Arizona.

A carload of onions was shipped to Denver last week from Phoenix, Arizona.

The Salt River Valley of Arizona shipped its first carload of apricots, May 29.

Washington has expended \$10,000,000 on highway construction in the past two years.

Whatcom County, Washington, berry growers have organized a marketing association.

Salt River Valley of Arizona reports a large crop of apricots, fruit now coming on the market.

A southern Idaho wool pool sold 1,000,000 pounds to a St. Louis company at an average of 30 cents.

The Tillamook, Oregon, cow testing association starts its 14th year with 2300 cows on test for 110 members.

Hood River Valley, Oregon, will increase its strawberry yield 20 per cent over last year, which was 85,000 packed crates.

Plans are being made to hold a state poultrymens convention at the Oregon Agricultural College at Corvallis, August 1-3.

A second dam is to be built across the Gila at Sacaton, Arizona. An 18 foot highway will cross the dam which is to be 1260 feet long.

Forest and brush fires in western Washington have partially destroyed the town of Cedar Falls, burned over much land and caused loss of thousands of dollars.

Over 1,000 acres have been signed up by Gadsden, Arizona, farmers for lettuce planting. Somerton, Yuma and Bard are also going into lettuce growing extensively.

In the interests of cooperative marketing a big barbecue meet was held at the state fair grounds at Phoenix, June 1. Grain growers problems principally were considered.

Orchardists at Nampa, Idaho, report successful frost fighting by means of smudges of baled straw. One end of the bale is dampened and it is claimed it will burn from 24 to 30 hours.

The railroad committee of the Washington Woolgrowers' Association has secured a reduction in rates to and from summer grazing grounds, approximately the rate in force last year.

The Bonneville County, Idaho, Potato Growers' Association has 150 members who will plant 3,500 acres of potatoes this year. An eastern firm has contracted for the entire yield.

Farmers living near Rexburg, Idaho, telegraphed protest to Washington against "discrimination in favor of big cattle and sheep interests in distribution of loans from the war finance board."

At the National Holstein-Friesian Convention and sale at Kansas City, June 5-10, 24 booths were arranged by the federal department of agriculture to demonstrate need of improving dairy cattle.

ROP prospects on drying peaches indicate that a good crop will be harvested this season. Trees are in excellent condition and except for a few scattered sections, spring frosts have done very little damage.

Thinning of the fruit is now being practiced by many growers in order to increase the size and the quality of that left on the trees. The tonnage of dried peaches on hand is small, the crop being practically cleaned up in most of the plants belonging to the association.

Statistics show that the tonnage of dried peaches in California has not materially increased during the past ten years. The older orchards are being displaced by vineyards in some sections as the peach tree is normally regarded as short lived. The new orchards are being planted to a small extent in some sections, but not in acreages which will materially affect the total tonnage for the state. Prospects for dried peaches during the next few years, especially for the Muir, which is the standard of quality, appear to be very good.

Returns already made to the growers total seven cents a pound on dried peaches. The total returns made since 1916 to growers are: 1916, 6 cents; 1917, 8.32 cents; 1918, 11 cents; 1919, 14.88 cents, 1920, 12.03 cents.

The cumulative effects of the cold weather of last season on fig trees are just beginning to be appreciated.

Peaches and Figs

By I. J. Condit, Horticulturist, California Peach and Fig Growers

On both April 4 and November 19 last year fig trees suffered more or less seriously from unusual frosts. Both young and old trees have been more or less weakened and in many cases the bearing border and orchard trees are showing dead and dying branches. The Adriatic crop will, therefore, be somewhat reduced although no estimate of the per cent of loss can be made at this time. The Calimyrna and Mission trees in the Fresno and Tulare districts do not seem to have suffered so severely as the Adriatics.

The first crop of the Mission trees has been injured and it is doubtful whether any large quantities can be shipped fresh. The first crop Kadota figs are good in most sections. The caprifig crop is unusually good and an abundance of profichi figs is expected for caprification in June. Growers of Calimyrna figs are very much encouraged over the prospects of disposing of their crop fresh. The fresh fruit contract guarantees a first payment on delivery of six cents a pound minus a reasonable charge for picking and hauling expenses. Three

picking gangs are to be in the field, one in Stanislaus County to handle the Calimyrna figs from the Ceres and Modesto district, one in the Fresno district and one in the Reedley-Dinuba district. Kadota figs will be handled wherever they are available.

The association now has three canneries in operation or in process of construction, at Turlock, Figarden near Fresno and at Dinuba. It is predicted that canned figs put up in syrup will soon be as common a commodity as canned apricots, peaches or cherries, and preserved figs put up in a heavier syrup, a delicious dessert, which will be available at all grocery stores.

As with peaches, a limited amount of figs is unsold. The entire crop will be cleaned up before the new crop figs are ready for market. The recent fire at Fresno destroyed the plant in which Fig Brownies were being manufactured, but preparations are almost completed to continue the manufacturing of these Brownies at Plant Number 9, Fresno.

The directors recently authorized the following payment on account to the growers of dried figs: (in addition to the amount furnished at the time of delivery, which was three cents a pound for Adriatics and Kadotas, four cents for Calimyrnas and two and one-half cents for Black Missions), Calimyrna and Black Missions two and one-half cents a pound, Adriatic and Kadotas one and one-half cents a pound. The above advances were made on "A" and "B" grades. Later on when the figs have all been marketed a final settlement will be made in accordance with the grades delivered by each individual, in which will be included "C" grade as well.

The year's operations on canned figs have proven very satisfactory from a marketing standpoint and the quality of the cannery products under the "Purple Ribbon" brand has been highly complimented by the trade. The year's business resulted in the following net returns to the growers:

	Payment on Delivery	Final Payment	Total Payment
Calimyrna No. 1			
Stock.....	.06	.021	.081
Calimyrna No. 2			
Stock.....	.04	.032	.072
Kadotas No. 1			
Stock.....	.06	.043	.103
Kadotas No. 2			
Stock.....	.04	.0576	.0975
Calimyrna & Kadota			
Jam Stock.....	.025	.01	.035

The Farm Bloc

HE farm bloc is perhaps the most significant development in congress since the "Insurgents" in 1910 sheared Speaker Cannon of his power and laid the foundations for Colonel Roosevelt's independent candidacy two years later. The sequel to those two events was the election of Woodrow Wilson as president of the United States.

But the farm bloc differs from the incident of the "Insurgents" in several vital respects. The farm bloc is said by its leaders to be non-partisan. It is not sectional. It is not, as was the Roosevelt Independent movement, dependent upon the masterful personality of one man.

The farm bloc is essentially based upon an economic idea. That idea can be simply stated in a few words:

The farmer believes that he does not receive a large enough price for his products. He insists that what he is compelled to buy has decreased far less in price since the war than the things he sells. His contention is that he is unable to borrow money as advantageously as those engaged in other great industries.

Hence the farm bloc in congress. The bloc is not composed of farmers as there are but few real "dirt" farmers in Washington, but it comprises those congressmen mainly from the West and South who represent agricultural constituents.

The leader of the bloc and its most powerful single agent is Senator Capper of Kansas, who is not a farmer, but an editor and publisher of many farm journals. These publications are issued in several states including Pennsylvania. They have a combined circulation mounting up into many hundred thousands a week.

But few men among the 531 who make up the two branches of congress have so wide a personal following among the voters of the country as Senator Capper. Perhaps no other senator can regularly make his appeals directly to such great audiences.

There have been in the past other blocs in congress, but they were not so designated. The greatest by far was the slave bloc, which, for at least 40 years, voted on nearly all questions that came before congress in order to sway public opinion for or against slavery. That was largely a sectional bloc.

In more recent times there was the silver bloc. The actual idea behind that was to enhance the price of silver metal, but it was skillfully mixed in with elaborate theories of dual standards of value for money. It was not confined to any party, but was mostly Western.

We positively disagree with some of the conclusions reached by the writer of the following article, who is connected with the Girard Trust Company of Philadelphia. We reproduce it in order to show to producers 3,000 miles away from one of the greatest manufacturing centers of the world the mental attitude of the folks "back East." For instance, note the paragraph beginning "But the farmer," not what it says so much as its implication. It would appear that the writer is entirely ignorant of the fact that there have been prior to the "farm bloc" "financial blocs," "steel blocs" and a thousand and one other lobbying interests and because of the success of these former blocs which may have operated under different names the farmer has been compelled to maintain a lobby of his own. It is to be regretted that this has to be done. The careful reader will observe many other points wherein he will differ with the writer.

People residing in cities may feel now that they are not concerned in the farm bloc, but they are quite as directly involved in it as were all the inhabitants of our country in the final outcome of the slavery issue or in the free coinage of silver heresy.

American agriculture measured by its money value is the greatest one industry in any country on the earth. Forty out of every hundred of our population live on the soil.

Broadly speaking the American farmers produce in a year one-third of this country's wealth and create a half of all our commerce.

There are more than six million farms in the United States.

Three years ago the agricultural output of the United States reached almost to the dizzy figure of fifteen billion dollars.

Thus there came from American soil in 1919 \$150 for every inhabitant of this land. But such was the far downward sweep of prices for farm products last year that with approximately the same volume of output from the same soil as in 1919 its market value was considerably less than half.

Hence the farmer argues that with the same capital involved, or about \$12,000 on the average per farm including stock and buildings, and with the same labor expended, he received less than 50 cents in 1921 for what he had been paid a dollar two years before. Even that wide discrepancy does not measure the full adverse swing of the farmer's pendulum.

The purchasing power of the farmer's dollar has reached its lowest point in 30 years. Of course, others have also seen the value of their products greatly dwindle.

As an example may be cited The United States Steel Corporation, which is our largest manufacturer. It did a business last year of almost \$800,000,000 less than in 1920. Those who toiled for that corporation received in wages \$259,000,000 less than they were paid the year before.

But the farmer who doubtless would combat a bloc in congress which should aim to advance steel prices so that steel making profits and steel workers' wages might increase, has gone into congress to obtain legis-

lation which will directly benefit himself.

Conceding that the farmer should have every facility to borrow money on equal terms with other producers and that he is entitled to a bigger return than he now obtains from his invested capital and his hard labor, it must still be contended that he can secure greater prosperity outside of congress than in it.

In other words a farm bloc will not ultimately help agriculture nearly so much as agriculture can help itself by the process of better cooperation. This is not a simple process by any means but it has been successful in Holland and in some localities in this country and could be very widely extended here.

The agriculturist insists that he sells at buyers' prices, but that he himself buys at sellers' prices. Cooperation among farmers in selling is the sole answer to that condition. It is exactly what others have had to do.

Farming has been described often by poets and others as the one truly independent existence. The truth is that farmers have acted so independently of each other in the matter of marketing their produce, each selling regardless of time, price or conditions as suits his own purpose, that they have impoverished themselves through lack of combined action.

As a rule the American farmer is a hard worker and a first rate producer. Just as often he is a poor seller.

If our twelve million farmers and farm hands worked as intelligently to sell what they grow as they work to grow it, their profits at the end of the year would be greater by hundreds of millions of dollars.

A railroad president knows that it often requires quite as much skill to sell transportation to the shipping and traveling public as it does to produce transportation. Thus the traffic department of a railroad ranks right up in importance with the operating department. Perhaps it ought to rank above it.

Carnegie said his great forte was not as a maker of steel but a seller of steel.

The world's richest man did not become so by merely owning oil wells or by producing oil, but Rockefeller's

prodigious success came from his ability to refine and market the products of petroleum produced by others all over the world.

The United States Steel Corporation recognizing the vast value of the selling end of its business, made Mr. Farrell president of the corporation after he had demonstrated as a foreign sales agent a remarkable ability to sell steel.

The United States agricultural department and the agricultural departments of various states as well as schools of agriculture are today doing an immense work teaching American farmers how to increase their crops. The time is overripe for some education along the line of teaching farmers how to sell their agricultural output.

(The letter cites numerous instances of successful cooperative selling organizations of producers in different states with which we Californians are more or less familiar.)

Were congress to become broken up into blocs along the lines of industry or personal interest, the farm bloc would outvote any other, but it would be a calamity for the nation should such a system of blocs be established.

There are many more farmer votes in the United States than railroad votes, or coal mining votes, or steel and iron manufacturing votes, or cotton and woolen weaving votes.

But it is also true that the farmer's prosperity depends directly upon great masses of non-agricultural people to consume his produce. Whatever should impoverish the towns and cities where now dwell more than half our country's population, would instantly be reflected in a reduced buying power for what the farmer has to sell.

And therein lies the greatest danger to a bloc system for a national legislative body. A bloc is per se organized to look out for its direct and immediate interest, regardless of the welfare of others.

But nobody can raise a voice of protest if the owners of 6,000,000 farms by cooperative action, introduce economies in buying what they need or in selling what they produce.

Other industries in order to accomplish both those ends consolidate through incorporation. That farmers cannot do, but there is neither law nor sentiment against a more intelligent process of marketing farm products so that the farmer himself shall obtain a larger proportion than he now receives of what the city consumer pays for all that comes from the land.

The cost of local distribution in large cities has grown to immense proportions.

(Continued on Page 639.)

Crop insurance



HAPHAZARD farming is being rapidly put in the discard by keen agriculturists alert to the advantages of scientific methods developed largely in recent years.

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THIN FRUIT

It's already late but if peach and apricot growers act quickly many dollars may be added to the returns from the orchard by doing some vigorous thinning. It takes nerve and it takes considerable time to properly thin peaches and apricots. Apricots this year are running rather light crop and in some orchards thinning will not be necessary, but careful examination should be made.

It takes more fertility from the soil and strength from the tree to produce a pound of pits than a pound of edible fruit, so that every time a needless

scab, or other skin or meat blemishes.

"Canning peaches shall be 2 1/4 inches in diameter or larger, ripe but firm and free from fungus, scab, or other skin or meat blemishes."

Lack of proper attention to thinning has been the outstanding sin of deciduous fruit growers in years past. One cannot expect a tree which has strength enough to mature to proper size only 100 or 200 or 500 peaches or apricots, according to the size of the tree and conditions affecting it, to mature to the same size twice or three times that number of units. There is another side to thinning, too, which deserves the consideration of all growers. Trees that have borne too heavy a load of pit as compared to meat one year do not make a healthy growth of new bearing wood for the next year. The usual result of a big crop of small fruit one year is that there is a very small crop the next year. Now the important question in this connection is how far thinning can be carried without reducing the tonnage. The canners do not ask the growers to thin an orchard to the point of reducing tonnage, but they do ask and urge them to thin to the point where the fruit left on the tree will size up suitably for canning in accordance with the sizes stipulated in the above resolution.

NURSERYMEN IN CONVENTION

California nurserymen never held a more enthusiastic nor better attended meeting than that held last week at Sacramento. The attendants listened to committee reports, elected officers, transacted new business, banqueted and lunched at the Country Club, conferred with the State Association of County Horticultural Commissioners and had a royal good time.

This issue of the Cultivator is so overfilled with good things brought from the various conventions at Sacramento that a more general account of the nurserymen's convention is necessarily held over until the next issue. One of the things which will be given is an outline of the nursery business in the state of California contained in an address by Former Secretary Kruckeberg. This outline was largely taken from more extended history written by Dr. E. J. Wickson. The new secretary, C. K. Grady, proves to be an aggressive, active leader, and his work in preparing for the convention resulted in effective program from the opening moment.

AVOCADO OFFICERS

The California Avocado Association board of directors met recently and discussed reports of committees and other events of the recent convention. Director Jameson tendered his resignation as a member of the board and F. O. Popenoe was elected to fill the vacancy. The board then organized for the coming year: President, F. O. Popenoe; vice-president, Chas. D. Adams; treasurer, J. M. Elliott; secretary, Karl M. Wagner. The secretary's address is 2160 E. 7th Street, Los Angeles.



Cracked Wide Open by Frost

Trunks of bearing trees were never affected by the severe cold as they have been this year. Many trees even much older than the one appearing above had the bark split from crown to branches. In some cases the injury was so severe that the bark lifted entirely around the trunk and the tree was destroyed. There is no effective treatment; there is, however, effective prevention, and that is through orchard heating.

pit is removed the grower's wealth is increased. This principally because the canners are usually oversupplied with small sizes and too large a proportion of the fruit has to go into "pie" or "water" grades.

This year canners report all first grade stock already sold and prices cut on lower grades in order to dispose of them, so the canners have resolved that

"Canning apricots shall be of a size that will run not over 16 to the pound, ripe but firm and free from fungus,

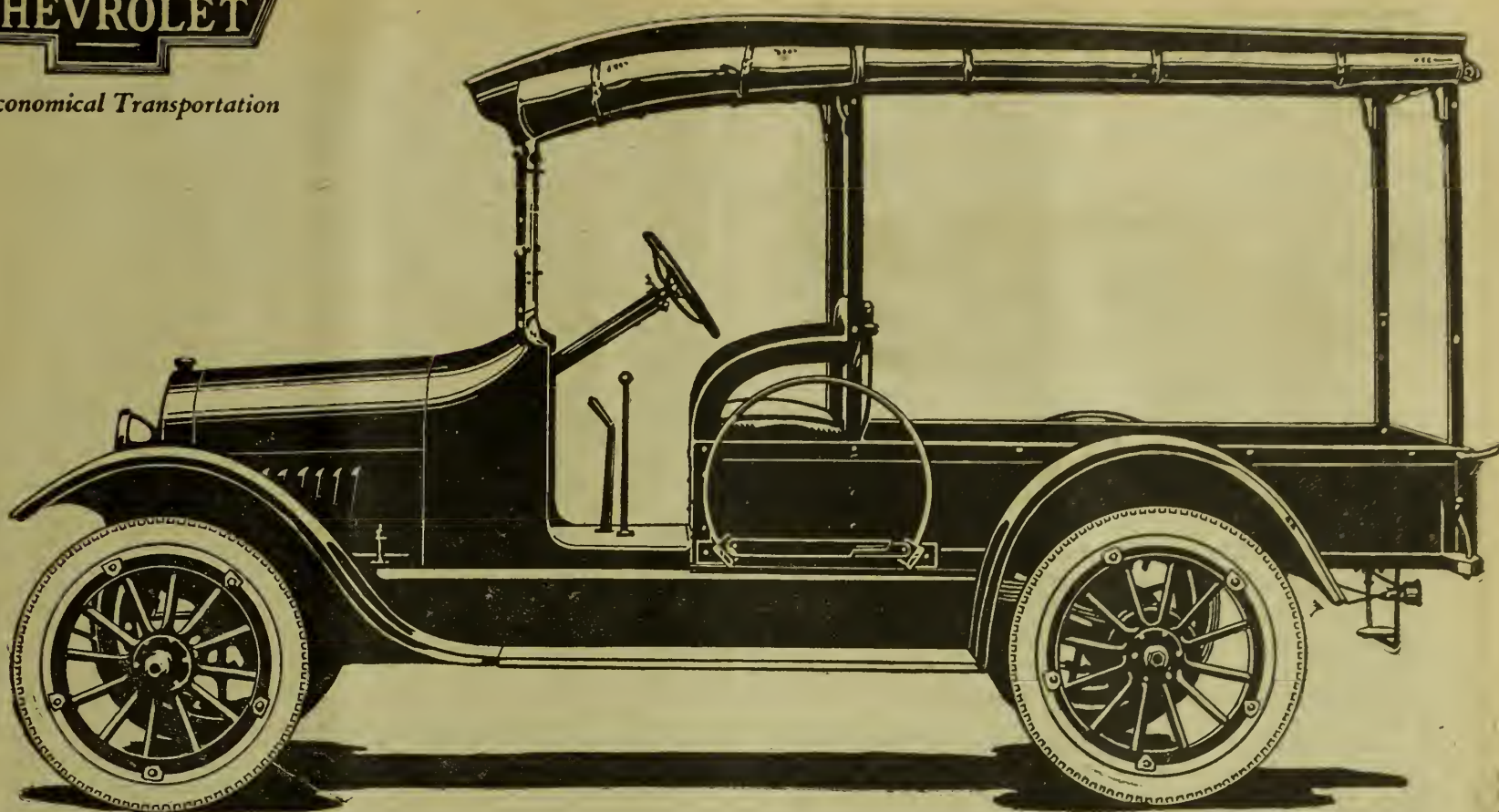


Saved by Heaters

Note fruit loading down the trees, leaves and even tender growth not touched while adjoining orchards lost fruit and even leaves. This year's campaign of frost fighting has proved as never before its efficacy.



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Standard Instrument Board, containing speedometer, ammeter, oil pressure gauge, lighting and starting switch, and choke pull.

Standard Type of Carburetor, with exhaust heater—one reason why you get most miles per gallon of gasoline with a Chevrolet.

Powerful, Valve-in-Head Motor. The same type as used in successful cars selling at much higher prices.

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Full Weather Protection—Waterproof curtains let down on sides and rear, fully protecting driver and load against rain or snow. Flexible windows in curtains.

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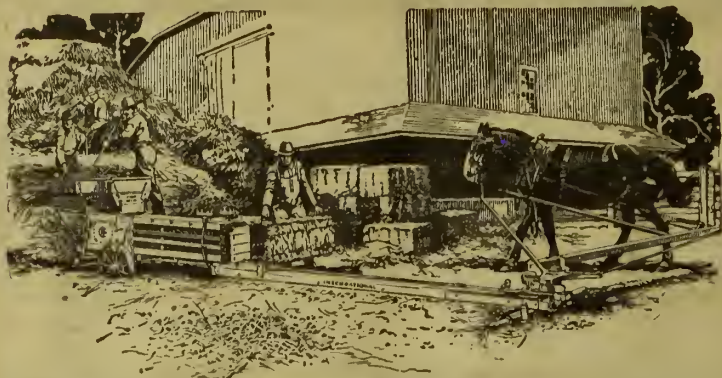
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International horse hay presses are made in four sizes, with capacities of from six to fifteen tons a day; power presses in three sizes, two of which can be furnished with 6 h. p. engine attached, with fifteen to thirty-ton capacities.

Write for catalog, and see the McCormick-Deering dealer without fail.

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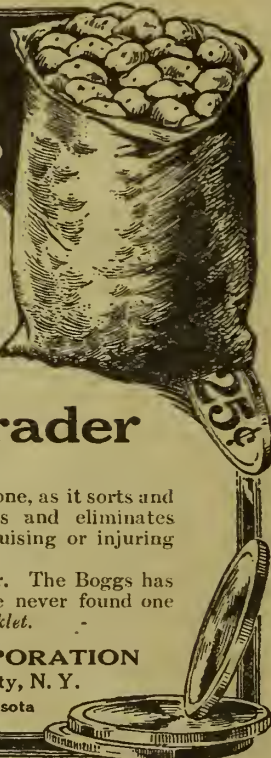
Boggs Potato Grader

The Standard Grader

will pay for itself the first season in labor saved alone, as it sorts and grades potatoes into the two Government sizes and eliminates culls and dirt in one operation. No danger of bruising or injuring potatoes.

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INTERESTING PROPOSITION FOR DEALERS

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Avocado Varieties

From Report of Committee of California Avocado Growers



IN addition to text given last week in the Cultivator special varieties were reported on at the Avocado Growers meeting at Pasadena, as follows:

Victory.—Grown at Sherman by Mrs. L. M. Chaffey. Samples of the fruit were submitted to the committee, as well as to the board of directors at an October meeting. We give the record from one fruit. Weight 18 ounces; seed three ounces; shape round; skin light green turning brown in places as it ripens, similar to the West Indian type, 1-16 inch thick, smooth and granular; flesh yellow shading to light green; quality good; flavor good. Flesh does not discolor for days after cutting. Tree 17 years old, vigorous, bearing 200 fruit in 1920, 350 in 1921.

Chidester Seedling No. 1.—Two samples were picked October 15 and sampled ten days later. Weight of one sample 13 1-2 ounces and of the seed 2 1-4 ounces, and of the other 12 ounces, seed 3 1-2 ounces; skin smooth glossy black, leathery, 1-16 inch thick; shape, pyriform; flesh smooth, bright cream yellow. No fiber and flavor good.

Clower.—The tree was furnished by Mr. Clower to Mr. Shedden and grown by Mr. Shedden at Monrovia. It has fruited for several years and produces fruit of good quality and mild and agreeable flavor.

Ward.—Grown at Sierra Madre by Irving N. Ward. Tree nine years old and has borne some fruit since its fourth year. Crop in 1920 three fruit, in 1921 two hundred. Trees budded from it three years ago were easy to bud, are vigorous and were all in bearing in 1921, averaging twelve fruit each. Weight of the fruit 12 to 16 ounces. An analysis showed oil contents 24.98. Flavor good but some samples showed some bitterness and a rather neutral flavor. This is an early spring fruit beginning to ripen in February and showed reasonable hardness last winter. A sample received January 12, weighed 12 ounces, seed two ounces. Another on February 11 showed, shape pyriform with neck one sided. Skin only 1-32 inch thick, of a dark red or purple to black color; flesh cream yellow to pronounced green; quality smooth and flavor good.

Dutton.—A large, tall, reasonably hardy tree ripening a large part of its crop during the early spring, with fruit approximately a pound in weight. On account of a change in the ownership of the tree it has been difficult to obtain samples of the fruit in good condition. Those obtained showed watery, poor flavor and discolored flesh and were not in accord with the reputation of the fruit. At last in April we received one that does, which we are glad to report. Weight 14 1-2 ounces, seed 2 1-2 ounces; tight in the cavity. Shape pyriform very slightly necked; skin dark maroon with many warts of a lighter color, 1-24 inch thick; color of flesh cream to light green, a trace of fiber, quality smooth, flavor very rich. Keeping and shipping qualities good.

Thompson.—Grown at Montebello by Miss Jessie Thompson. Some seeds sent from Atlixco, Mexico, were taken from a tree known to bear the smallest seeds compared with the size of the fruit, of any tree at Atlixco. Eighteen seeds grew and produced trees now ten years of age of which this tree is one, and produced last season 44 fruit, one other tree bore one. The remaining trees are not in bearing. The Thompson fruit justifies its parentage and is notable for its exceedingly small seed. The tree is growing in a cold location, suffered injury, and was not as hardy as a Fuerte near it. We give a test of a fruit sent us after the freeze on February 6. Evidently not a normal fruit. Shape pyriform, weight 16 1-2 ounces; seed 1 3-4 ounces, tight in the cavity; skin red purple, 1-12 inch thick; flesh light yellow to light green, some red fibre showing, quality good, flavor watery. The ripening season is stated to be February 1 to April 1.

Prince.—The tree is growing in Hollywood on the place of E. W.

Dickey. It is described as ripening its fruit in October, November and December, averaging 25 ounces in weight, seed 2 ounces; no fiber, good shipper, best in flavor. Many hundred small samples of this variety were given out to the public at our October display in Exposition Park, and ample opportunity given to judge of its fine flavor and see the fine looking fruit. A sample sent to the committee was tested on November 2. Shape pyriform; weight 21 ounces; seed 2 1-2 ounces, tight in the cavity; skin dark green with brown spots, causing it to look dark, granular, 1-16 inch thick, a trace of fiber showing dark color; quality smooth, flavor good, keeping quality good.

A few buds taken from the parent trees and top worked last summer from the Dorothea and Billingsley proved hardy in the recent freeze. Both varieties have much merit. The location of the Dorothea is in a frost free place at Hollywood. Of this kind evidence is needed to prove correct the belief of the owners that the tree is a cross between the original Miller tree, from which came the seed, with a hardy Mexican variety in the vicinity. With previous records of regular crops both the Dorothea and Billingsley had practically no crop in 1921, due no doubt to the heavy crop of the previous year. We reproduce for your information the 1920 tests:

Dorothea.—Grown by A. W. Miller, Hollywood, from a seed of the well known Miller tree and believed to be a cross from one of the Mexican race.

The tree is vigorous and productive. Crop 1918, 16 fruit, 1919, 30, 1920, 250. It blooms April and May, ripens mainly in December and January. Three samples, picked and tested in January weighed 12 ounces, 8 1-4 ounces and 8 ounces. The seed respectively one ounce, one ounce, 1 1-4 ounce. Color light green with many yellow spots, skin leathery, flesh clear attractive yellow of good mixture, no fibre and excellent flavor.

Billingsley.—A large tree on the property of Ray Billingsley, Villa Park, Orange County. A spring fruit weighing 10 to 16 ounces. Weight of three fruit samples, 10 1-2, 13 and 16 ounces. Weight of seed 1 5-8, 1 3-4 and 1 3-4. Fruit pear shape to oval. Color light yellowish green, turning partially brown. Flesh clear, bright yellow with merely a trace of fiber, quality excellent, with a good, rich and agreeably distinctive flavor. The tree was 18 years old when it bore its first crop.

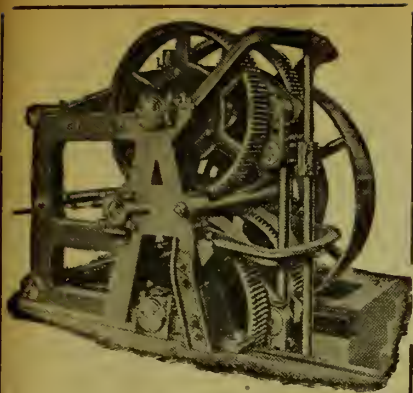
Dickey.—A spring ripening fruit, pear shaped, fine looking, red, turning to reddish purple in color, with bright clear yellow flesh, free from fiber and having one of the smallest seed known as compared with the flesh. The quality and flavor has been the very best. Because picked out of season, or for some other reason, some of the fruit sampled last year was not quite as high in flavor as before. The size in three-quarters of a pound to a pound.

Nimloh.—Sampled November 30, 1921, had a growth of the seed showing it past proper maturity; shape broad oval, rough skin with small warts, dark green in color with many yellow spots. Weight 33 ounces, seed one and one-half ounces; no fiber smooth quality, very good flavor and good keeping quality. In another sample tested the flavor was much lacking in richness.

Panchoy.—Tested December 2, 1921. Shape obovate, weight 30 ounces, seed two and eight-tenths ounces; skin dark green to purple, one-eighth to three-sixteenths thick and slightly rough; flesh yellow to green at the edge; quality very good, flavor somewhat strong on account of over ripeness. Keeping quality good.

TEACHER TRAINING COURSES IN AGRICULTURE

Special summer courses in agriculture will be given by the state university at the Davis branch, June 26-August 5. These are designed to prepare teachers of agriculture to meet certification requirements of the state board of education.



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are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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Dependable Engines for the farm

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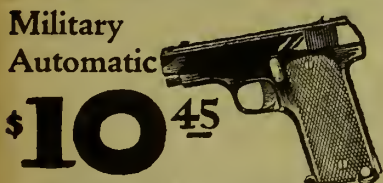
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FREE—Extra Magazine Worth \$1.50
No. D333. Most remarkable pistol value ever offered. Brand new; handsome blue steel, 32 cal. 10-shot automatic, \$22.50 value... **\$10.45**

No. D222. 25 CAL. AUTOMATIC PISTOL. Handsome blue steel. Fits pocket, 7 shot. \$15 value... **\$7.95**

Extra magazine for above, each... .80
No. D555. 45 CAL. REVOLVER. Break-open, automatic ejector, double action, range type, Nickel finish. **\$9.75**
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All guns use standard ammunition

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LIME
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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Improving County Road

Have people living on a road any legal means of compelling the county to grade and gravel it? In reply to application to the supervisors they have repeatedly stated that there are no funds.—Subscriber, Stockton.

It would seem that your only remedy would be to have a new board of supervisors elected who would provide for your road needs. It is necessary that power of this nature be vested somewhere. It is not only a question of putting in the road but of raising taxes to pay for it, and the law has vested that power with the board of supervisors. The court could not very well order the levying of taxes for putting in a road as such matters involve practical judgment, rather than judgment on the legal points.

Collecting Wages

Men are hired for two week's work. They fail to receive their pay. Then they are hired to continue the work. Part of them receive pay, part do not. What can be done?—Subscriber.

Those who do not receive pay could take the matter up with the state labor commissioner or his deputy, who is empowered to take criminal action as well as civil, or all of the members not receiving pay could assign to one member and he could bring action to collect, in which he would be entitled to receive the amount due as well as costs and attorney's fees.

Deed by Incompetent Person

Is a deed legal when signed by a sick and mentally incompetent person?—Subscriber.

The deed is valid unless proceedings are taken to set it aside. What the nature of such proceedings would be and who would be entitled to take them would depend on the circumstances of the case.

Collecting from Corporation

Two parties are in business as a corporation. They give note as part payment for goods and individually guarantee the note, waiving demand and protest. What could be done to collect upon the note, it being understood that the corporation has been dissolved?—Subscriber, Denair.

In the question there appeared to be some uncertainty as to whether it was a corporation or a partnership. If it was a corporation suit could be maintained even without the guarantee against each of the members of the corporation for that proportion of the obligation which the amount of stock owned by the party bore to the total issue of the capital stock of the corporation. If it was a partnership then action could be taken against either of the parties for the full amount of the obligation. As the note was guaranteed by each party and demand and protest waived in writing, action can be taken against either or both of the parties for the full amount of the obligation.

Support of Destitute Person

A destitute old lady has sisters and a brother, also grandchildren. Who is liable to contribute to her support?—Subscriber.

The rule of the Civil Code is to the effect that children of any poor person who is unable to maintain herself by work may be required to maintain her to the extent of their ability. This does not seem to cover the case here, but there is a provision to the effect that the county or city and county may recover sums paid for the support of such person from the relatives. It would doubtless be necessary for you to take such matter up with the district attorney of your county.

Division of Property

My brother died recently, leaving property. There is a widow but no



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"The gasoline of quality" is 100% POWER. It is refined to vaporize thoroughly. Every atom of it mixes in the carburetor with from 12 to 16 times its volume of air for POWER. With "Red Crown" you get ready starting—rapid acceleration—greater mileage—a continuous stream of power.

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Write for Catalog and Prices
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Manufacturer to Grower Heaters from 40¢ up.

Heater recommended by the Growers' Committee and approved by the Fruit Growers' Supply Co.



Buying direct from us cuts out all dealers' and middlemen's profits. The immense orders placed with us by the Fruit Growers' Supply Co., further increase our volume and help reduce manufacturing costs. This brings heaters down to bedrock prices.

We are manufacturing the orchard heater recommended by the Growers' Committee and approved by the Fruit Growers' Supply Co.

Growers Using Our Heaters Saved Their Crops This Winter.

You buy the maximum of frost protection with our proven heaters. Can you afford to take chances? Write us or get in touch with local agents for

Demonstration at Your Grove

Orders will be delivered in the order received, so place yours at once and be certain of delivery in time for sure protection.



**Orchard Heater
Department
AMERICAN CAN CO.**
*532 Consolidated
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LOS ANGELES*



will. Is it necessary to have administration of the estate, and what division would be made of the property?—Subscriber, Tejuanga.

Administration of the estate undoubtedly would be necessary. The division would depend upon the nature of the property. If the property or any part was community property the wife would be entitled to receive one-half; in case there are children the remainder of the estate would be divided two-thirds to the children and one-third to the surviving wife, or if there is only one child, one-half to the child and one-half to the surviving wife. In case there are no children, one-half to the surviving wife and the remaining one-half to the decedent's father and mother in equal shares, or if either is dead then the whole of said one-half to the other, and in case of pre-decease of both father and mother then one-half goes in equal shares to the brothers and sisters of the decedent.

and to the children and grandchildren of any deceased brother or sister by right of representation.

Ran Over Lease

I rented land for cattle and when my term of lease was up it took ten days to find them. The land owner now wants pay for the time they were there after the lease.—Subscriber, Winters.

If you leased the land for a definite period of time you should have gathered your cattle together so as to vacate the land at the expiration of the lease. Not having done so the owner is entitled to receive the additional pay.

Unsigned Question

If inquirer at San Gabriel who asks about cavies will send name and address we will take up the matter.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

New Zealand Reds

Would you please write a brief history of the New Zealand Red rabbit.—Subscriber, Acampo.

To write a history of the New Zealand is to profess to be wise and to provoke much discussion. Some breeders profess to have bought from sailors in San Francisco harbor rabbits brought by them from New Zealand ports. They were then a dirty white with a red tinge, black hairs mixed in the back and hind quarters, white bars on front feet and much black lacing on ears, large white circles around eyes. A Scotchman also claims to have raised them when a boy and they then called them the "Sandy rabbit" on account of color. But be that as it may we Western fanciers have taken them and by line breeding and expert judgment perfected the beautiful Red New Zealand of today. As with the Red so with the white New Zealand. Many claim to be the originators, but they are Albino sports from the Reds. The writer has a nice lot of them and his first pair of which he still has the buck were litter brother and sister from line bred Red New Zealand. There is no variety of rabbits today that for meat, fur and fancy can beat the Red or White New Zealand, no matter what their origin, so we must take them as they are and be content.—W. D. W.

Canker in the Ear

Answering subscriber at Burbank who asks for treatment for canker in dog's ear S. R. Symonds writes:

"We raise Fox terriers and can say this that olive oil will cure canker in the ear. Slightly warm the oil and put one-half teaspoon in the ear twice a day."

Having had recent experience of the same trouble and found a successful remedy I am anxious to give information regarding same. Get some Aromatic Chlorazene powder and drop a tiny pinch, or what one could hold on the point of a penknife, into the ear about twice a week, using no other treatment. Three or four treatments with the Chlorazene will be sufficient to complete a cure.—Mrs. Dorothy Rambo, Sebastopol.

Comphorated oil will slick the ear out with one application for rabbits. I believe it will do so with dogs. Six to ten drops.—Subscriber, Loma Linda.

Sergeant's canker wash will cure the dog, no matter how bad the ear is. If subscriber cannot get this locally any wholesale druggist in city would have it.—Mrs. M. H. Warfield, Corning.

Sulphuring Grapes

Will you please tell me if sulphur hurts vines just before they bloom? Last year bunches had different sized grapes, some claim due to sulphuring at the wrong time.—Subscriber, Ontario.

Sulphuring grapes during the bloom-

ing period should not affect setting of fruit. In fact, many people believe that sulphuring during the bloom is advantageous, the theory being that the sulphur slightly dries the pollen, thus making it more easily distributed by the wind. Poor set of fruit may be caused by a number of things, among them being rapid changes in weather at or during the blooming period, improper irrigation, or weakness of the variety. The Muscat, for instance, is notorious for poor setting.—F. K. H.

Poisoning Rabbits

Would like to know how to save young grape vines from rabbits without fencing. How can I poison them?—Subscriber, Cucamonga.

As the green grass disappears the rabbits are very fond of watermelon rinds, pieces of apple or other bait, which may be poisoned with strychnine. The formula for poison grain, recommended for squirrels and rabbits is: Barley (clean grain), 16 quarts; strychnine (powdered alkaloid), one ounce; bicarbonate of soda (baking soda), 1 ounce; thin starch paste, $\frac{3}{4}$ pint; heavy corn syrup, $\frac{1}{4}$ pint; glycerin, 1 tablespoon; saccharin, 1-10 ounce. Mix thoroughly 1 ounce of powdered strychnine and 1 ounce of common baking soda. Sift this into $\frac{3}{4}$ pint of thin, hot starch paste and stir to a smooth, creamy mass. (The starch paste is made by dissolving 1 heaping tablespoon of dry gloss starch in a little cold water which is then added to $\frac{3}{4}$ pint of boiling water; boil and stir constantly until a clear thin paste is formed.) Add $\frac{1}{4}$ pint of heavy corn syrup and 1 tablespoon of glycerin and stir thoroughly. Add 1-10 ounce of saccharin and stir thoroughly. Pour this mixture over 16 quarts of clean barley and mix well so that each grain is coated.

Drying Figs

Would like to know how figs are dried as I have four or five trees.—Subscriber, Mayfield.

Mission figs are dried on trays in the sun. No further treatment is generally necessary. The second crop of the Adriatic and Smyrna is the only one of sufficient size and importance to be of value for drying. The limp and partly dried figs drop naturally or are lightly shaken from the tree and are picked up within three or four days since an inferior product results from too long exposure to the effects of sun, dust and insects. The figs are spread on trays after which the Adriatics are sulphured to bleach the skin and improve the appearance. Sulphuring in lug boxes is often practiced but does not give as uniform or as good results as on trays. Smyrnas which are properly handled should not require sulphuring. Adriatics are dried in direct sunlight from one to three days depending upon the heat and humidity, while Smyrnas are best dried by stacking the trays one above the other so as to allow free circulation of the air between. Over-dried figs become tough, woody and inferior. After sorting out the bird pecked and split fruit, the figs are dumped from the trays into perforated boxes or containers, washed for 20 minutes in cold water containing four ounces of salt to the gallon of water, and again

You Can Use Universal Brand Sprays With Confidence

Universal Brand Sprays are specially made to save citrus groves from Red Spider, Citricola and Black Scale. Everywhere trees have been sprayed with Universal Brand products these destructive pests have been promptly controlled.

Here is the spray you should use now. It will clean your groves, and stimulate the trees so the fruit will mature earlier.

B. T. S. 15 lbs.	per 200 gal. tank.	B. T. S. 12 lbs.
TRIUMPH 1 1/2 to 2 1/2 gals.		TRIUMPH 1 gal.
K-SEEN GLUE 1 lb.		K-SEEN GLUE 1 lb.
(for citricola and black scale)		(for red spiders)

(patented formulas)

4 Gals. Lime Sulphur Solution can be substituted for the above B. T. S. dosage.

The economy of Universal Brand Sprays is not realized only in the crops that are saved and bettered, but also in the purchase price. Our prices have always been consistently low.

Be sure to call on Mr. Herbert, our assistant entomologist, if you have a special problem regarding your grove. He can be found at our Los Angeles office.

**Insecticide Department
BALFOUR, GUTHRIE & COMPANY**

Paul R. Jones, Entomologist

Los Angeles
H. W. HELLMAN BLDG.

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BALFOUR BUILDING

Riveted Steel WATER and WELL PIPE



PRESSURE, IRRIGATION AND DOMESTIC WATER MAINS
NON-CORROSIVE COVERING

Extra Covering for Pipe Lines Laid in Alkali Soils or Soils Impregnated with Acids

Oil, Water and Wagon Tanks—General Sheet Steel Work

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spread out for a final drying of half a day in the sun. They are then placed in piles on a clean floor or in sweat boxes, where they are allowed to go through a sweat for about two weeks, being turned with a shovel two or three times during that interval. Sweating equalizes the moisture and gives the product a better texture. The figs can then be stored for packing, to prevent infestation by insects.

Japanese Pear Stock

I have eight acres in two year old pear trees on Japanese pear root. Since planting these I have been told that the pears on Japanese root will not thrive on heavy, damp ground, that in a course of three to five years they will commence to die. Can you give me any information in regard to them?—Subscriber, San Jose.

We do not think you have any cause for alarm. Japanese roots are considered as good as any and adapt themselves to as great a variety of soils as any pear stock used in California. It is also as resistant to pear blight as any.

Potato Disease

Last year my potatoes had some kind of a disease and I did not know what to do and I fear it will come again. They simply withered and dried when they were half grown. Please tell me what to do for them.—Subscriber, Nevada City.

This is no doubt rhizoctonia and nothing can be done to growing crop to alleviate trouble as it is carried by the tubers. The control lies in dipping the seed potatoes, if dormant, in a solution of formalin, one pound to 30 gallons of water. If sprouted, the formalin may injure the sprouts, therefore dip in corrosive sublimate, four ounces to 30 gallons of water. With either dip allow the potatoes to soak one and a half hours.

Tomatoes Damping Off

Would you please tell me what is the matter with my tomatoes and what to do for them. They were set out two weeks ago where tomatoes have never been grown before on nice new ground. After they were planted about three days there was a slight frost. The plants looked real nice and green when planted. At first they turn yellow and the stems turn pale and wilt and die. They also have little black bugs on them but they just seem to eat the leaves. These same bugs eat up the turnip leaves also. But I do not believe these bugs have anything to do with the tomatoes dying. Could they have had too much water when set out? The roots were nice and large when planted.—Subscriber, Carlotta.

Your plants are merely "damping off," caused by a fungus for which there is no help in the field, and it is a difficult trouble to control at any time. It is much more common in the seedbed and seldom extends to the field. Cold weather with too much water are the contributing causes. Drying out the soil is the remedy and sprinkling air slaked lime on the surface will hasten the drying. Some claim sprinkling with sulphur will aid, but if so the action is dependent on dry heat. A weak Bordeaux mixture, three pounds of lime, three pounds of bluestone and 50 gallons of water, may be sprayed over plants and soil. It is unusual for damping off to occur where tomatoes have not grown before. If very bad let plants go and start in new place, preferably where soil has been turned over and thoroughly dried.

Rose Troubles

Will you please have the enclosed rose leaves examined. You will see the eggs around the edge. The leaves wilt and the flowers do not mature. A reply in your valued paper will be greatly appreciated.—J. W. H., Anaheim.

A careful examination reveals no disease except slight discoloration by black spot, which is controlled by sulphur. No eggs are in evidence and if present must have dried with the leaves, which were very dry when received. The grayish appearance of the leaves suggested red spider and the eggs may have been present. Sulphur will also get rid of the spider, but gardeners control it by daily morning or evening spraying of bushes with water from the garden hose.



General View of Don Pedro Dam

This was taken April 11, and work at the present moment has been carried well up the canyon side, almost to the tower supporting the cable across the canyon. The old miners flume built some 60 years ago is shown on the left bank of the stream. It is rumored that as a youngster John Hayes Hammond did some of his first engineering on this flume. It is now carrying some 66 second-feet of water. Its usefulness will be destroyed when the dam is completed. This photo was taken by L. S. Brooks who has been connected with the drafting and more important work on the dam since its earliest beginnings.

DON PEDRO DAM.

(Continued from Cover.)

This conveyor is easily swung over a distance of several hundred feet.

To operate the various valves, controlling outlets for water for irrigation, for power purposes or for safety, there are chambers and corridors running through the entire structure. These halls and stairways aggregate in length about three-fourths of a mile. Near the center of the picture may be seen a slanting wooden tube which will be surrounded by concrete, and later form one of the stairways. The spillway is around the farther end of the dam.

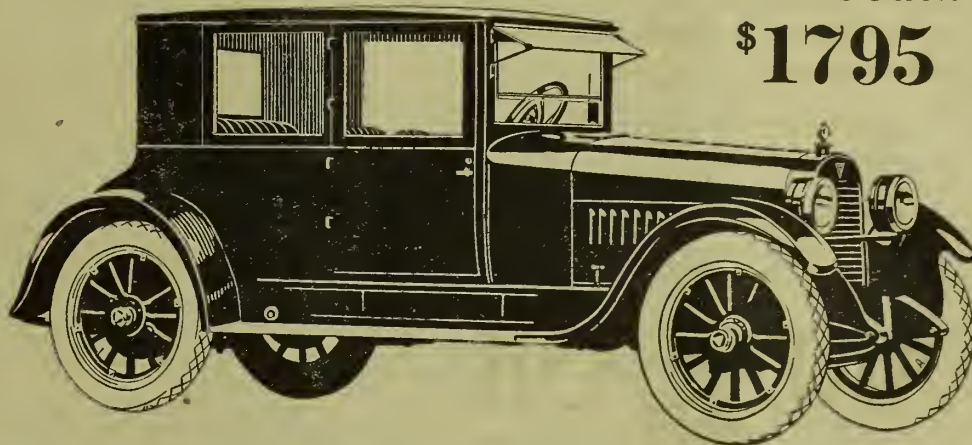
It is a wonderful structure and an inspiration. Especially should it inspire the rest of us to closer cooperation in saving the flood waters which are now wasting and tearing fertile lands.

RAILROAD WAGE CUT

Following ten per cent freight cut announced a few days ago comes news of a 13.2 per cent cut in wages of approximately 400,000 railway employees. The cut is effective July 1 by decision of U. S. Railway Labor Board.

HUDSON

The Coach
\$1795



Has the Wonderful New Hudson Motor

This beautiful closed car is the most attractive value ever offered by Hudson.

See how fully it meets your closed car requirements at a saving of perhaps \$800 to \$1500. Think of a closed car on the famous Super-Six chassis, for \$1795.

Hudson's Greatest Value

It is less than 6 per cent above the cost of the Hudson open models. It is the lowest differential between open and closed cars ever attained.

It is a sensational achievement in car manufacture.

And now it adds a new and greater motor. Even Hudson owners marvel at the change. Performance is wholly altered—smoother, quieter, more reliable.

Order Now to Insure Prompt Delivery

The Coach is certain to be the most popular type Hudson ever built. Be sure to see it and take a ride. It is just out. Early deliveries will be possible only for those who place their orders at once.

Phaeton \$1695 7-Pass. Phaeton \$1745 Coach \$1795 Cabriolet \$2295 Coupe \$2570 Sedan \$2650. Freight and Tax Extra.

(5120)

HUDSON MOTOR CAR COMPANY, DETROIT



Preserving time— and a cool kitchen.

Make canning time a real pleasure this year by using a good oil cook-stove. It concentrates a steady, controlled heat directly under the utensil. Your task is shortened and your kitchen is kept cool, clean and comfortable.

To insure best results, use only Pearl Oil—the clean-burning, uniform kerosene—refined and re-refined by a special process.

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AND LIGHT



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OIL
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LOOK
FOR THE
RATTLE CAP

Makes Ants
Disappear

NEVER
FAILS

AT ALL
DRUGGISTS



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Household Department

THE FLAG

(Flag Day, June 14.)

There's no coward stripe upon it,
And no shame is written on it,
All the blood that's in its crimson
Is the blood of manhood true;
There's no base and brutal glory
Woven sadly in its story,
It's a bright flag, and a right flag
And the flag for you and me.

It's a flag without a fetter;
It's the flag of manhood better;
It has never done a mean thing,
Never waved about a brute;
Greed and hate it never snielded,
Unto wrong it never yielded,
It's a fine flag, a divine flag
That in reverence we salute.

It's the flag of all the glory
That is written in man's story;
It's the emblem of his freedom
And the hope of men oppressed;
It asks no disgraceful duty,
Never stains with shame its beauty,
It's a pure flag, and a sure flag,
It is our flag and the best.
—The American Boy.

THE LOST CARD

By Clara Peterson

DANNIE DICK had been left alone with grandma. He and mother had been visiting at grandma's old stone house for a week so this quiet afternoon when Dannie asked for another story, grandma just laughed and shook her silvery head and said:

"Dannie, I have told you every story I can remember. This time you will have to tell me exactly what kind of a story to tell and what to tell it about. Perhaps if you help me enough I can think of one."

Dannie began to walk around the big room. He meant to find something to make into a story. He went right past the spinning wheel for he knew all about that. He went past the angel painting too. He even passed the rack of old time swords and guns for he had heard four stories about them. He stopped before the little cabinet which stood in the corner and had bright panes of glass for doors.

"I am sure there must be something here I haven't heard about," said Dannie to himself, and he bent down and looked way back on the bottom shelf.

Sure enough, there was a plain black box, not very large and not very small.

Grandma nodded when Dannie asked whether he might take it out, and very carefully he carried the box over to where grandma sat between the windows with sunlight and yellow jonquils shining all around her.

She lifted the cover. There was nothing at all in that fine black box except a smaller box of shiny yellowed pasteboard. The pasteboard box was empty and it was creased and bent and torn. Across the top of it in golden letters was written the word "candy."

Grandma leaned back and closed her eyes and Dannie Dick knew that she had thought of a story without any help at all.

"Once long, long ago, Dannie Dick, your grandma was a funny fat little girl with curls she hated to have brushed just as baby sister does now. One day in June that funny fat little girl got out of bed with a hop, skip and jump and danced and sang until her mother and father said that it really made them dizzy to look at her. Do you know why she was so happy? Because it was her birthday and her best friend was coming over and there was a most enormous cake with five candles.

"That night the table was set with the very best buttercup dishes and the cake stood in the very center of it on the loveliest lacy doily and the little girl friend in her best white dress came knocking at the door but the funny fat little girl whose birthday it was, wasn't anywhere to be found.

"Her mother looked and called. Her father came in and he looked and called too. He had brought a guest for supper, a tall, thin man with eyes that smiled and a mouth that was sad. Pretty soon everyone grew worried and the father put on his hat and said, 'I shall go and look until I find her.'

"But just then there was the sound of a great many little feet on the front veranda, and the door flew open and the funny fat little girl bounced in carrying a baby, quite a thin, sorry

looking little baby. Behind them came other children of different sizes like the schoolhouse steps; three boys with faces not very clean and old, old clothes, and two big eyed little girls who tried to hide behind their brothers.

"The funny fat little girl began to talk, 'Oh, mother, what do you think? These are the new Smith children down the street and they've come to my party. I'm so glad. I just ran to the corner to see whether father was coming and I stopped to pick their baby out of the mud for he was crawling away, right into the road. Then we all got acquainted and you'd never guess the rest! Not one of them has ever had a birthday cake so their mother said they might come and eat some of mine.'

"Then what a bustle there was. The funny fat little girl's mother got five extra chairs and a high chair for the baby and she made all the children laugh with the funny things she said. And pretty soon everyone sat down. I don't think anyone, Dannie Dick, ever ate a better supper than that. The funny fat little girl was so happy that she kept looking up and smiling into the eyes of the tall thin man who had been placed next to her.

"'You have such a hard name to remember,' said the funny fat little girl.

"'Yes, it is hard for a tiny tot like you,' said the man, and smiled. 'It is Abraham Lincoln.'

"After the cake had been eaten, even every crumb of the lemon frosting, the children went out into the yard and began to swing for it wasn't quite dark, and the two men took a little walk. They got back just as the Smith children were leaving.

"'We hurried,' said the tall thin man. 'I wanted all of the children to have a bite.'

"He handed a box to the funny fat little girl; this box, Dannie Dick, only it was white and shining then. She opened it. There were ever and ever so many pieces of candy, twisted molasses candy, the kind that tastes like butter and spice. All of the Smith children went home chewing as hard as they could.

"As for the funny fat little girl she was very happy. There was something that was all her own. She had found a card in the cover of the box, a square white card with something written on it,

To Deborah Wood, a little girl who is kind, from Abraham Lincoln.

"Down in the corner of the card was something so cunning, Dannie Dick. I wish you could have seen it, a little bird made of feathers, three feathers. I can see them now, red and green and brown. Someone had drawn a beak at the top of the feathers and little legs which stood upon a painted branch. The funny fat little girl kissed the feather bird and crooned over it. She went into the parlor, this very room, Dannie Dick, and later when she practiced her music lesson she put the precious card up beside the music. Her mother called her for a moment, and when the funny fat little girl came back the card was gone. She never saw it again."

"Oh, dear!" sighed Dannie Dick for he felt so very sorry about the card.

"Someone is knocking," said grandma opening her eyes. "Please open the door, Dannie Dick."

It was the piano tuner. He spoke very politely to grandma and walked over to the old piano. Dannie Dick watched him take it apart. Off came the front and there were the shiny steel strings, like a hundred harps thought Dannie Dick.

The man sat down and began to play "My Bonnie Lies Over the Ocean." It sounded very loud.

"Well, well!" said the man, smiling at Dannie Dick. "Here is a key which goes clickity click—and here is another. I shall have to take out the keys. Something has been nibbling at the tapes on the keys. I shouldn't wonder if we found a mouse nest."

Out came the keys. "First time they've ever been out," said the tuner, putting them down very carefully all in a row on a paper on the davenport. "And here my boy, is—"

"The mouse nest!" cried Dannie Dick.

He was standing on tiptoe and peeping down under where the keys had been. There was a great deal of old, old dust which smelled faintly musty and almost in the middle of the piano was the nest. It was round and looked just like a bird's nest except that it was loose. It was made of bits of white paper and red fuzz, yes, and chewed pieces of tape too, all gray and dusty now. But the nest was empty. The baby mice had grown up and gone away. Perhaps they had taken one good look at grandma's big yellow cat and had never felt safe afterward.

"Oh!" said Dannie Dick disappointedly. "I wanted—"

Then he stopped. The tuner was bending over his bag of instruments but Dannie Dick was staring with wide brown eyes at something yellowish white which stuck closely to the block at the end of the keyboard, something which had been just out of sight next to the very highest key on the piano. It was only a square of cardboard. But, there was a bit of red and a bit of green and a bit of brown showing on the corner of it, and as the summer wind blew the curtains back and forth the tiny colored feathers stirred gladly for they had not felt the breeze for many and many a year.

"Grandma!" cried Dannie Dick. "Here is your Abraham Lincoln card!"

So grandma, smiling very gladly now, had to tell all over again the story of the bird card in her hand.

SOME OF MY FAVORITE RECIPES

By Maud Marxmiller

Orange Marmalade

Three large oranges, 2 lemons and 1 grapefruit. With sharp knife cut yellow part of rind off oranges, being careful not to get any of the white. Cut the rind into thin strips with sharp scissors. Remove all the remaining white on the oranges and discard as this is what gives the bitter taste so many dislike in orange marmalade. Cut the pulp into pieces and be sure no seeds are left in. Add flesh of lemons and grape fruit. Take $1\frac{1}{2}$ pints water to each pint fruit. Boil 30 minutes then take $1\frac{1}{2}$ pints sugar to each boiled pint of fruit. Let this boil until it jellies. This will make 10 or 15 glasses. Select the best oranges, tart if possible.

Currant or Plum Conserve

Five pounds currants or plums, 1 pound raisins, 5 pounds sugar, rind 4 oranges, 1 pound nuts, rind and juice of 1 lemon. Remove outer yellow rind of oranges and cook in water 20 minutes, then chop with raisins. Boil currants or plums ten minutes, then add sugar and other ingredients. Cook ten minutes and put in jelly jars.

Chili Sauce

Seven pounds tomatoes, 5 large onions, 6 green peppers, 1 bunch celery, 1 tablespoon cinnamon, 1 tablespoon allspice, 1 tablespoon cloves, 1 tablespoon ground nutmeg, 1 pound brown sugar, $1\frac{1}{2}$ cups vinegar, salt to taste.

Delicious Dark Cake

One cup butter and lard scant, 2 cups brown sugar, yolk 2 eggs, 2 cups sour milk, 3 cups flour, 1 cup chopped raisins, 1 tablespoon cinnamon, $\frac{1}{2}$ teaspoon cloves, 1 teaspoon nutmeg, 1 heaping teaspoon soda dissolved in a little hot water.

Potato Flour Cake

Four eggs, $\frac{1}{2}$ cup powdered sugar, $\frac{1}{2}$ cup granulated sugar $\frac{1}{2}$ cup potato flour, 1 teaspoon baking powder. Flavoring and salt to taste. Beat the whites stiff and add $\frac{1}{2}$ cup powdered sugar and beat the yolks and add the granulated sugar. Mix together and add flour and baking powder.

Macaroons

Two eggs, beat whites stiff, 1 cup sugar. Beat again. $\frac{1}{2}$ pound coconut. Add about $\frac{1}{4}$ cup flour or as much as needed. Add flavoring and salt to taste. Bake in very slow oven until golden brown, or about 20 minutes.

Sponge Cake

Four eggs well beaten, 2 scant cups sugar, 2 scant cups flour, 2 teaspoons

baking powder, 2-3 cup hot water. Flavoring and salt to taste.

Pound Cake

One pound sugar, 1 pound butter, 10 eggs. Beat yolks and whites separately. Cream butter and sugar, 1 pound flour, 2 pounds raisins, $\frac{1}{2}$ pound citron. Nutmeg. Add the whites last.

HINTS FROM HOUSEKEEPERS

Bran-Oatmeal Muffins

These are an accidental discovery but they are going to happen many times in our household because they are "lickin' good."

One cup bran, half cup rolled oats soaked in one and one-half cups milk for several hours. When ready to make add 3 eggs, 1 tablespoon honey, pinch salt, 1 cup white flour. Beat up quickly and lightly, add 1 heaping teaspoon baking powder, 2 tablespoons shortening. Put in well greased hot muffin pan and cook in moderate oven. These are almost a meal in themselves. With the addition of coddled eggs and strawberries they are perfect—if you make enough of them.

Walnut Catsup

Do Cultivator readers know what a delicious addition to salad dressings, creamed fish, creamed soups, sauces, etc., walnut catsup is? It is something on the order of Worcestershire, but not hot and has a rich, mellow flavor.

Fine Brush Gets the Dust

One of my most prized household helps—if not my dearest—is a fine, long bristled paint brush which is kept religiously dedicated to the cleaning of corners where the dust will lodge. No amount of careful dusting or poking with broom or the ordinary brush will reach the little corners of baseboard, window casings, etc., but these long, soft bristles whisk the corners out so quickly and leave them so clean and respectable that I wouldn't swap my brush for a whole pile of silver dollars. Try it yourself—I mean owning one.

An optimist is one who expects to do something tomorrow; a pessimist is one who was done yesterday.

HOUSEHOLD QUERIES

Farmers Cake

Can someone tell me how to make "Farmers Cake?" When I was a little girl I used to taste it at a neighbor's house and thought it was the best cake I ever had. Maybe it wouldn't taste so good now, but would like to try it.—Subscriber, Pasadena.

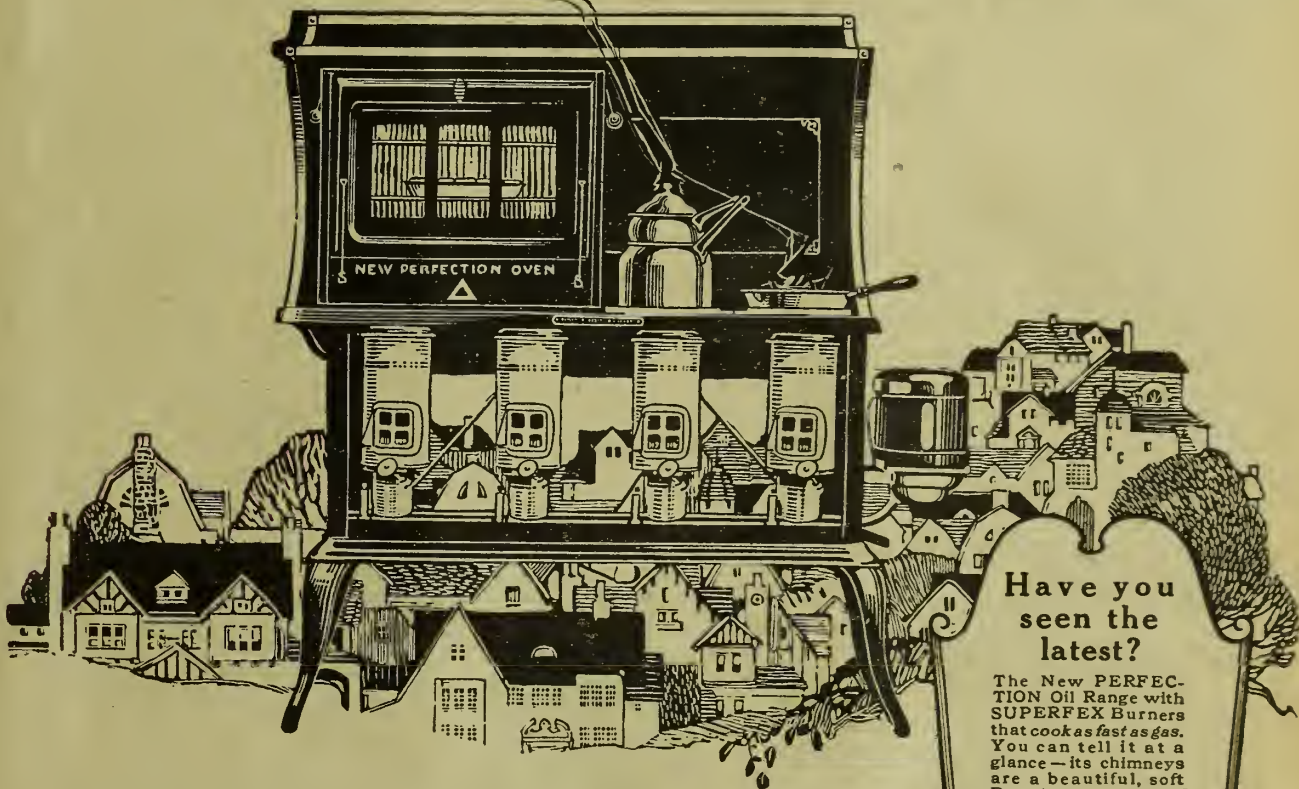
Dissolve level teaspoon soda in 2 tablespoons warm water. Add $\frac{1}{2}$ cup molasses. Mix and add very quickly 1 cup sour cream, 1 cup sugar, 1 tablespoon cinnamon, $2\frac{1}{2}$ cups flour and beat about 5 minutes. Then stir in one cup seeded or seedless raisins that have been dredged in $\frac{1}{2}$ cup flour. Bake slowly for one hour. Make boiled icing to cover and scatter chopped nuts thickly over it while icing is warm.

Potato Pie Crust

I would like very much to find out how to make potato crust for meat pies.—Subscriber, Pleasanton.

One quart finely mashed potatoes, 3 tablespoons shortening, 2 teaspoons

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salt, 1 teaspoon paprika, 2 teaspoons baking powder, 1 teaspoon grated onion, 1 well beaten egg, 6 tablespoons milk. Beat thoroughly to mix and then spread in layer about one inch thick on meat pies. Brush top with milk and bake in moderate oven 35 minutes.

Cinnamon Doughnuts

Will some one please give recipe for making cinnamon doughnuts.—Subscriber, Riverside.

These are made with buttermilk and are delicious. One cup buttermilk, two tablespoons shortening, one egg, one cup sugar, one teaspoon soda, one teaspoon cinnamon and if liked one-half teaspoon ginger. Beat to mix and add five cups sifted flour, two teaspoons

baking powder and work to smooth dough. Roll out half inch thick on well floured pastry board, cut and fry golden brown in hot fat. Roll in sugar plentifully sprinkled with cinnamon.

Brioche

Please tell me what brioche is and how to make it. My boy talks so much about the brioche he got in France.—Reader, Lincoln.

Brioche is made from bread dough with a little sugar added then molded in loaves and baked like bread. A light, porous bread is used. They are then prepared in various forms. When cold loaves are sliced and slices steeped in orange syrup. Or the slices are spread with jam and covered with icing. Or steep in syrup, then dip in

batter and fry golden brown in hot fat, spread with jam and serve with orange or lemon sauce. There you are: It seems to be a case of trying out and finding the combination you like best. Directions for making French bread are given in the Cultivator of April 1.

SOME HOUSEHOLD HELPS

By A. M. H.

Some of the best household helps we have are just simple things that are found in every kitchen, such as fine ashes, salt and soda.

To make a cement which never fails take equal parts of soft putty, finely sifted ashes and sifted table salt. Mix thoroughly and pack well into holes in pans, then place the pan on a warm stove with a little water in it until the cement hardens. Fill broken places in plastered walls with the mixture and smooth with a knife.

The steel of the range, steel knives or any article of steel can be highly polished by rubbing with fine ashes moistened with coal oil and then rubbing with a dry cloth. To polish nickel on stoves, take cold wood ashes and mix with enough cold water to make a paste. Apply with a cloth. When dry polish with a dry cloth.

To remove grease spots from carpets and woolen goods dissolve a teaspoon of salt in a pint of gasoline and apply with a cloth or soft brush. To remove ink stains from white goods cover the spot with table salt, wet with vinegar and rub, and for iron rust stains rub with lemon and salt and hold the spots over steam from a boiling kettle.

The color can be set in nearly all nice wash goods by soaking in salt water and then washing the garment in warm suds in which a tablespoon each of borax and salt is dissolved, and use this also in the warm rinsing water and put a little of this mixture in the starch to make the ironing easier.

Machine grease spots can be removed if washed in warm rainwater and soda, and a faded dress can be made perfectly white by boiling in strong suds with a little soda added.

If any one of the family has catarrhal trouble, an excellent spray for the nostrils is made by dissolving a teaspoon each of salt, soda and borax in a pint of water, and if there is an acid condition of the system that causes the skin to itch, this solution will be found very soothing. The solution without the soda makes one of the best gargles for the throat, and if used daily many serious throat ailments may be cured.

A little soda put in water in which meat and vegetables are boiled will make them tender, besides hastening the cooking, and such acid fruits as gooseberries and plums will take less sugar to sweeten if a little soda is put in first. You can keep small ants out of the pantry by sprinkling soda where they run.

MARKETING LIMAS WITH ASSOCIATION PAYS

Richard Bard, general manager of the Berylwood Investment Company owning more than 5,000 acres which are planted to Lima beans this season, has supplied the California Lima Bean Growers Association with a statement of facts that set forth most conclusively the benefits to be derived from cooperative marketing.

"On the five-year basis cooperation in the Lima bean business wins in a walk," says he. "Our cost accounting system has been carefully kept and it shows that in the six years from 1916 to 1921 inclusive, our average return for Limas through the California Lima Bean Growers Association was \$7.69 per 100 pounds. These figures are based upon the conclusion that the 1921 crop will bring us about six cents per pound.

"Checking back over our Lima bean sales from 1912 to 1915, inclusive, a period of four years prior to the formation of the association, I find that Limas brought us an average price of \$4.85 per 100 pounds. The differential in favor of cooperative marketing, with one lean year after the war to offset one fat year during the war, is \$2.85 per 100 pounds."

Following are the comparative figures from Berylwood Company's books showing prices received for Limas under four years of independent

marketing and six years of cooperative marketing:

Prices from independent sales.—1912, 5 cents; 1913, 4.775; 1914, 5.07; 1915, 4.50; average, 4.84.

Prices from association sales.—1916, 4.97; 1917, 11.06; 1918, 9.15; 1919, 9.56; 1920, 5.40; average, 7.69; 1921 price will probably average 6.

"It should be borne in mind," Mr. Bard adds, "that the prices received during the four years we sold Limas independently did not include insurance, storage, and taxes, whereas the association prices fully covered those expenses."

PINT STRAWBERRY BOX STANDS

Constitutionality of the California fruit and vegetable standardization act is upheld by decision of the state supreme court in action brought by a San Francisco Japanese. This Japanese was prosecuted for persisting in selling berries in containers less than standard size as prescribed by the standardization act. He attempted to show in court that the act was unconstitutional.

ATTACK ON ALMOND DUTY

Attack on the tariff schedule on almonds is chiefly directed against the 15 cent duty on shelled almonds as the importers from Southern Europe have a complete monopoly of this business in America. This is the most remunerative part of the almond traffic as 80 per cent of the money spent in the United States for almonds goes into the pockets of importers for the shelled nuts.

LIMA BEAN PLANTING

A preliminary canvass of bean planting operations indicates approximately 96,000 acres planted to Limas, about 13,000 to Baby Limas in the five counties of Southern California. Besides this there are small plantings of baby limas in the San Joaquin Valley. More accurate figures will not be available from the California Lima Bean Growers Association until the middle of July.

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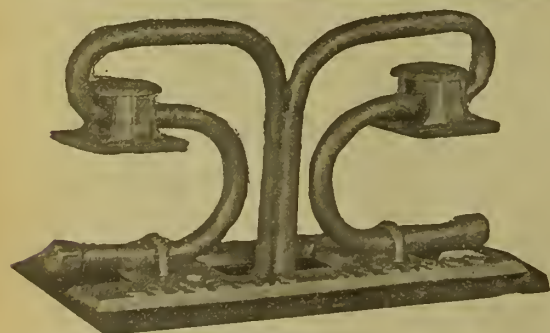
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Cooperative Marketing of California Grain



PLAN for the marketing of California grain has been devised by the California Farm Bureau Exchange and is being submitted to grain growers of the state. The exchange is a non-stock, non-profit organization for the purpose of marketing its members grain and to purchase their requirements in larger quantities. Its officers are: C. K. Hardenbrook, Salinas, president; J. J. Hollister, Gaviota, vice-president. In addition to these two the board of directors is composed of W. H. Walker, Willows, president of the California State Farm Bureau Federation; T. A. Kilkenny, Dixon; A. E. Lindstrom, Oakland, president of the California Farm Bureau Elevator Corporation; W. L. Hagg, fruit grower of Hanford; I. L. Borden, San Francisco; J. H. Hauschildt, Santa Cruz; and Harry W. Thomas of Merced.

The exchange is incorporated under the laws of California and was organized to act as a central organization for the various farm bureau exchanges. Any growers in California can take advantage of the opportunities offered.

This has been accomplished by entering into an agreement with Messrs. George Willis & Sons, Ltd., (head of fices, London) whereby they have become the exclusive United Kingdom and Continental distributing agent of California grain for the account of the exchange. This contract provides that George Willis & Sons, Ltd., will work exclusively in the interests of and with the exchange. The exchange, however, has the privilege of marketing its products through any other source provided better prices can be obtained and, of course, may sell to any market in the United States, in which case George Willis & Sons do not participate. The contracts also provide that when shipments for export are made the California Farm Bureau Exchange will receive payment in full therefor upon presentation to its bankers in San Francisco of ocean bill of lading with other necessary documents attached. This eliminates all danger upon the part of the California Farm Bureau Exchange for credit risk as sales will always be effected before shipments are made and this method of payment will prevail. This, therefore, provides a means of securing for the growers the full European price less a slight commission as referred to in growers contract and actual costs of freight, insurance and other necessary charges covering such export sales.

The next step necessary was to secure the services of someone thoroughly familiar with the handling of grains of all varieties for export as well as domestic requirements. The exchange, after due consideration, selected T. E. Morgan to act as general manager. Mr. Morgan was formerly manager of grain department of the Globe Grain & Milling Co., later with Albers Bros. Milling Co., in the same capacity, and for the past two years has been president and general manager of the Morgan Grain Company, Inc.

Any farmer in California can market his grain through the grain department by becoming a member of the farm bureau exchange in his county. In case there is none provision is made in the contract for him to join the exchange in the county nearest his. He must also become a member of the farm bureau in his own county. He must enter into a contract with the county farm bureau exchange whereby he permits it to market his grain through the grain department of the California Farm Bureau Exchange, in a manner which is already thoroughly outlined in growers contract. The various county farm bureau exchanges have agreed with the California Farm Bureau Exchange to market their grain through the channels provided by, and under the direction of the exchange.

There are three ways provided for the grower to market his grain through the California Farm Bureau Exchange; one known as the pooling plan, another whereby the grain is sold at a price named by the grower; and a third, whereby the grain is consigned by the grower to a point selected and sold upon arrival at the highest price obtainable. Where grain is sold un-

der the latter two plans either for direct shipment from the fields, for shipment from storage, or against warehouse receipts, as the case may be, the exchange will advance to the grower 85 per cent to 90 per cent of the sale value of such grain immediately upon receipt of bill of lading or warehouse receipt, deducting any previous advances made, if any, and any balance due to be paid as soon as possible after the final settlement has been received from the buyer. The grower may select any one of these three plans or apportion his grain among the three as he sees fit. He is also privileged to change his selection of plans any year during the life of the contract. The growers contract also provides that the grower may sell his grain through any other source than the exchange after first having secured a release from the exchange for such purpose.

It is not the object of the exchange to make any attempt to create a monopoly with a view of withholding supplies from the consumer, but it is the object to secure for the grower the price the consumer pays for his products, less a reasonable cost of getting it to the consumer.

The grower contract provides that the grower will market through the exchange for a period of six years. The grower, however, may cancel the contract any year after the first year by proper notice.

The exchange charge will not exceed \$1 per ton. Part of the money thus derived will go to the county exchanges for the proper supervision and direction of the movement of the grain received at county points and to expenses of sampling, etc. The balance will go to the California Farm Bureau Exchange to cover operating expenses and for the maintenance of an organization necessary for the proper fulfillment of its obligation as distributing agent for the growers. It should be considered, however, that this service charge should be reduced as the volume of grain marketed through the exchange increases, as the larger the volume the lower proportionately should be the operation expenses. It should be considered, however, that in the event there is a surplus created from this charge which is made by the exchange that this surplus so created will be apportioned back to the growers according to their deliveries to the exchange, as under the manner in which the exchange is to operate the grower will only be assessed the actual cost incurred for maintaining the proper selling organization.

The California Farm Bureau Exchange has completed arrangements for an initial loan of \$5,000,000 with which it will be possible to finance such growers as become members, thereby preventing the necessity of forcing grain upon the market in a disorderly manner at harvest time. The financial arrangements are such that the grower will not be forced to liquidate in three months or in six months as has been the case in the past. Loans will be made in such a manner that gradual liquidation will be permitted as in keeping with orderly marketing.

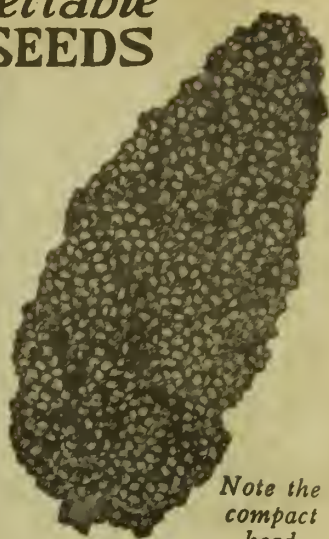
Meetings are being held in many farm bureau centers of the state, but on account of the near approach of harvest time all centers may not be visited. It would therefore be advisable for the growers who are interested in this movement to communicate with their nearest farm adviser or county exchange with a view of ascertaining whether there is to be a general meeting in that county.

The plan as set forth in growers contract has been presented to the federal reserve, war finance corporation and other of the largest financial institutions in San Francisco and has secured the approval of all. The plan of the organization is along approved lines recommended by the agricultural department of the University of California.

ALFALFA GROWERS MOVE

The Alfalfa Growers Exchange has moved its general offices to 549 Macy Street, Los Angeles.

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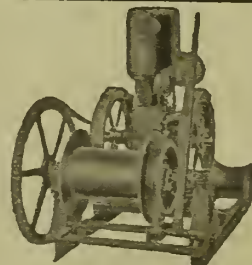
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Los Angeles

King Korndyke Pontiac 20th Sells for \$8,000 at Burr Farm Sale

Under the direction of the California Breeders Sales and Pedigree Company with C. L. Hughes as pedigree man and Rhoades and Rhoades of Los Angeles, assisted by Col. John A. Davis of Manteca, as auctioneers, the Burr Farm dispersal of Holsteins at Los Angeles on June 1-2 was one of the most satisfying sales that has been held in a long time. The herd had been carefully selected, largely at public auctions during the past three years, and the offering was made up principally of young females who had good yearly records with good records behind them. The Burr Farm has always been an advocate of the long distance record and has had as many yearly record cows as any one in the state.

Together with the splendid herd of females it has been the policy to have the best bulls that money could buy. The first noted bull purchased was Sir Veeman Korndyke Pontiac, a son of Sir Veeman Hengerveld out of a 30 pound cow. This bull has proven his worth by siring many excellent daughters including the world's record three year old milk cow, Princess Malda Veeman, owned by Earl Graham of Compton.

In 1920 Burr Farm paid \$12,000 in W. J. Higdon's sale for King Korndyke Pontiac 20th, a grandson of King of the Pontiacs and out of Miss Valley Mead De Kol Walker who won the first prize in the Holstein Association in 1917-18 with 1113.57 pounds butter in 342 days. She has lately finished a record of 1156.7 pounds butter, which gives her three yearly records of over 1,000 pounds and two over 1,100 pounds. She is the dam of the two bulls, Sir Aaggie De Kol Mead and Prince Aaggie Mead De Kol, owned jointly by A. W. Morris and Sons and Fred Hartsook. King Korndyke Pontiac 20th came into the limelight when as a calf he was sold at public sale by Anita M. Baldwin to Mr. Higdon for \$6500. In Mr. Higdon's possession he was bred to one of the highest class herds of females ever assembled in this state and he got a lot of wonderful calves. He has 18 sons at the head of pure bred herds, which have sold for a total of \$61,200. The most famous of these is King Korndyke Pontiac Acme owned by Mrs. Baldwin. He is the sire of 15 A.R.O. daughters and a number of semi-officials, one of which is finishing a record of 1150 pounds as a junior three year old. The sale of this great tried bull drew many breeders, and it was a tense moment when he stepped into the ring for the third time in his career. There was no question but that he was infinitely more valuable than when he sold as a calf and a great deal more so than when as practically an untried bull he sold for \$12,000, but conditions have changed considerably. Money is not so plentiful as it was in days gone by and a lot of breeders who could afford to pay a long price have, in the past year or so, purchased bulls to head their herds. However bidding was spirited up to \$5,000 where it simmered down to two or three men. He was finally knocked down to Sargent Brothers of Tulare for \$8,000 after Mr. Mosher of the Sunshine Ranch at San Fernando had refused to go farther on him.

As has been the case in every big sale in the past two years Fred Hartsook picked the top female. Tops are the only kind that will fit into the Hartsook herd, and this one will do so nicely. She is Gracia Pontiac Burke, a 33 pound four year old, sired by King of the Pontiacs 14th, and out of a 30 pound cow. A number of breeders wanted her and made her cost Hartsook \$1,500. He also picked another good one in Buddie Promise, a daughter of Sir Veeman Korndyke, Pontiac, for \$1,100.

The second highest female was the beautiful three year old Snowball De Kol Pontiac Lass who has lately finished a year's record as a two year old of 652 pounds of butter and is about ready to calve again to service by King Korndyke Pontiac 20th. She went to the newly formed Glenwood Stock Farm at Riverside for \$1,300. This company was the longest buyer

in the sale taking 21 head, mostly young ones.

The Sunshlne Ranch Company bought six head, paying \$1,000 and over for three of them, the best known being Miss Veeman Witte, a junior two year old who has just freshened and is completing a seven day record of about 24 pounds. She is by Sir Veeman Korndyke Pontiac and is out of lowana Witte one of the first and most famous cows owned by Burr Farm. Miss Veeman Witte cost Mr. Mosher \$1,050.

Lutge Brothers of Burbank, Los Angeles County Farm, the Miller Cattle Company of Phoenix, Arizona, and Frank Helm of Fresno were also among the heavy buyers.

A total of 114 head were sold for \$47,975 at an average of \$420 each. The 109 females which ranged from calves to cows way past their prime, brought \$39,140 or an average of \$359 each. Five bulls sold for \$8835.

This sale teaches that good cows, tuberculin tested and given year records are in demand no matter what the condition that such a herd is potential wealth which can be cashed in at any time.

The sale marks the end of a three year agreement between E. Burr, G. M. Brown and Kenneth Abbott who formed the Burr Farm Company. As the land is being demanded for industrial sites it was thought best to sell all the cattle of breeding age and hunt a place elsewhere. It is not known whether the same combination will be made again but it is a sure thing that all of the men interested will be in the Holstein business.

A list of the purchasers and their buys follows:

FEMALES

Purchased by Fred Hartsook, Lankershim
Gracia Pontiac Burke, \$1,500.
Buddie Promise, \$1,100.
Zampa Annie Laurie 2d. \$150.

Purchased by Sunshine Ranch Co., San Fernando

Bucna Alta Aaggie Ormsby, \$1,075.
Burr Farm Aaggie Ormsby, \$500.
Miss Veeman Witte, \$1,050.
Artis Zampa, \$700.
Burr Farm Veeman Una, \$330.
Sunnyside K.S.V. Leola, \$100.

Purchased by Miller Cattle Company, Phoenix, Arizona -

Burr Farm Gracia, \$525.
Burr Farm Veeman Clorinda, \$250.
Burr Farm Aaggie Korndyke Belle, \$350.
Palo Verde Lady Korndyke, \$300.
Burr Farm Alice Beebe, \$150.
Burr Farm Walker Vale, \$55.
Burr Farm Mona Korndyke, \$200.
Burr Farm Walker Hiske, \$155.

Purchased by Glenwood Stock Farm, Riverside

Snowball DeKol Pontiac Lass, \$1,300.
Burr Matador Segis Rag Apple, \$700.
Amelia Bona De Kol, \$400.
Rosamaines Ononis Ormsby, \$435.
Burr Farm Veeman Lady, \$275.
Stratford Segis Blanche De Kol 2d., \$410.
Wapato Duchess Rixon, \$510.
Rockanna Johanna Rauwerd, \$450.
Pala Verde Burke Segis, \$310.
Bonnie Vale Cornucopia, \$175.
Lady Holland 3d., \$375.
Twilight Netherland Gerben, \$160.
Daziel Hiske Mead, \$410.
Enid Gold Dust Crown, \$280.
Helm Gelsche Arona Mead, \$710.
Golden Star Johanna Wayne, \$160.
Kathryn Jean Duluth, \$300.
Jewel De Kol Sarcastic, \$135.
Burr Farm Walker Queen, \$135.
Burr Farm Walker Ybma, \$140.
Extra Heifer, \$350.

Purchased by the Los Angeles County Farm, Hondo

Princess Roma Alcarta 2d., \$500.
Jane Garden Pontiac De Kol, \$640.
Gerben Piebe Roderick, \$110.
Burr Farm Orndyke Vale, \$500.
Valdessa Keyes, \$275.
Pearl Pontiac Onyx, \$235.
Karlray Pietertje Pontiac, \$210.

Lutge Brothers, Burbank

Julian Pietertje Mead, \$800.
Burr Farm Miami Vale, \$260.
Palo Verde Korndyke Pontiac Copia, \$800.
Pala Verde King Pearl Piebe, \$410.
Queen Jewel Benton, \$360.
Tagus Diana, \$150.
Diamo Pontiac Jessie, \$300.
Burr Farm Inka Vale, \$150.
Johanna Inka Belle 3d., \$150.

Purchased by Mosebar & Boston, Hynes

Princess Hengerveld Orizaba, \$130.
Loretta Princess 2d., \$250.
Johanna Inka Queen Hengerveld, \$150.
Molly Walker Pennant De Kol, \$235.
Burr Farm Creole Belle, \$110.
Gleesome Countess Pontiac, \$225.
Sunnyside, K.S.V. Claire, \$215.
Helm Fly Segis Mead, \$200.

Purchased by G. W. Anderson, Burbank
Burr Farm Korndyke Tessa, \$350.

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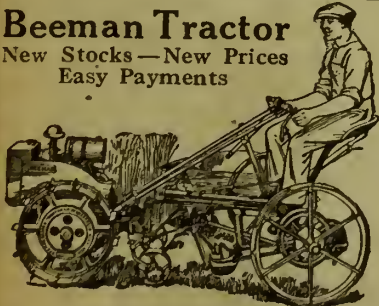
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Lady Legathend, \$525.
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Golden Star Veeman Johanna, \$200.
Pietertje Ormsby Changeling Wayne, \$150.
Kathryn Ormsby Friesland, \$210.

Purchased by R. W. Gibson, Los Angeles
Abbeker Colantha Johanna, \$225.
Siempje Korndyke Segis It., \$200.
Aaltje Salo Princess Ormsby, \$160.
Burr Farm Murphy De Kol, \$135.
Burr Farm Una, \$150.
Burr Farm Walker Model, \$130.

Purchased by W. H. Andrews, Los Angeles
Francis Fayne Ormsby, \$165.
Burr Farm Lady Holland, \$200.
Burr Farm Dodo, \$215.
Jane Soldene Pontiac Wren, \$275.

Purchased by E. A. Stuart, Lamanda Park
Pietertje Ormsby Della Wayne, \$535.
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Maartje Pontiac Jane Segis, \$235.

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Rose Ornot, \$240.

Purchased by L. S. Pratt, Long Beach
Canary Fannie Sadje Vale, \$725.
Happy Thought Orizaba, \$130.

Purchased by F. L. Hogue, Modesto
Hannah Leda Gerben 2d., \$170.
Burr Farm Ilda Mead, \$225.

Purchased by H. L. Gordon, Artesia.
Lady Alcartra Veeman, \$575.

Purchased by Earl Graham, Compton
Lady Veeman Happy Thought, \$800.

Purchased by W. J. Higdon, Tulare
Burr Farm Korndyke Rag Apple, \$350.

Purchased by A. W. Morris & Sons, Woodland
Burr Farm Mabel Mead, \$375.

Purchased by I. V. Smith, Chula Vista
Daisy Veeman Ormsby Johanna, \$325.

Purchased by T. H. Brice, Los Angeles
Jane Soldene Bess Wren, \$210.

Purchased by H. J. McDade, Pasadena
S.V.K.P. Gypsy of Sunnyside, \$285.

Purchased by H. Nelson, Los Angeles
Burr Farm Veeman Tuebie, \$200.

Purchased by J. Helldoorn, Downey
Palo Verde Bess Pontiac, \$260.

Purchased by A. Merryfield,
Marsalette DeKoven 2d., \$225.
Princess Gold Dust Alcartra, \$250.

MALES

King Korndyke Pontiac 20th., Sargent Bro., Tulare, \$8,000.
King Korndyke Bona De Kol, D. W. Anderson, Pomona, \$355.
Prince Clothilde Pontiac, E. C. Brownell, Los Angeles, \$165.
King Korndyke Aaggie Pontiac, R. S. Anslin, Los Angeles, \$225.
King Segis Pontiac Dummerston, Biederbach Brothers, Pasadena, \$90.

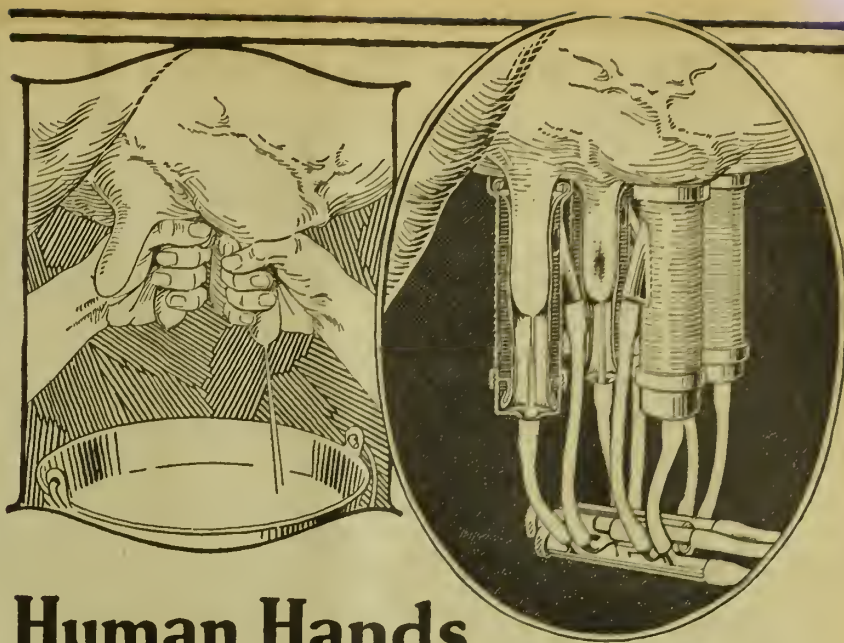
FARM BUREAU HOG AUCTIONS

The California Farm Bureau Marketing Association will hold hog auctions at Tulare, June 13; Visalia, 14; Hanford, 15; Corcoran, 16; Bakersfield, 17; Merced, 20; Turlock, 21; Madera, 22; Fresno, 23; Tulare, 27; Visalia, 28; Hanford, 29; McFarland, 30.

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For Sale—Three choice pure bred Poland China sow pigs, 8 weeks old. Price \$10.00 each. M. A. Packer, 141 N. Jefferson Street, Riverside, California.

GEESE

Owing to More Room Needed for young stock will dispose of some of our yearling geese at \$7.50 each, and Wyandotte hens at \$5 and \$10, and cocks at \$10 and \$25 each. Pearl Guineas \$5 a pair. Paradise Valley Poultry Ranch, National City, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

CATTLE

For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old mules and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. Chas. Hubbard, Owner, Riverdale, California.

For Sale—Registered Guernsey Bull Calf, 2 months old, out of excellent eastern bred heifer owned by Irving W. Hellman. Sire, Double Grandson of Imp. King of the May No. 52820, whose dam made 808 lbs. B. F. in 1 yr. Price \$50.00. R. M. Cartwright, Gardena, California.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

Guernsey Cows for Sale—Cows retained when I sold my herd. Rebecca of Sunnyside is the State Champion in Class B.B. Priced way under their value. Dr. J. A. Woodside, Van Nuys, California.

SHORTHORNS STRALOCH FARM Two and one-half miles west of Davis, Calif. on Highway. C. Harold Hopkins, Woodland, Calif.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

Registered Herefords—Anxiety IV strain. Breeding stock for sale. Chas. Rule, Duncans Mills, California.

TREES

For Sale—25,000 Sour Orange Seed Bed Trees. 1,000 1 year old Valencia buds. Not touched by the freeze. In one of our nurseries near Garden Grove. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale: Orange Trees—Navel, Valencia, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 63110, Los Angeles.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. phone 75-W-1.

For Sale—Navel and Valencia Nursery stock—not frosted. W. B. Ames, 9th floor, Merritt Bldg., 8th and Broadway. Phone Picco 1156, Los Angeles.

For Sale: Avocado trees, unfrosted. Fuerte, Spinks, Dickenson, Sharpless. Milo Hunt, Whittier, Phone 250.

For Sale—Two Year Valencia Trees in quantity—no frost. York Nursery, Highland, California.

Beeman Tractor Cheap—Young man learn trade. Cash Nursery, Sebastopol.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

GUINEAS

Guinea Pigs—Selected Stock, good breeders. Both sexes. Big demand at laboratories and pet stores. No loss from disease. Will not scratch or bite. Pets for children. Alexanders Caviary, 580 Hedding Street, San Jose, California.

SHEEP

HAMPSHIRE DOWNS STRALOCH FARM

Two and one-half miles west of Davis, Calif. on Highway, C. Harold Hopkins, Woodland, California.

TURKEYS

Mammoth Bronze Day Old Turks. We will have some for delivery June 22nd, 75 cents each. Also still have eggs. Keys Ranch, El Monte.

Mammoth Bronze Turkey Eggs 25 cents each, \$20 per hundred. W. L. Duvall, Pomona, Calif.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California.

FARM LAND FOR SALE

MONEY MAKING FARM OVERLOOKING BEAUTIFUL LAKE Horse, cow, 150 poultry, household furniture, vehicles, tools, machinery, and 16 acres growing corn, oats, hay, potatoes, cabbage, beans, fruit, garden vegetables included if taken soon; handy big city markets; close stores, school, R.R., motor bus, etc; good pasture and woodlot; about 50 fruit trees, grapes, berries, nuts; good 2 story house, maple shaded lawn, overlooking lake; bathing, boating, fishing, barn, poultry house, garage. To settle affairs quickly, all \$2,100, less than half cash. Details page 61 illus. Catalog 1200 Bargains. FREE. STROUT FARM AGENCY, 831 Hk New York Life Bldg., Kansas City, Mo.

IRRIGATED LAND ON GOOD TERMS. You can't beat the terms we offer to farmers who know how to farm rich, irrigated bottom land. This land will grow heavy crops of alfalfa, fruits and vegetables. It is ideal for intensive farming. Transportation and irrigation, the best. It is in the heart of the Sacramento Valley. A real opportunity for you. Write now.

SUTTER BASIN COMPANY

Calif. Fruit Building
Sacramento, California

One of the Finest Ranches in Ventura County. About 6 miles south and east of Oxnard. Excellent for dairy or hog raising or adaptable to general field crops, 160 acres. Ample water supply from artesian well, electric power available. 1 3-room modern house; 1 house for hired help. Barns, water tank, hog pens and equipment. About 90 registered hogs—Jersey cow—team of horses and farm implements.

This property to be sold at Public Auction Thursday, June 22nd. If interested we will show property and accept bids prior to auction.

Write or call,
C. H. O'Connor and Son—Auctioneers
626 Pantages Building, Los Angeles
Phone 820451

For Sale—258 Acres Land situated one mile north Sonoma, Ventura County, on an elevation of Mesa land. Is good grape or fruit ranch. With all modern ranch improvements. Present crop Lima Beans. For particulars write M. V. R. A., Box 306, Oxnard, California.

For Sale: A Whole or Part of well improved 400 acre stock, fruit and grain ranch, near highway, town and railroad. Terms. Address owner, S. J. Gummow, Box 274, Solidad, Monterey County, Cal.

Ten Acre Income Berry and Vegetable Ranch located in Mendocino County, a nice home. Write Owner, care Cultivator, Los Angeles.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale—Large Number Strong Tomato Plants. L. C. Johnson, Pomona.

MACHINERY

FOR SALE—HOW DOES HE DO IT? WHAT?

Rebuild and sell Windmills, Tanks, Pumps, Steel Towers, Cylinders at such LOW prices and live on such small margins

HERE'S HOW

Work like the devil, know where to buy and sell for cash only. GET IT? MILO SURFACE IRRIGATION PIPE LISTEN, CUSTOMERS!

We are not entertainers.

Haven't much time to visit, but make up the difference

BY SAVING YOU MONEY

Which seems to be more popular nowadays. Make Money Tanks for less. 1 Ton Slip cover \$14.25, 1½ Ton \$21.25, 3 Ton \$28.25. WHY PAY MORE? Surface Irrigating Pipe, New 3-in. \$12.90 per 100, 4-in. \$16.75, new 6-in. 24½c. 15 H. P. engine, fine shape, \$250. Deep well double acting Ames pump \$225. Many other bargains. DEMMITT CO., Upstairs 120 N. Main, Yds. 816 Yale, L. A.

Wm. F. Lutz Company, Santa Ana, California. Farm implements, tractors, trucks, trailers. A full line of implements, tractor and horse drawn. Moline, J. I. Case and Fitch Four Drive tractors. Moline and Army trucks. Two wheeled Utility and army trailers. Harness made to order, repaired or oiled. Some good second hand tractors and tools.

For Sale—Luitweiler Pump No. 1510, 200 ft. casing 7 inch and double rods 7 inch cylinder and valves, all new. Write for prices and description. Geo. E. Small, Terra Bella, California.

For Exchange—\$350 worth Ranch Tools want good light auto must be mechanically good. Even Trade. Demmitt Tank Co. 120 N. Main, Yds. 816 Yale, L. A.

Yuba Tractor in good running condition for sale or will trade for horses or hay. Santa Monica Dairy Company, 346 Rose Avenue, Venice, California.

ROOFING MATERIAL

Roofing Paper— Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdway 5401. Los Angeles, Calif.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derriford Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

SEEDS AND PLANTS

SEED POTATOES

Temecula grown white rose seed potatoes, no better grown, eligible for certifying. Will contract any amount at \$2.25 F.O.B. Temecula, per cwt. None irrigated 10 day offer. Write Chester Barton, Temecula, California.

A Few Thousand New Stone Tomato Plants. (No others.) Large sweet peppers soon. Outdoor grown. Ilome Nursery & Seed House, Maywood. Los Angeles, Route 1, Box 1335, Slauson and Cudahy.

For Sale—Tomato Plants, Late Stone, Pepper Plants, Chinese Giant, Anaheim Chili, Pimento, egg Plants. Maywood Nursery, 61st & Carmelita St., Maywood. P. O. Box 895, Bell, California.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery. Jordan and Casco, Box 40, Manhattan Beach. Phone 4951 Redondo.

For Sale: Guaranteed Banana Squash Seed, Two Dollars Pound. Prompt delivery. Mrs. Wilkerson, 7050 Kester Avenue, Van Nuys, California.

Sweet Potato Plants—Yellow Jersey, \$2.50 per 1,000, F.O.B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, Calif.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, California. Telephone Downey 1186.

For Sale: Yellow Sweet Potato Plants, strong stock, \$2.00 per 1,000, F. O. E. Santa Ana. S. D. Teel, R. D. 3, Box 8.

WANTED

Wanted a Position as Manager or Foreman on large ranch, have had years of experience with machinery including gas engines, tractors, etc., and the successful handling of the working man. Eight years on present ranch; cause of change, part of ranch sold and the reduction in salary. For references any one that knows me. Address Box 321, Glendora, California, Telephone 643.

Wanted: Men With Spare Time to represent established California company, selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

Want to hear from owner having farm for sale; give particulars and lowest price. JOHN J. BLACK, 116th Street, Chippewa Falls, Wisconsin.

I Want Farms for cash buyers. Will deal with owners only. R. A. McNow, 370 Wilkinson Bldg., Omaha, Nebr.

Wanted,—to hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted Throughout California, men with autos to represent established farm publication selling and collecting subscriptions. Flat salary. Write or call. J. H. Yetter, 317 Central Ave. Los Angeles.

MISCELLANEOUS

For Sale—One pilot generator, capacity 35 pounds net, carbide, clock feed. 300 feet of 1-2 inch iron pipe, brass fixtures, burners and sparkers with wire and sparkler coil and batteries in good running order. J. H. Merrill, Rialto, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

Hemstitching and Plotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Tobacco—Natural Leaf Chewing and Smoking. Rich, ripe two year old. 5 lbs. \$1.75; 10 lbs. \$3. Sample 20 cents. Maddox Brothers, Dept. 30, Mayfield, Ky.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Garget

I have a cow that seems to be perfectly healthy but at times there are small lumps in the milk and it will not go through the strainer. Sometimes we have to milk all of one teat on the ground. Please tell us what is wrong and what to do for her to correct the trouble.—Subscriber, Porterville.

The lumpy milk is a symptom of congestion of the udder. Congestion is the forerunner of inflammation and that would increase the lumps and might clog the ducts and ruin a part or all of the udder. Now is the time to cure it. Mix five pounds epsom salts with three pounds common salt and give a large handful of it in the feed twice a day for a week. Also reduce the feed because such conditions are caused by too rich feed and too much of it. Give more green feed. In the future if you notice the lumps in the milk again give a few doses of the salts.

We fancy that circumstances bar success, but no life that does its best through the channels open to it can be a failure.

THE FARM BLOC

(Continued from Page 625.)

portions. You may ship a piano 500 miles on a railroad for less than you will pay to have the same piano carried from a freight station to your home a mile distant. So if the farmer were to attempt city delivery of his own products, he would encounter heavy financial costs all along the line.

There is no law to prevent a Bucks County farmer from slaughtering his steer and hauling the hide and beef into Philadelphia, to market them directly, but in actual practice the farmer could not do as well as he does now by selling his livestock to a local butcher under present conditions.

A national farm conference recently met in Washington at the call of President Harding. Economy was the keynote.

Plans were discussed for introducing economies in raising produce, in borrowing money to carry crops until marketed and especially in furthering methods of cooperative buying and selling.

The Washington conference frowned upon a policy of price fixing by the government, the farmer's short wartime experience having taught him that political meddling is an expensive commodity for everybody.

If the farm bloc in congress can further the work of obtaining satisfactory farm loan facilities and can more especially encourage farm cooperation in introducing economies in both producing and selling, and can widen out school or college accommodation to teach agriculture, it will do a good work. If, on the other hand, it becomes a political machine it will prove a misfortune, because the real prosperity of the gigantic farming industry in America can never be successfully tied to a political leash.

QUARANTINE AND OTHER CONFERENCES AT SACRAMENTO

(Continued from Page 623.)

ing into our organization those authorities in charge of law enforcement work with reference to the great livestock problems of the Pacific Coast states.

"Finally it is exceedingly important that a conference such as this consider with seriousness the relations which should exist between state and federal departments. It is apparent that in some sections of the West there is a feeling of mistrust with reference to the activities of the federal department of agriculture. These feelings of mistrust and suspicion are usually based on misunderstandings. They are avoided when reasonable men sit down together, get acquainted and talk their mutual problems over. There is usually a way out of any difficulty or any misunderstanding, and it is the hope that this, the first of a series of agricultural meetings between the states of the West, will play a part in eliminating them. The relations between the departments of agriculture of the West and the federal department of agriculture should be most cordial. There is a distinct place for each. There is a distinct ground on which we may come together. It is felt that our relations in California with the federal government have been most valuable. We would not dream of interfering with them. We are constantly seeking to broaden and enlarge the scope of our understandings.

"Nevertheless we feel, as you probably feel, that the state departments of agriculture have a distinct group of functions to perform. Those functions should be held sacred and should be carried out to the best of our respective abilities.

"In addition an organization, such as the one proposed, can consider with great profit the relations that should exist between colleges of agriculture and state departments of agriculture.

There is just as much need for conference on this subject as there is in the outlining of our relations with the federal department of agriculture. I might also add right here that in California our relations with the college of agriculture have been most cordial and most valuable and we propose that they continue. There seems to be a general feeling that the functions of the colleges of agriculture should

be educational, investigational, research and extension. It is easy enough, however, to simply talk words. It is another matter to put them in operation. Specific problems create new situations, and it is for this reason that the consideration of such an important question can be had with profit to all of us.

"It is also my feeling that in meetings of this character considerable can be accomplished in determining the future agricultural policies of the west. The departments and colleges of agriculture can and should play an important part in guiding the agricultural thought of the nation. If our policies can be fixed in a large measure in these important conventions we can indeed lay the ground work for accomplishments that have never been even approached before. There is a great opportunity before every agricultural representative present at this conference. If we can weld the great states of the Far West into a homogeneous agricultural organization, working for the same great purpose, I believe that this conference will go down as one of the landmarks in the history of the country west of the Rocky Mountains, just as the National Agricultural Conference called by President Harding in January, has passed into history as one of the epoch making events in our national agricultural industry."

The hearings under direction of the federal horticultural board called forth more oratory in the urgent appeal for more effective work, not in criticism of the quality so much as the quantity of work done at present by federal and state officials. A committee of something over a dozen growers came from San Jose, headed by Mr. McDougal who recently went to Hawaii and studied the Mediterranean fruit fly situation. He had been so startled by the revelations made by fruit growers and the fruits of the Hawaiian Islands that he returned to California and followed the plant quarantine inspectors for one day's rounds in the harbor of San Francisco. He then appealed to Director Hecke for a stronger force to conduct this work. Lack of funds has prevented a material increase in the number of inspectors, hence the growers made appeal for more efficient protection.

A committee consisting of Messrs Coleman and McDonald of San Jose and Dr. Clements of Los Angeles proceeded at once to the office of Mr. Daniels, chairman of the state board of control, and asked the release of a fund sufficient to increase the number of plant quarantine inspectors for the term of 12 months from July 1, 1922 until a new appropriation may be made by the state legislature which will convene in January 1923. The committee was prompt in action and equally prompt in return from the board of control and brought report of refusal on the part of Chairman Daniels. Many California fruit growers present, however, expressed the belief that when the great danger which confronts California's fruit industry is explained

to the board of control it will quickly come to the aid of the industry.

Western Plant Quarantine Board

Representatives of each of the 11 states, British Columbia, Hawaii Lower California and Ottawa, Canada, were present and made reports of quarantine provisions which they were enforcing and of various insect and pathological troubles which affect their own state. One of these which was most interesting was that of H. F. Willard of Hawaii. He described fruit conditions and how they are affected by the most destructive of all fruit pests, the fruit fly. Mr. Willard's address will be given entire in a later issue.

Fertilizer Control

George P. Gray of the fertilizer control and his inspectors held conference with fertilizer manufacturers and dealers. This conference was for the purpose of ironing out many small differences which have existed and was declared by fertilizer people and Prof. Gray to have accomplished its purpose. As a rule buyers of fertilizer are greatly benefited by the provisions of the fertilizer act.

Cotton Conference

The cotton conference ended in a very short time after it was called to order. It was felt that it would be desirable to have Dr. Hunter of the cotton quarantine service present. Adjournment was had and it was decided to hold a conference at some later date "some place in the South."

PRUNING OF FROSTED CITRUS TREES

A series of 19 field demonstrations is being given by the farm adviser of Los Angeles County: Roscoe, La Canada, June 12; Alhambra-San Gabriel, Covina-Charter Oak, 13; Pasadena, 14; Monrovia-Duarte, Azusa-Glendora, 16; Baldwin Park, San Dimas, 19; North Whittier Heights, Spadra-Walnut, 20; Pomona, La

Verne-Claremont, 21; Rivera, Whittier, 22; Downey, 23; San Fernando, Owensmouth-Chatsworth, 26.

A STORY FOUR THOUSAND YEARS OLD

From the days of the pyramids to the present is a long period of time, yet, in those days as at present, paints were used for beautifying and preserving the objects which they covered. In the old days paint was used as a decorative material for the mummy cases. Today it is used to conserve the natural and converted resources of the country.

Painting one's buildings is not an expense. It is an investment. It absolutely insures against depreciation and rotting. It is the only form of insurance that can be guaranteed to perform its duty 100 per cent.

Paints have been high during the last few years but are now down to normal basis. It would seem to be economy to paint now. The Dutch have an old proverb which says "Good paint costs nothing, for it saves more than it costs."

There are many brands of paint on the market and to the consumer all paints look alike. It is only when the paint has been applied to a building for four or five years that the quality is demonstrated. It is too late to regret one's poor choice of paint. It is well to buy the well known, reliable advertised lines.

THOSE PEACEFUL DAYS

The oldest inhabitant remarks: "I can remember when our casualty list was published only on July 5 instead of every Monday morning."—Christian Register.

For Sale: Fifteen Dairy Cows

Seventy-five head to select from. All A1. Milk Cows.

John Berti & Co., Owners
Burrel, Fresno County, Calif.
Ranch ½ mile west of town

WESTERN SURFACE
=IRRIGATION PIPE=

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, Riveted Steel Water Pipe, Tanks and Corrugated Culverts.

Western Pipe & Steel Co.

1758 N. Spring St., Los Angeles

424 Market St., San Francisco

Fresno, Bakersfield, Taft

Flanged Inside and Outside Cover Plate Connections allow variation in positions of discharge opening and suction elbow

Long Inboard Bearing, water sealed and grease lubricated

Long Outboard Bearing and large capacity Oil Reservoir prevent heating

Stuffing Box readily accessible and easily adjusted by convenient packing gland

Guide Vanes inside suction fitting prevent swirling of water at impeller entrance

Extended Shaft makes possible arrangement of same pump for either belt drive or direct connection

Single Casting containing Base, Bearing Housings and Inside Cover Plate insures continuous exact alignment

Overhung Pulley permits immediate and easy removal or replacement of belt

For Economical Service Buy a Pump with these Qualities from your PELTON Dealer or direct from
THE PELTON WATER WHEEL CO.
HYDRAULIC ENGINEERS
2033 Harrison Street San Francisco



A 2-month-old cockerel a few hours after being attacked by head and neck lice. Both baby chicks and grown fowls are killed in great numbers by this type of louse.

MINERALIZED WATER ROUTS CHICKEN LICE

A new scientific discovery makes it easy to rid poultry of lice and mites. Simply dissolve in the fowls' drinking water the harmless mineral tablets known as Paratabs. Soon after the fowls drink the mineralized water, all lice and mites leave them. Chicks that drink the water never will be troubled by vermin.



The body louse of chickens.

Paratabs do away with the bother of greasing, dusting, spraying and other unsuccessful methods of fighting lice. They are warranted to impart no odor to flesh or eggs. They cost only a trifle and are sold under a money-back guarantee. Thousands of poultry raisers are using them with complete success.



The head and neck louse of chickens.

What Users Say

Paratabs are the best thing for chickens I ever used. They clean the hens and make them lay, and I don't find any lice, mites or fleas on any of my young chicks. Paratabs are a good tonic for all chickens.—Mrs. W. A. G., Jacksonville, Fla.

Paratabs are fine. My chickens have no more lice. Before using Paratabs I had 20 loafers on the roosts, but now they are out.—A. F., Keeseville, N. Y.

I never saw anything like the work of Paratabs. It reminds me of the fairy story of the magic wand. Early this year I was getting 14 to 16 eggs a day. Then, without visible cause, the number dropped to 5 to 7 a day. I began using Paratabs as directed and in 2 or 3 days there was a difference of 1 or 2 eggs a day. On the fifth day I got 17 eggs and on the seventh I got 23. I heartily recommend Paratabs.—Mrs. E. H., Centralia, Ill.

I received the Paratabs all right and my hens seem to be laying better already.—Mrs. W. S. C., Monticello, Ark.

I am giving Paratabs water to my chickens and am having better luck this year than ever before. I haven't had a little chick to be a bit sick. It is the greatest medicine we ever used for young chickens.—Mrs. M. N., Pulaski, Ky.

Send No Money

LET US TAKE ALL THE RISK

Anyone can try Paratabs without risking a penny. We are so confident this new scientific discovery will free your flock of lice and mites that, to introduce Paratabs, we will send two full \$1 packages—enough for 200 gallons of water—for only \$1. BUT SEND NO MONEY. On delivery, pay the postman \$1 and postage, and if your flock is not free from lice and mites in 10 days, your money will be refunded without question. Don't let vermin kill your fowls and steal your profits. Write for the Paratabs today.

Paratab Laboratories

Dept. 959
1100 Coca-Cola Bldg., Kansas City, Mo.

Poultry Queries

Conducted by Jean A. Koethen

Ducks and Ducklings

A Del Mar subscriber sends the following outline of her method of handling ducklings and breeding ducks, which we are very glad to publish:

"Ducks are waterfowls, and while they can be raised with little water it is a crime against their nature to deprive them of sufficient water to bathe in. Besides a small pool of water in their pen attracts many insects and these help to nourish the ducklings. In each pen of 75 ducks I have a shallow pool about three feet wide by eight feet long, sloping from the outer edge to about a foot deep in the center. This is lined with a coating of cement which any one can make with 50 cents worth of cement. I clean mine daily with an old broom and the waste water runs off and sinks into the ground outside the pens. I fill them with a hose attached to a hydrant in the yard.

"Shade is most essential, also plenty of coarse, sharp sand. A simple bran mash with about as much salt added as one would use in food for the table is fed to both ducks and ducklings, twice a day to the older ones, four times a day to the ducklings. Since I eliminated meat scraps I have had no

if they had a cold, but their eyes are neither swollen nor watery. I put coal oil in the drinking water but it does no good. Is this contagious?—Subscriber, Adelanto.

Your pullets have bronchitis. It is caused by exposure to dampness or drafts just as it would be in a human being. You will have to make their quarters more comfortable before you can cure their colds. Give them plenty of fresh air, preferably through an open front, but without cracks or knotholes at the back, and above all, keep them dry. The only medicine I have ever found effective for bronchitis is olive oil given internally, a tablespoon once or twice a day. It is not contagious.

Boiled Wheat for Turkeys

Mrs. Clara Schrack of Valley Springs, Calaveras County, feeds her little turkeys boiled wheat slightly salted. The first day or two hard boiled eggs are fed with the wheat. Mrs. Schrack says:

"I think one reason young turkeys die is that they are fed too often; three times a day is sufficient if they eat heartily. If they do not eat heartily or appear hungry or weak they should be fed oftener till they gain strength. Onions, chopped tops and all are beneficial, also black pepper sprinkled in is a good corrective for turkey ailments.

POULTRYMAN'S CALENDAR,—JUNE, LIGHTENING THE LOAD

There is no better month than June for taking account of stock and getting rid of what is not worth keeping. The early hatched pullets are now nearly or quite ready for the laying house. Cull out those that are undersized or backward in development and send them to market with the cockerels. Sometimes these cull pullets are not equal to the strain of the commercial egg ranch and still will do good work in a backyard flock. Look over the hens this month and cull out all that show signs of beginning the molt, all that go broody, all that indicate by wilted combs that they have stopped laying. Get them out of the way so that there may be more time and room for the better stock.

Unless males are of special value they should be marked for slaughter. There will be plenty more next fall, and the rooster is a good deal of a nuisance even on the commercial ranch. In the backlot he is unendurable, especially to the neighbors. Off with his head.

more ducklings with weak legs and am raising 95 per cent of every hatch. The first ten days of their life ducklings are fed bread crumbs in addition to the pan of soft bran mash which is kept before them constantly. They also have greens and sand and water to bathe in, and after they are old enough to require grain I keep a trough filled with barley before those I intend to market. At three and one-half months many of my Muscovy drakes will weigh nine pounds. I feed greens once a day and keep a box of charcoal in the pens.

"I do not believe in wetting or handling the eggs after they have been put under the hen. My duck mothers will dip their heads in the water but carefully avoid getting their breasts wet while sitting. In a very hot climate wetting the eggs may be necessary, but the mother knows best when and how to turn her eggs, and if they are disarranged she loses her calculation and cannot give the best results."

Early Molt

Will you please tell me why our chickens are shedding their feathers? Some are nearly naked.—Subscriber, Orland.

A sudden hot spell following the cool weather of a season such as we have just passed through will often throw hens into a molt if the ration is not changed to fit the change in the weather. With the first approach of the hot spell the ration should be lightened by the addition of bran to the mash, the dropping of part of the corn or milo out of the scratch, and the use of all green feed the birds will consume. The use of lights during the winter sometimes brings on a molt in March. If your hens began to drop their feathers in March or the early part of April it may be due to this cause.

Bronchitis

Some of my R. I. Red pullets breathe heavily with their beaks open and seem to choke. Two hens rattle as

Brown Droppings

Can you tell me the cause of loose brown droppings with reddish tinge? The birds are about three and one-half months old. I am feeding the following rations: Grain, equal parts wheat and corn. Mash, 100 pounds each of bran, shorts and meat scraps; 50 pounds each of corn meal and bone meal; 10 pounds charcoal. This mixture kept before the birds from 9 A.M. to 3 P.M.—Subscriber, Ontario.

Those brown droppings are due to too much beef scrap in the mash. Fifteen per cent is considered about right under average conditions, and you have 25 per cent. If you add 200 pounds of bran you will bring the beef scrap down to 15 per cent. If this does not remedy the trouble, add more bran.

Turkey Mortality

My young turkeys are bright and healthy the first ten days, then refuse to eat and soon die. I feed curd and chopped onion at first, later mix in chick feed, hard boiled egg and charcoal. They are on a green lot that has many bugs. I have tried different rations on different lots but it seems to make no difference. I have raised turkeys years before but never had an experience like this.—Subscriber, Waukena.

As you have been successful before with the rations you are using I am inclined to think the fault is in the brooding rather than the ration. It is very often chill that kills little turkeys the first week. Still, your ration is quite different from those of most turkey growers, and it may be the poult lacked what they needed most to give them a start. I notice you feed no cereal; bran, rolled oats, wheat flakes, stale bread or anything of that sort until you begin using the chick feed, and that is not so easy of digestion as the softer preparations. I have met one woman who started her poults on chick feed and got away with it, but you have started yours on green feed and curd, which is practically all protein. I believe you

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A recent discovery promises to revolutionize all the methods accepted up to now for keeping poultry free from lice and mites. This wonderful lice killer keeps the birds always lice free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.



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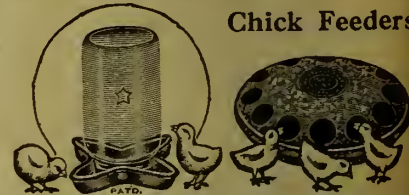
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When Writing Advertisers Please Mention Cultivator.

will find the standard mixture of egg, cereal and greens, making it fully half green (onion and alfalfa, alfalfa or chard) and using a very little egg at first, more suited to their needs. You can add a little curd to the mixture if you wish, but be sure the poults have enough carbohydrates to give the needed heat and energy.

Poor Management

A neighbor of ours asks for advice about his chickens. He has been running about 400 chicks of all ages up to ten weeks in one bunch. Now the bunch has white diarrhea. They have no vermin but some were chilled and killed in a recent rainstorm. Some have tight crop and mope and won't eat. Crop apparently shows nothing wrong when opened. Same bunch are eating feathers.—Subscriber, Valley Center.

There is something essentially wrong in management when a flock has so many troubles all at once. The most evident mistake is in running chicks of all ages together. When that is done the younger chicks invariably suffer. They are bullied and mistreated by the older, have little chance at the feed troughs, are most likely crowded into the corners of coop and roosting house, and drag out a miserable existence. There must be something wrong with the ration if they all have diarrhea. I am given no details as to feeding, but can tell you how they ought to be fed. The chicks under three weeks old should be by themselves, with a good growing mash before them most of the time. Until their bowels are normal add 50 per cent bran to the mash. Give chick feed either in hoppers or litter, where they can scratch it out

when they will. If hoppers are used better put before them only morning and night. Add wheat and Egyptian corn to the chick feed after a week, and gradually work them off the chick feed onto whole grain by the end of a month.

The older chicks should have a growing mash and mixture of grain. Cracked corn is an important part of this ration. Feed sprouted oats to all once a day, as much green feed as possible, and keep sour milk before them when it is available. Be sure water is clean, also mash troughs if moist mash is given. Diarrhea may be caused by filthy drinking water. Grit and shell should not be forgotten. Charcoal in the mash will help bring the digestion back to normal.

The tight crops are doubtless due to wrong feeding. The best treatment is to hold the birds by the legs, head down, and massage the crop gently downward in order to work out its contents. A teaspoon of olive oil to soften the contents of the crop is sometimes a help, and a little baking soda in water afterwards may be given if the crop seems sour. As a last resort the crop may be opened, contents removed, crop washed with weak soda solution (1/4 teaspoon in cup of warm water) and crop sewed up, but this is more of an operation than most of us care to undertake. The feather eating is probably due to lack of sufficient meat in the mash and to the crowding and mixing up of all ages. Segregating the different ages and removing cockerels will go far toward stopping it.

What Makes Runts?

Will you please say something in your column about the cause of runts, especially in large flocks of chicks.

A customer of ours is feeding chicks eight weeks old their mash only 20 minutes at a time, twice a day, and insists the many runts among them are due to poor stock or faulty incubation rather than to underfeeding. His younger chicks are fed in the same way. I wonder what proportion of chicks in large flocks are non-eaters. Everything being favorable, is not this the principal cause of mortality the first two weeks?—Subscriber, El Cajon.

I do not see how any one can feed chicks in that way and expect them to grow. The poultry division of the state college of agriculture the last few years has advocated leaving mash before the chicks only part of each day as a preventive of coccidiosis, but they begin with two hours a day and gradually increase, which is quite different from 40 minutes a day. Chicks in small flocks on range may manage without mash, but large flocks in confinement must have bran in particular, and a mixture of ground grains to supplement it, for bran is the very most essential feed for young stock. It contains the protein they need for feathers and deep tissues, and ash for building frame, and I believe it should be before chicks constantly from the fifth or sixth day till they are ready for the laying mash. If mash is responsible for coccidiosis it is not because of the bran but more likely too much beef scrap. I have raised many chicks on chick grain and bran and have always noticed that those which grew most rapidly were those that were always at the bran hopper. In every large flock there are some weaklings which should be put out of the way the first week. There are others which do not show at first that they are behind the rest in vitality, and yet are easily frightened or driven away from the feed troughs by the more vigorous birds. It is for the sake of such birds as these that mash should be kept before the flock most of the time. Given a chance to eat, they may develop into strong, profitable layers. Browbeaten and bullied, they become discouraged, stop trying to eat, and soon die or live on as runts. I do not know that I can say just what proportion in any flock should be culled. We expect in any thousand chicks that 500 will be cockerels. Out of the 500 pullets probably 50 will not survive the first three weeks, and at least 50 more will be culled. Poultrymen usually count on 300 to 350 fine, well developed pullets from 1000 chicks, but where they lose the other 50 I am not sure. Mortality is sometimes greater than ten per cent for one reason and another, and there is sometimes an excess of cockerels. A great many losses the first three weeks are due to chilling and to lack of mothering. Many are also due to lack of a fair chance at the mash hoppers.

To Break Up Broodies

Can you tell me of a good way to break up broodies?—Subscriber, Lodi.

Most large poultry plants have their "jail," a slatted coop built off the ground, either high up on the wall or on legs or it may hang by wires from the roof. As this has a slatted bottom the hen is unable to find any place where she can even pretend to sit. If she is well fed she should be over her broodiness in four days, but she will not lay for a week or so.

Paralyzed

My yearling hens suddenly have no use of their legs. They lie on the side with legs stretched out and neither eat nor drink. I have fed mixed feed, mash, plenty of greens and grit, and have always been successful with my flock. What ails them?—Subscriber, Covina.

This paralyzed condition may be due to fright or some other intense excitement which has caused congestion of the brain. Often it is associated with acute indigestion or intestinal worms. If your runs are not well shaded they may have been overcome by the heat. To treat it apply cold water to the head, give a laxative (2 teaspoons castor oil, 30 grains Epsom salts or 1 1/2 grains calomel) and keep the bird in a cool, quiet place. If this treatment is not efficient Dr. Salmon recommends 1 to 5 grains of bromide of potassium dissolved in 1 tablespoon water 3 times a day. If intestinal worms are found in the

droppings treat for removal of these parasites by adding a pound of t-bacco powder to 50 pounds of mash. Keep this before them three weeks, then remove.

Lame Hens

In our small bunch of laying hens there are always one or two that have some kind of weakness in legs or feet. They get down all at once and are soon gone. I wonder if you can tell me what is wrong with them.—Subscriber, San Gabriel.

Are the hens that go lame very thin? If they are I should suspect (Continued on Page 643.)

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy In Drinking Water Does It—No Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.

All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 638, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

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We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. All popular breeds: Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc. Also our famous Oregon-Corvallis White Leghorns. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner Ducklings, Mammoth Bronze baby turkeys. All kinds of pullets supplied—anytime. Incubators and brooders. Careful attention to every order, large or small. Send today for prices.

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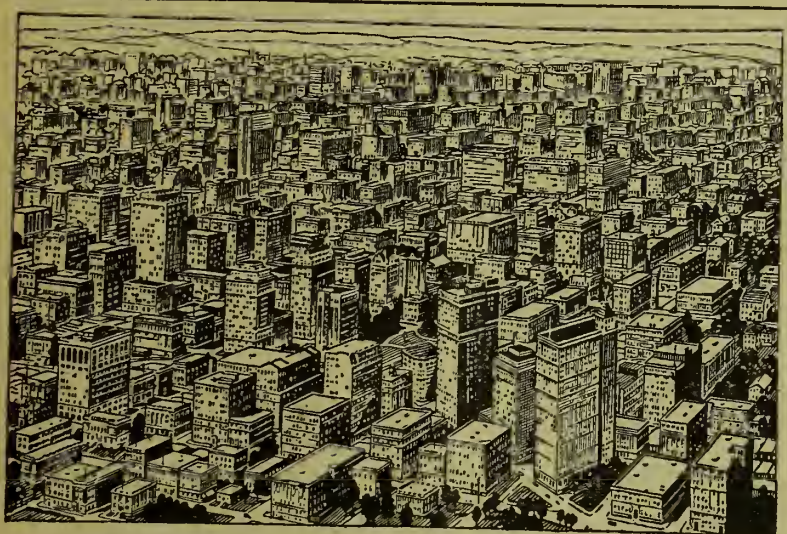
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Only one-fifth of the buildings owned by the Bell System are shown in this picture.

A Telephone City

Above is an imaginary city, made by grouping together one-fifth of the buildings owned by the Bell System, and used in telephone service. Picture to yourself a city five times as great and you will have an idea of the amount of real estate owned by the Bell System throughout the country.

If all these buildings were grouped together, they would make a business community with 400 more buildings than the total number of office buildings in New York City, as classified by the Department of Taxes and Assessments.

Next to its investment in modern telephone equipment, the largest investment of the Bell System is in its 1,600 modern buildings, with a value of \$144,000,000. Ranging in size from twenty-seven stories down to one-story, they are used principally as executive offices, central offices, storehouses and garages. The modern construction of most of the buildings is indicated by the fact that the investment in buildings is now over three times what it was ten years ago.

Every building owned by the Bell System must be so constructed and so situated as to serve with efficiency the telephone public in each locality, and to be a sound investment for future requirements.

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Los Angeles Markets

Los Angeles, June 7, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 42 cents.

Prices extras past week:

June	1	2	3	5	6
	40	42	42	42	42

CHEESE

Brokers' prices:

California flats, 16@18.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 29½; case count, 28; pullets, 26.

Prices extras past week:

June	1	2	3	5	6
	27½	28½	28½	29½	29½

POULTRY

Price to producers: Hens, 22; colored, 30; broilers, 22@28; roasters, 35; old roosters, 12; fryers, 30; ducks, old, 20; ducklings, Pekin, 3½ up, 25; others, 25; geese, 20; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 10@12; old, 8.

LIVESTOCK

Los Angeles, June 6.—Weighed and delivered on cars without foot a water.

Hogs (hard grain fed), 125 to 175 lbs., 10.75, 175 to 225 lbs., 11.00.

Cattle (on foot, gross weight): Steers, good, 7.00; medium, 6.50; cows, good, 5.50; medium, 5.00; calves, 125 to 150 lbs., 10.25; 150 to 225 lbs., 8.50.

Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, June 6, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market steady. Idahos, Russets, 2.00@2.25; Stocktons, ordinary, 1.50@1.65; few cold storage stock, 1.75@2.00; New Stock, best, locals, 90¢@1.00; mostly 90 per lug.

Sweet Potatoes: Movement light, market steady. Locals No. 1 best, per lug, 65¢@75. Arkansas: Nancy Halls, 3/4@4 per lb.; bu., mostly 1.50; Oklahoma baskets, 1.50.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, No. 1 Whites and Yellows, 85¢@1.25; mostly 1.00@1.10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, June 6, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern, best, 75¢@1.00; poorer, 45¢@25.

Asparagus: Per lb.: Local, best, 13¢@15; Northern, 10.

Beans: Market steady. San Pedro Wax, 6¢@7; Ky. Wonder, 9¢@10.

Bunched Vegetables: Per doz. bunches: Turnips, 45¢@50; beets, 45¢@50; carrots, 50¢@55; radishes and spinach, 17½¢@20; parsley, 15.

Cabbage: Market steady, quality ordinary. Field cr., best, 2.75¢@3.10.

Cucumbers: Local, 2.00¢@2.25 per cr. 28-35's.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 6.50¢@7.00 per crate. San Diego, mostly 4.00¢@7.00.

Corn: Green, Imp. best, 40¢@60.

Eggplant: Mex., 15¢@17 lb.

Lettuce: Market very weak. Locals: 50¢@75 cr.

Okra: Lb., 20¢@22.

Peas: Best Northern, 6¢@7½.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 15¢@18; Bells, Fla., 20; Mexicans: Bells, 15; local, 20¢@25.

Rhubarb: Local, best, strawberry, packed box, 1.00¢@1.10; Crimson, 90¢@1.00.

Squash: Market steady, local summer squash, mostly, lug, 1.40¢@1.50; Italian, 1.50¢@1.65; lugs, Crookneck, 1.65¢@1.75.

Tomatoes: Market firm. Mexicans, repacked lug, 4.00¢@4.75; original lugs, best, 3.25¢@4.00. Imperial Valley: 4-basket crates, 3.25¢@3.50.

FRESH FRUIT

These are actual prices obtained June 6 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: Imperial Valley, Arizona, and Northern, 9¢@11.

Blackberries: Cr., 4.50¢@5.25.

Cantaloupes: Imperial Valley: Standards, 4.00¢@7.50; ponys, 5.50¢@6.00.

Cherries: Best, 20¢@24; poorer, 15¢@18.

Figs: Brown Asiatic, 1.00¢@1.25 per 7 lb. flat.

Gooseberries: 18¢@20 lb.

Loquats: Best, 10¢@14 lb.; No. 2, 5¢@8.

Raspberries: No. 1, cr., 4.00¢@5.00; No. 2, 3.50¢@3.75.

Strawberries: No. 1, 4.00¢@4.75; No. 2, 3.50¢@3.75.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock June 6 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.25¢@3.75; market pack, 3.00; small, 2.25¢@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50¢@2.75; special brands, fancy, 6.75¢@7.50; choice, 5.50¢@5.75.

Oranges: Demand moderate, market steady. Navels, culs, 1.50 per field box; Valencia, special brands, 7.50¢@8.00, according to size.

HONEY

New honey is arriving in very light quantities but the quality is said to be excellent. Due to the early freeze and to disagreeable weather during blooming period of the oranges and other fruits, the yield from deciduous fruits has generally been light except in some few counties which were not hit by the freeze. Present prospects excellent for a good sage crop. Shippers are asking in carlot quantities F. O. B. California points for extracted white orange blossom or white sage 8¢@9 per pound and for light amber 6½¢@7 per pound. No recent carlot sales reported. Beeswax is bringing the beekeepers 22¢ per pound cash.

HAY

Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@25.00
Barley	18.00@22.00

Prices quoted f. o. b. L. A. to producers are:

Rabbit Alfalfa	17.00@19.00
No. 1 Alfalfa	15.00@17.00
Standard Alfalfa	12.00@14.00

Alfalfa Growers of California report: Prices given are merely approximate and are subject to fluctuation of the market in view of heavy cuttings.

Rabbit Alfalfa	20.00@23.00
No. 1 Dairy	17.00@20.00
No. 1 Alfalfa	15.00@18.00

GRAIN

Prices L. A. Grain Exchange, June 6.

Barley: 100 ton lots June Del. 1.20.

San Francisco Markets

San Francisco, June 6, 1922.

BUTTER

Sales on Dairy Exchange:

Following quotations carry a jobber-to-jobber discount of 10 per cent, plus a seller's handling charge of 2 per cent of net invoice:

Extras	41
Prices Extras last week:	
May 31, June 1	2 3 5
39	39½ 40½ 41½

CHEESE

Dairy Exchange quotations:

California Young America, fancy	24
California Flats, fancy	18-19½
Oregon Trips	21½
Oregon Young America	25

EGGS

Dairy Exchange Quotations:

California Extras	29½
Extra Firsts	26
Extra Pullets	26
Undersized Pullets	19½

Prices Extras last week:

May 31, June 1	2 3 5
26½	26½ 27½ 28½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs. 28¢@29 per lb., 1½ to 1¾ lbs. 30¢@32. Colored, 32¢@34.

1¾ to 2 lbs., 32¢@34. Colored, 43¢@45.

Fryers: 2½ to 3 lbs., 53¢@55.

Young Roosters: 3 lbs. and up, 51¢@60.

Staggy showing spurs, 25¢@30.

Colored Old Roosters: Slow, 17¢@18.

Leghorn Hens: 2½ to 3 lbs. 21¢@23.

3 lbs. and over 24¢@25.

Large Colored Hens: 28¢@31. Off stock, 26¢@27.

Ducks: Young, 20¢@22. Off stock, 10¢@15.

Geese: Young, 24¢@26.

Live Turkeys: 32¢@35.

Dressed Turkeys: Young, 36¢@40. Off stock 26¢@32.

Belgian Hare: Live, 14¢@16. Dressed 18¢@23.

Squabs: Live, fancy, 50¢@55 lb.; common, 3.00¢@3.50 doz.

Old Pigeons: 2.50¢@3.50 per doz.

Guineas: Young, 9.00¢@10.00 doz.

Jackrabbits: 2.00¢@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: Steers, first quality, 6½¢@7¼ per lb.; second quality, 5¼¢@6¼; cows and heifers, No. 1, 4¼¢@5¼; second quality, 4¢@5; bulls and stags, 3¢@4 per lb.

Calves: Light weight, 8¢@9 per lb.; heavy, 5¢@7 per lb.

Sheep: Wethers, 6½¢@7 per lb; ewes, 3¢@4 per lb.

Lambs: 9½¢@10½ per lb.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 12¢ per lb.; 200 to 250 lbs., 11¢ per lb.; 250 to 300 lbs., 10¢ per lb.; light sows, 10¢ per lb.; do, heavy, 9¢ per lb.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60¢@2.00; Oregon Burbanks, nominal; Idaho and Wash. netted gems, 1.75¢@2.10; Salinas, 2.25¢@2.75 per cwt.; new, 3½¢@4½.

Sweet Potatoes: Per cwt. 3.50¢@4.00; Arkansas, 1.75¢@2.00 per 50-lb. crate.

Onions: New Crop White, 1.25¢@1.50 crate; Yellow, 1.00¢@1.15 cwt.; Gr. Onions, 1.75¢@2.00 box; Stockton Red 1.50¢@1.65 cwt.

Garlic: 4¢@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 22, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00¢@6.00 per cr.; Extra 8.15, lem. 2.00¢@4.40.

Asparagus: 3¢@6 per lb.; white, 5¢@7 per lb.; graded, 8¢@10 per lb.

Beans: Ky. Wonder, 10¢@11 lb.; wax, 9¢@10.

Bunched Vegetables: Carrots, 60¢@1.00 per dozen; turnips, 55¢@60 per dozen; beets, 50¢@60 dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: River, 2½¢ per lb.

Cauliflower: Half-moon Bay, doz., 1.00.

Carrots: 3.50¢@4.00 sack.

Corn: New, doz., 1.00¢@1.25.

Cucumbers: Ariz. and local, sm. cr., 50¢@75; do. English, 2.25; Texas, 4.00; hot-house, 1.50¢@2.00 doz.

Lettuce: Local, 25¢@50; Walnut Creek, 50¢@75.

Mushrooms: 50¢@1.00 lb.

Parsnips: 3.00¢@3.25 per sack.

Peas: Bay, 1½-3 lb.; Half-moon, 4¢@5.

Peppers: Florida and Mexico, 10¢@17 lb.; Chili, 6¢@9.

Rhubarb: Box, 1.35¢@1.50.

Squash: Italian, 1.25.

Tomatoes: Mexican, repacked, 4.25¢@4.50 per L. A. lug; off grades, 3.50¢@4.00; Imperial, 3.00¢@3.25 lug; Fla., cr., 5.00¢@6.00.

Turnips: 2.00¢@2.25 per sack.

FRESH FRUIT

Apricots: Lb., 10¢@15.

Avocados: 10.00¢@15.00 per doz.

Bananas: Hawaiian and eastern, 7¢@7½ lb.

Cantaloupes: Mexican, 3.00¢@4.50 per standard cr.; Imperial Valley, pony, 6.00¢@7.00; do, standard, 7.00¢@8.00.

Cherries: Box, 1.25¢@1.75; bulk, black, 10¢@13; white, 6¢@9.

Figs: 1.25¢@2.25 bx.

Gooseberries: 10¢@12 lb.

Pineapples: 5.00¢@6.00 per doz.

Strawberries: Watsonville and Salinas, 1.20¢@1.40 cr.; locals, 45¢@65.

Peaches: Cr., 2.00.

Raspberries: 90¢@1.25 dr.

CITRUS FRUITS

Grapefruit: Cal., fancy, special pack, 4.25¢ per box; Tulare, 3.00¢@3.25; Imperial, 4.00¢@4.50.

Lemons: Special pack, 6.00¢@7.00; choice, 5.00¢@5.50 box; Lemnettes, 2.00¢@3.50.

Oranges: Culls, 2.50¢@4.50; Valencias, fan., 7.50¢@8.00; choice, 6.50¢@7.00.

BEANS

California Bean Growers.

Large Whites	7.30
Small Whites	7.50
Pinks	5.85
Mexican Reds	4.40
Red Kidney	8.25
Cranberries	8.00
Bayos	6.00
Blackeyes	4.90
Henderson Bush Limas	9.50

Wheat Hay, No. 1, 16.00¢@18.00.

Wheat Hay, Fair Grade, 14.00¢@16.00.

White Oat Hay, 15.00¢@18.00.

Wild Oat Hay, 11.00¢@13.00.

Alfalfa Hay, Old Crop, 15.00¢@18.00.

Alfalfa Hay, New 1st Cutting, 13.00¢@15.00.

Stock Hay, 10.00¢@12.00.

Barley, Ground, 32.00¢@34.00.

Rolled, 30.00¢@31.00.

Oats, Rolled Feed, 38.00¢@40.00.

Brans, 38.00¢@40.00.

Millrun, 38.00¢@41.00.

Middlings, 48.00¢@50.00.

Linseed Meal, 49.00¢@52.00.

Cornmeal, 33.00¢@35.00.

Alfalfa Meal, 22.00¢@24.00.

Cottonseed Meal, 50.00¢@55.00.

Sugar Beet Pulp, 32.00¢@34.00.

Molasses, tanks, 17.00¢@25.00.

Milo Maize, 38.00¢@40.00.

Corn Meal or Cr. Corn, 35.00¢@37.00.

Scratch Feed, 43.00¢@45.00.

GRAIN

Prices f. o. b. S. F. warehouse and storage charges paid.

Barley: Feed, 1.32½¢@1.37½; shipping, 1.40¢@1.55.

Wheat: Mill, 2.25¢@2.30; Feed, 2.15¢@2.25.

Red Feed Oats: 1.50¢@1.55.

Corn: California yellow, 1.50¢@1.55; Egyptian white, 2.12½¢@2.17½; milo

ward. No cotton pests have made their appearance as yet. Returns indicate that there are very few new or "freak" crops being planted this year, except several hundred acres of hemp in the Rio Oso District of Sutter County and a small acreage of experimental cotton in Butte County.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Sheep

June 15-16, Annual Ram Sale, California Woolgrowers' Association, Davis.

The Holstein-Friesian Association of America has recently granted the special prizes to be awarded at the fairs of the country this coming season. California was particularly fortunate in being recognized three times, and 20 per cent of the premium list on the general classification will be paid at the state fair, the San Francisco show and at Riverside. To be eligible for this money all animals must be tuberculin tested if over six months old and must be registered and owned by the exhibitor. Now is a good time to register the calves you will want to show next fall and the last minute hurry will be eliminated.

Arthur Klusendorf, the new superintendent of the Carl Ray Ranch at Lankershim, reports that Rosamaines Bonita Ormsby, a junior three year old, has made a seven day record of 30.14 pounds butter from 464 pounds milk. As she is still going strong it is quite possible that this record will be increased.

California Holstein men are advocating the formation of a state herd composed of the best show animals of the state to be taken to Portland this fall. The trip is too long and costly for a single breeder to make but a combination could do so easily. It is the plan at present for the State Holstein Association to assist in the expenses by the use of money which it can set aside out of its general fund. The Portland show pays a long list of high prizes, and on top of that the Holstein-Friesian Association of America allows the show \$2,000 to be paid as special prizes and \$750 for state herd prizes. Every breeder who has an outstanding animal should call the attention of the association to the same so that the California herd can give the other states a run for their money. Herds from Washington and Ohio have already been promised.

Record prices for Guernsey cows were broken in the recent Langwater dispersal sale when Langwater Cleopatra sold for \$19,500. The total for the sale was \$262,930 with 96 cattle selling at an average of \$2728 a head. Langwater Warrior sold for \$15,000 and 20 of his progeny averaged \$4500.

R. A. Condee of the California George Junior Republic at Chino is attending the National meeting and sale of the Holstein-Friesian Association of America at Kansas City, as delegate from the California association. It is the hope of Californians that the 1924 meeting of the association can be held in California, and Mr. Condee is working towards that end.

Kings County cows are right up among the tops according to the report of the cow testing association for last month. 713 cows were tested with an average of 914.6 pounds of milk and 30.3 pounds of butterfat for the 30 days. The highest individual was a Holstein owned by Arthur & Maxfield of Hanford who made 84 pounds fat from 1,986 pounds milk. Frank Helm's herd at Corcoran had 24 cows between 53 and 81 pounds and 24 others between 40 and 50 pounds.

The report of the Holstein-Friesian Association of America giving a list of the awards for milk and butter fat production for the fiscal year ending March 31, 1922, shows that the Bridgford Holstein Company of Patterson won \$447.25, which is the largest amount won by any breeder during that period. The Bridgford herd won ten first prizes, which is the largest number of firsts ever won by a single breeder in a year. Eight of these firsts were won by daughters of the great show bull, King Segis Alcartra Prilly, which makes him the leading

prize winning sire for the year. A. W. Morris & Sons of Woodland, who stood fourth for prize herd with \$300 won, was second on first prizes, having won five.

Alanson Swain of Lancaster in the Antelope Valley is establishing a sanitarium for reacting cattle too valuable to be killed. Mr. Swain's Bang farm should be a great convenience to the small breeder who desires to keep his herd clean and yet cannot afford to lose high priced and valuable animals on account of their offspring which can be kept clean if properly cared for. Mr. Swain has lately purchased Sir Aaggie Prilly Pontiac, a son of Sir Aaggie Acme De Kol 2d and out of Queen Korndyke Prilly, from W. J. Higdon of Tulare. This bull's five nearest dams average 1,064 pounds butter in a year and nine out of 11 dams average 1,031 pounds. He is a splendid individual and is good enough to breed to anybody's cow.

In the Western National sale of Guernsey cattle held in Chicago recently, 61 head were sold for a total of \$53,115 or an average of \$870.68 a head. The 53 females average \$900.28. The top of the sale was Jean Du Luth Coronet who has made 952.27 pounds butter fat in a year and dropped two calves while doing so. Her price was \$8,000. W. H. Dupee of Riverside acquired four heifers for \$6,100.

SOME POINTERS ON THE GUINEA FOWL

Of the three varieties of guinea the color is the only distinguishing mark. The pearl is by far the most common variety, though there are to be found many fowls of white variety, and a few of the lavender, which closely resembles the pearl.

Guineas are nervous and noisy and require plenty of room where there are trees and brush. However, they can, though at less profit, be reared in pens and coops like other poultry. In the wild state they mate in pairs, but under domestic conditions, it is necessary to keep only one male for four females.

Guineas are prolific layers through the late spring and summer. They cannot, however, compete with the ordinary hen in egg production. They usually hollow out a place in the ground for their nest which they make every effort to conceal. They frequently lay 20 to 30 eggs before becoming broody. If the eggs are removed, from the nest, they will continue to lay until late in the season. As many as three or four nest eggs should be left at all times.

To prevent guineas from hiding their nests, they should be kept, during the forenoon, in an enclosure where nests are provided for them.

A bottomless box set on the bare ground makes an ideal nest for a guinea hen.

Guinea hens do not sit well, nor do they make as good mothers as ordinary hens. A guinea will cover 14 of her own eggs, while an ordinary hen will cover 18, for the average size of a guinea egg is considerably less than that of a hen egg. Incubators, however, have been used successfully. The period of incubation is 28 days, just as in the case of turkey or duck eggs.

Like a turkey hen, a guinea is apt to drag her young ones around through rain and dew. Moreover, she will never hunt shelter at night, but will roost on the ground, wherever she happens to be when night comes. For these reasons it will be much better to put the young guineas in charge of a chicken hen. A hen that is inclined to range afield, like the Leghorn hen, will make the best mother for young guineas. A coop should be placed in a field or lot, at a distance from the house, and the hen made to stay there at night until the young guineas are old enough to roost in trees or on a perch. This they will do when they are six weeks old.

They are great foragers, roaming through the fields in search of bugs and worms. Hawks will get very few guineas, since guineas dart to cover at the slightest alarm and warn other fowls by their loud chattering.

When game is out of season or scarce the guinea is considered a very satisfactory substitute, the flesh having a flavor which is very attractive to lovers of wild fowl.

CALIFORNIA EGGS GO EAST

Interesting figures are given out by the California Development Board as to egg shipment from this state to Eastern markets during 1921.

While prices received by poultry producers were slightly below those of 1920, the shipments to the east exceeded all years. It is estimated that Petaluma shipped 744 cars of eggs to the east; Los Angeles shipped 70 cars; San Diego 39 cars and other scattered sections 38 cars, making a total of 1,105 cars. Reduced to dozens, this would total some 13,500,000 sent by rail from California. Between December 20, 1920, and September 30, 1921, the Poultry Producers of Central California, handling the majority of the eggs in the San Francisco Bay region, Petaluma and Santa Cruz districts, in the lower Sacramento and entire San Joaquin valleys, report sales of 560,802 cases, valued at \$5,275,458 to the producer. The Poultry Producers of Southern California handle much of the production from the Los Angeles region, the Imperial valley, San Diego, Riverside and San Bernardino Counties, in addition to some shipments south of Porterville in the San Joaquin valley, and report sales of 4,103,444 dozen eggs in 1921, valued at \$2,096,450, compared with 4,054,283 valued at \$1,819,333, in 1920.

COOPERATION IN SWEDEN

Sweden has about 1,000 cooperative stores, besides many varieties of other ventures such as cooperative dwelling and building associations, purchasing societies, large number of cooperative dairies, farmers' societies, 70 egg selling organizations, cattle breeding societies and fruit and vegetable growers' cooperatives.

Last year's report shows that a net surplus of about \$125,000 has been made by these nonprofit making societies, while the cash on hand has increased from \$1,250,000 to \$1,850,000.

In spite of the dismal year for other industries in Sweden, 1921 was a banner year for these cooperative societies whose membership is mostly drawn from the ranks of farmers and workers in the larger industrial centers. These latter, of course, are members of buying associations in the main.

POULTRY QUERIES

(Continued from Page 641.)

tuberculosis. If they are of normal weight the trouble may be rheumatism. The lameness is quite similar in the two diseases, but in tuberculosis there is increasing emaciation and a post mortem discloses yellowish white cheesy nodules on liver, spleen and intestines. If you open a hen that has died and find these spots you will have good reason to believe she died of tuberculosis. If the hen is fat and you find no such spots you may safely conclude that she had rheumatism, due, probably to dampness in house or yard. Tuberculosis often affects the joints and causes this apparently rheumatic condition. The only cure for tuberculosis is to kill and bury deep or burn every affected bird, and thoroughly clean and disinfect the premises. To cure rheumatism, keep the birds in dry, warm, well ventilated houses with well drained runs and give a good nourishing ration with plenty of green feed.

Blood in Eggs

The past two months some of our hens have been laying eggs with blood in the yolks, some of them so bloody I do not like to use them. We feed a scratch mixture and laying mash, with grit, shell and charcoal always before the hens.—Subscriber, San Gabriel.

Those blood spots in the yolks are due to slight hemorrhages in the oviduct and are almost always seen when the hen is doing her best laying, that is, in the spring. Sometimes there may be a congenital weakness in the blood vessels of the oviduct, but more often the trouble can be controlled by the use of a less forcing ration. If you will add bran to the laying mash, making it half bran and half mash, and feed a liberal amount of green feed I think you will see fewer of those bloody spots.

Mysterious Deaths

Is it possible to feed laying hens too much clabbered milk? I feed wheat twice a day and the hens run on alfalfa morning and night. I have lost three the past week and two more are sick. There is no bowel trouble. They droop and refuse to eat but drink a great deal and only last a few days. Combs remain red to the last and then turn black. They have a large yard, and since the weather turned warm, roost outside.—Subscriber, Madera.

A ration of grain and green feed is not a balanced ration, but it should not cause the hens to droop and die. Are you sure there is no must or rot in the wheat and that they have found nothing on range that might have poisoned them? The fact that they are dying off so rapidly makes me think there must be something of this sort. A dose of castor oil as soon as you notice that a bird is sick might do some good, but the main thing is to find out the cause and remove it. Milk could not possibly make them ill unless it contained some drug that had been put in it to keep it from souring. It would be better to feed wheat only at night and keep a laying mash before the birds during the day.

Crippled Chicks

What makes crippled chicks?—Subscriber, Petaluma.

Insufficient turning and airing of eggs in the incubator and too high a temperature at hatching time stiffens the joints and make cripples of otherwise normal chicks. Chicks hatched under hens that do not leave the nest regularly are sometimes crippled but such cases are rare.

U. S. RECEIVES FAR EAST WEATHER REPORTS

Recent arrangements have been made with Father Algue, director of the Philippine weather service, whereby the weather bureau of the United States department of agriculture receives daily reports from Midway Island, Guam, Manila, and eight cities in China and Japan, including Hongkong, Shanghai and Tokyo. These reports are transmitted from Manila to San Francisco by naval radio stations.

The Deep Creek cut-off it is hoped will be finished before next winter. San Bernardino County supervisors are informed by the federal highway department, which is doing the work, that bids will be opened June 20.

The big cement mill at Victorville is putting in extensive additions which will increase its capacity one-half.

WEATHER REPORT

San Francisco, Cal., June 9, 1922.			
Stations—		Past Wk.	Season
		—Rainfall—	—Temp.—
		Past Wk.	Season
Eureka	.....	.01 34.59	45.15
Red Bluff	.....	.0 16.62	24.63
Sacramento	.....	.0 14.04	19.97
San Francisco	.....	T 19.65	22.18
San Jose	.....	T 14.76	16.73
Fresno	.....	.0 10.70	9.62
San Luis Obispo	.....	.0 23.26	20.45
Los Angeles	.....	.0 19.65	15.57
San Diego	.....	T 18.63	10.01

No. 1 of a Series of Letters from Satisfied Users of Victory Tree Spray

ALTA LOMA HEIGHTS CITRUS ASSOCIATION
Member of California Fruit Growers Exchange
Shipper of Sunkist Oranges and Lemons
Alta Loma, California,
April 1st, 1922.

Mr. William M. Pinckney,
Alta Loma, Calif.

Dear Sir:—

Concerning the Victory Spray, I will say that a number of our largest growers have used this spray in the past, and seemed very satisfied with the results.

The fruit showed to advantage when brought to the packing house.

Sincerely,
BRUCE MOORE, Secretary.

COPY.

See Our Dealer or Apply to

Victory Tree Spray Co.

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**100,000 MILES
OVER UNUSED TRAILS
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**THE MOST SCIENTIFIC
ROAD TEST EVER GIVEN
ANY MAKE OF TIRES**

COAST TIRES

WEAR DEFERS

Never before has such a test been attempted. Tire performances have been based upon track and road races, or inter-city runs over highways. Coast Tires have triumphed under such conditions, and we are now going to "treat 'em rough" and demonstrate their ruggedness and durability in this, the most severe test ever given any make of tires.

Colonel King Stanley, one of the most famous of the old-time Indian scouts and an experienced trail blazer, with William Spohn, of Oakland, a noted hunter and sportsman, have started on the first leg of their one hundred thousand mile journey over unbroken roads off the main highways of travel, in order to make a thorough and comprehensive test of the wearing qualities of Coast Tires, and to chart and break roads and trails hitherto unused by automobilists.



Regular Stock Coast Cord Tires

will be used throughout this entire journey, and at the end of each day's run accurate speedometer readings will be made and the condition of each tire carefully noted and reported upon to the factory.

THE LATEST RECORD FOR COAST TIRES

The Mt. Wilson Trail in 22 Minutes

On Friday, May 19th, Mr. Frank E. Benedict, driving a Paige 6-66 Special, equipped with Coast Cords, lowered all existing records for the famous mountain trail by 5 minutes, 51 seconds.

Mr. Benedict claims a great part of his success was due to the perfect service rendered by his Coast Cords over the rough and dangerous trail.

COAST TIRE AND RUBBER COMPANY

MAIN OFFICE AND FACTORY
OAKLAND, CALIFORNIA

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

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No. 24

Peaches Are as Good as Gold



This seems to be a good peach year. Particular attention has been called to the value of the crop in one of the greatest peach producing sections in the state by Peach Day and pageant celebration which was held in Sutter County recently. This orchard, however, is one of old Tulare's finest. The favorite in Tulare County is the freestone, while the favorite in Sutter County and some other sections of the state is the canning cling.



Announcing the Introduction of the
Jackson Fumigating Pump

In line with the policy of this company to make available for its customers the benefit of every new device that tends toward the development and improvement of the Fumigating Industry, we are announcing the perfection of the new Jackson type pump—a cut of which is shown on this page.

Distinctive Advantages

The finer the atomization and the quicker the distribution, the more effective will be the fumigation. The finest atomization is secured through the powerful leverage that is a special feature of this new pump—which insures quicker distribution—and at much less effort to the operator.

Accuracy

The measuring means is protected from the heat by submersion in the cool liquid — maintaining accuracy and preventing waste.

Safety

As a result of the working part of the pump being entirely under the tent, any leakage that might possibly occur is saved for fumigating purposes—and at the same time is prevented from coming into contact with the operator.

Simplicity

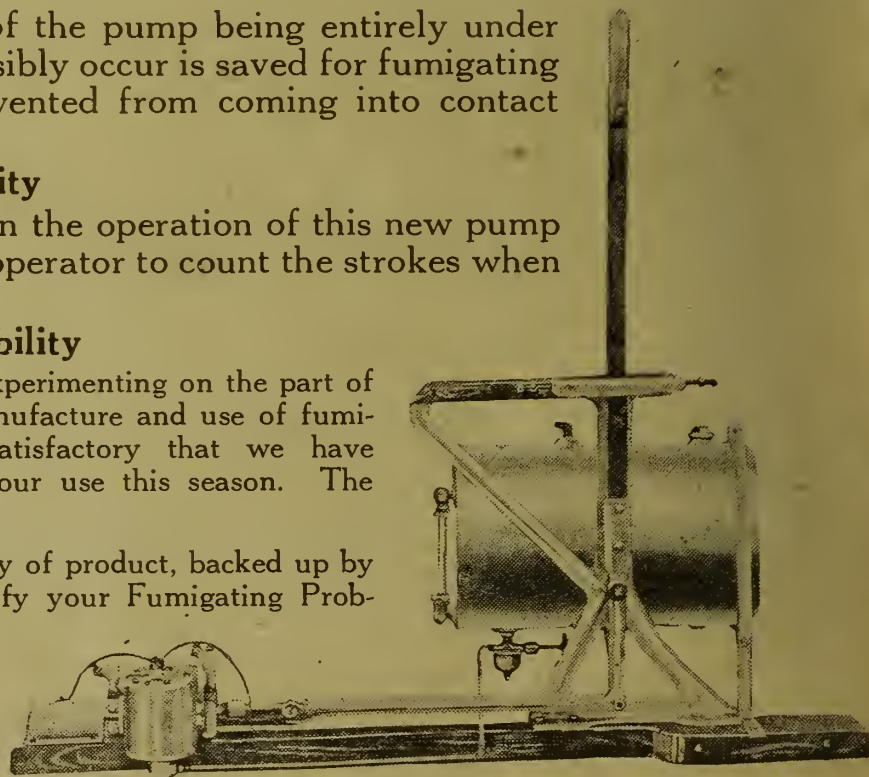
Nothing could be more simple than the operation of this new pump—all that is necessary being for the operator to count the strokes when pumping.

Dependability

This pump is the result of exhaustive experimenting on the part of engineers with years of experience in the manufacture and use of fumigating appliances. Its performance is so satisfactory that we have spared no expense to make it available for your use this season. The pump is being supplied in two desirable sizes.

This pump, together with our high quality of product, backed up by an unexcelled field service, will greatly simplify your Fumigating Problems.

Owl Fumigating Corporation is sole licensee under the Dingle patents for the manufacturing and applying Liquid Hydrocyanic Acid for Fumigation.



Owl Fumigating Corporation
 AZUSA CALIF.

"The Guardian

of Your Grove"

California Water and Power Act

Affirmative?

WHICH

Negative?

By L. F. Parton



CALIFORNIA'S water and power act is a proposed amendment to the state constitution. It was put on the ballot by the initiative and will be voted upon by the people at the state election November 7 of this year.

The purpose of the amendment—which is Number 19 on the ballot—is given in section 1 as follows:

"It is hereby declared to be the policy and purpose of the state to conserve, develop and control the waters of the state for the use and benefit of the people."

There are three factors involved in carrying out the above purpose. They are: Irrigation, flood control, hydro-electric power development.

These undertakings must be related. Each must be made to serve the other and all must be made to serve the people. In controlling floods waters will be stored; in releasing water for irrigation power will be generated. By properly relating the work of irrigation, flood control and power the maximum of development and the minimum of waste gradually can be attained.

The state is the only agency that can be trusted to develop the combination of power and irrigation in conformity with the greatest benefit. Private power development, in its insistence on continuous flow, wastes water that might be of greater stored value in the irrigation season than the increased units of power produced by permitting the water to run off during the non-irrigation period. This is strikingly exemplified in the long contest between the water power interests and the irrigation interests on Tahoe and Truckee River.

There are two general requirements for adequate water and power development in California. They are:

The greatest possible freedom for different communities in carrying out development which they know to be feasible and necessary, without invasion of any natural or vested rights enjoyed by any community.

Unified control by which communities may enjoy the advantages of co-operative development, the end of waste and duplication, and achievement possible collectively, but impossible separately.

There is one basic and fundamental requirement underlying all others. It is a method of finance which will assure ample funds, the lowest possible interest rates, the payment for construction out of returns, without profits to middlemen, and the supply of water and power at cost.

California's water and power act meets all the above requirements. To summarize:

California's Water and Power Act is a proposed constitutional amendment, to conserve, develop and control the waters of the state for the use and benefit of the people; to make possible the unified and scientific maximum of irrigation, flood control and hydro-electric power development; to guarantee to separate communities the fullest possible freedom in solving their own water and power problems, with state assistance; to provide a method of unified control by which communities may cooperate, and to make the remaining nine-tenths of the water and power resources of California pay for their own development, without taxation of the people, without profit to middlemen, without new bonded indebtedness on the land, and with rates at cost to users of water and power.

The provisions of the amendment for carrying out the above purpose

MANY MEN OF MANY MINDS

The old copy books had among the wise saws we wrote over and over and over, "Many men of many minds." That well worn phrase applies with special force to Californians at this moment. It is true of many questions of public importance; especially so of the California water and power act which will be voted upon on November 7 next. California has been wonderfully blessed in the white coal placed in her mountains. We have been gradually making this available; sometimes through the activities of corporations, sometimes through municipalities or districts. Now the proposal is made that the people increase the use of this power. The public utility corporations are asking if it is wise to take from them the handling of these great utilities. We believe, however, there is nothing in the proposed act which provides for condemnation or other proceeding which would deprive any company now existing in this state of any of its rights. Of course the right of eminent domain still stands as it has from time immemorial.

Discussion is waxing warmer every day, and we are glad to give in this issue in parallel columns statements by proponents of both sides. Dr. Walker, president of the state farm bureau federation, is quoted in a few sentences. J. A. Teagarden of Placer County, also a state farm bureau official, presents another statement. There is also given statement of what the California water and power act is, by one of its friends. These we hope will aid Cultivator readers in arriving at clear understanding of the act.

fall under four main headings. They are:

Availability of state credit for community development.

The organization of the California Water and Power Board, to which are assigned powers to carry out the purposes of the act.

A definite legal process by which single communities or communities in groups may proceed under the act.

Safeguards against political control, or corrupt or unwise administration.

Communities, separate or united, may, under the amendment, procure state credit for irrigation or power development, or both, or for building or acquiring distributing systems for water or power or both. This credit will be extended only on the basis of proven, feasible projects, with assured returns sufficient to retire bonds in fifty years, and meet interest, operating, depreciation, maintenance, and other charges. For distributing systems, the return must be in twenty-five years. The sale of bonds will be limited in each case to the amount required for the project in hand, and the final limit of this gradual extension of credit, item by item through a period of years, is five hundred million dollars.

The foundations of the amendments are rates at cost and unified development. Adjustments of rates from time to time, according to varying costs of labor and materials is provided, so that rates may always be kept on a cost basis. Pursuant to the need for unified development, the Water and Power Board, of five members, appointed by the governor, is given adequate powers in cooperating with various communities, the state, or the United States.

The actual sale of the bonds is in the hands of the finance committee, consisting of the governor, the treasurer, the controller, the chairman of the board of control and the chairman of the water and power board. The actual merits of a proposed project are made an essential part of the committee's consideration.

* * *

By Louis Bartlett, Mayor of Berkeley and President of the League of California Municipalities

I agree with Franklin K. Lane that "water power can do more than any one thing to lower the cost and raise the standard of living."

This act will give us cheaper water and cheaper power than can ever be had under private ownership. California has 8,000,000 undeveloped hydro-electric horsepower, worth \$3,200,000,000 when developed—one-third of the wealth of California.

The act is economically sound. It will develop these resources for the benefit of the people, eliminating private profit now responsible for the high cost. It permits development on state credit, that is, by money raised by the sale of state bonds bearing a low interest rate. When the state has completed the projects that may be built under the bond limit of the act,

(Continued on Page 651.)

By J. A. Teagarden, Before Convention of Pacific Coast Electrical Association



THE farmers of this state are very greatly interested in the development and distribution of its water and power. In California "water is king." No one appreciates this fact more than the farmer, for upon the proper development and distribution of its water and power depends the future greatness of the state.

This state, with its climatic conditions, its soil fertility, plus a reasonable development and distribution of its water and power, is destined to become the land of small farms, on small acreage, with intensive cultivation. There is no better place to grow patriots than on the small farm owned and tilled by the occupant. No nation can be more secure than to have its food supply in time of peace or war controlled and dependent upon its patriotic citizens who are owners and tillers of the soil, rather than to be dependent upon an alien tenantry. Is not the farmer entitled to a little protection whereby rural life can be modernized and Americanized? With every person in the Union seeking the delightful climate of California, it stands us in hand to convert every available acre of land into the building of rural homes.

Water and power are our greatest factors in the development of the farming districts, while tax free bonds and tax free property are fast becoming the greatest menaces. Taxes must be paid by someone. Whatever bonds and property are exempt, so much more must be paid by property not exempt. This year, the people of California are being asked to pass upon a new initiative measure, the proposed "Water and Power Act." Water being king in this state we as farmers can not afford to deal lightly and barter away our rights by endorsing a proposed plan that is something new, something untried and wholly idealistic in its nature.

They tell us that this proposed measure is not untried but that it is copied after the Ontario plan that is now in use in the Province of Ontario. If they have tried to copy this proposed act after the Ontario plan, we would advise the dismissal of their copyist. Two years ago the provincial legislature of Ontario recognized that by their system the cities were being granted special privileges over the rural districts, that on account of the difference in population between the urban and rural districts the cost of distribution was many times greater in the farming districts than in the cities, whereupon the legislature appointed a committee to prepare plans for a most just and equitable method of distribution. The committee recommended and the legislature approved such recommendations, whereby a subsidy was granted to the farming sections to the amount of one-half of the cost of construction of rural lines along public highways. Why was not

this clause added to the proposed act for this state?

In the Ontario plan the water and power commission of Ontario can not begin any new project nor expend one dollar without first being authorized by the provincial legislature. Why was this protecting clause not written in the proposed plan for this state? When Ontario would not, why did they write into the plan for this state, giving to the water board unlimited and despotic powers? Why empower any board to exercise legislative, judicial and executive functions whereby the people are disenfranchised in the exercise of their inalienable rights that must be exercised by them in order to perpetuate any democratic form of government?

This proposed measure is purposely camouflaged with certain catchy phrases such as "public ownership" and "water and power at cost." Ownership always carries with it the authority and power to use, control, direct and operate. In this proposed measure the public does not control, direct and operate, but this function is turned over to a board, therefore it becomes board controlled and directed, instead of publicly controlled and directed. Water and power at cost is a meaningless phrase. Cost is almost wholly dependent upon efficiency of the management. During the war we had much experience in purchasing things at cost plus ten per cent, so much so that it will take one generation plus another to pay the bills.

We have a commission at the present time, created by law, whose duty it is to regulate the service charges of public utilities so as to make them just and reasonable. If this commission is not promptly functioning for the purposes for which it was created, then the fault and the remedy both rest with the people. If we cannot control one commission we would be powerless to control two, especially when the appointing power of both commissions would be vested in the one person. It would be inconsistent to presume that the one appointing power would appoint the imps of hades on the one commission and the angels of heaven on the other.

Does this proposed measure give to the farmer any additional protection or assistance? No reasonable water or power project in this state has ever been denied proper financing where the earning power of such project was commensurate with the cost of installation, provided said district or municipality had not already used its bonding power for other purposes.

There is but one source from which money can be borrowed and there is but one basis of credit regardless of whether the borrower be an individual, corporation or state. When the state borrows money it pledges the farmer's ranch as security. Private corporations could finance themselves as cheaply if we would permit them to pledge our securities. The state is powerless to create wealth by law. Russia attempted such a feat, which resulted in the development only of the paper mills and the printing press.

Who stands sponsor for this proposed measure? Who are the agricultural philanthropists who have come so suddenly upon the scene of action for the purpose of conserving and protecting the farmers' interest? I presume that their long and arduous services in the cause of the farmer will entitle them to an honorary badge as protectors and defenders of agriculture! It looks to the farmer as though there was an axe to grind and a job to be secured. The League of Municipalities has indorsed this proposed measure. Why?

Why was that clause inserted giving (Continued on Page 651.)

Agricultural News Notes of the Pacific Coast

Northern California

Daily train service between Truckee and Tahoe City began June 10.

Glenn County farm bureau meetings: Capay, 21; Glenn, 23; Grapevine, 28.

Solano County farm bureaus held a joint meeting at Bird's Landing June 6.

A union rail, motor and ferry terminal is proposed on Goat Island in San Francisco Bay.

Cool, El Dorado County, reports Royal Anne cherry trees loaded and fruit almost ready to move.

Karmak, Sutter County, reports big wheat crop in prospect. Well above 30 sacks to the acre is expected.

The highway from Summit to Donner Lake is not expected to be open till the last of June because of snow drifts.

Experiments in revegetation of over-pastured range lands will be taken up by the division of forestry of the state university.

Results of the second year's work in plum pollenization at Newcastle are being given to orchardists by Prof. A. H. Hendrickson of the state university.

Westwood, Lassen County is planning a three days celebration beginning July 2 with ball games, ending July 4 with parades and other entertainments.

B. A. Rudolph of the state university will be stationed at Auburn, Placer County, to make study of troubles affecting peaches, plums and pears in that district.

Irrigation demonstrations will be given in orchards of Placer County by Prof. S. H. Beckett, of the state university. Meetings will be arranged by County Agent Roy McCallum.

Santa Clara Valley apricot men in the membership of the California Fruit Growers have named \$100 a ton on canning fruit and canners are said to be buying freely at that price.

The California Prune and Apricot Growers has purchased at Red Bluff, Tehama County, the packing plant of the Sanitary Fruit Company. It will be used as a receiving house for prunes.

The cannery at Lincoln, Placer County, will open about June 20. The first month's run of apricots will be shipped from Vacaville. 70,000 cases of the new peach pack are reported already sold, mostly to English markets.

The U. C. short course on preservation of fruit products at Berkeley was well attended. Prof. Cruess demonstrated preparation of new fruit drinks; Miss Lilian Clark, drying of fruits and vegetables in home built evaporators.

Fruit growers of Dairyville, Antelope and Oak Park have formed the Tehama County Fruit Growers Association and contracted to ship through the California Fruit Exchange. The new association expects to market 25 cars of fruit.

Directors and commissioners of agriculture of 11 western states in convention at Sacramento declared "Japanese farmers in the west are rapidly gaining a stranglehold on the agricultural industry and by reason of a lower standard of living are underselling American farmers," and asked congress to correct the situation.

Central California

Bakersfield is a center for shipments of live poultry.

Tulare County estimates its orange output at 6800 cars.

Lindsay Blue Goose oranges won sweepstakes in Valencia show at Anaheim.

Kern County farm bureau meetings: Pond, June 21; Inyokern, 22; Rosedale, 23; Muroc, 23; Shafter, 26; Arvin, 30.

Modesto cannery is running full capacity on peas grown in the Emplre section.

Grangers of the state are asking that at least two of the regents of the state university be farmers.

Farm home department meetings in Kern County at Weed Patch, June 20; Inyokern, 23; Kern Delta, 28; Wasco, 29; Edison-Fairfax, 30.

The annual encampment of boys agricultural clubs of Fresno County was held at Lake Sequola near General Grant national park, June 3-9.

The Pajaro Valley reports clean-up of apple stocks a month earlier than last year. Los Angeles has been steadily developing as heavy consumer of Newtons.

The state's apricot crop is estimated at 75 per cent of normal by President Clayton of the First National Bank of San Jose. He considers a price of 9 and 10 cents a pound likely.

Raisins from different parts of the world are being collected by the Sun Maid Raisin Growers. They will be installed as an exhibit but primarily are to be studied as to methods of curing.

The Stanislaus farm bureau cow testing campaign will be carried on through June among dairymen of the West Side. A survey by field men shows 14,553 cows milking in the district between Newman and Patterson.

T. B. McKelvy addressed olive growers at Madera, May 26, on the subject of the contract of growers with the newly organized California Olive Growers Association. Meetings will be held in all olive growing sections of the state.

Minimum wholesale price of strawberries was set at 45 cents a drawer by united action of wholesalers, retailers and growers at Watsonville last week. Last year's minimum was 50 cents. Growers do not expect this year's 45 cent minimum to be reduced.

Work was completed last week on the 12 mile link of the Coalinga-Hanford state highway. This will afford a direct connection for Coalinga to the valley highway system. The work of paving the Sierra-to-the-Sea highway, connecting the valley through San Lucas to the Pacific highway, has already been started, a ten mile stretch east from San Lucas now being under construction.

There is no immediate danger of additional severe loss in the Tulare Lake region from flood, is statement by C. L. Kaupke, Kings River water master, who returned from a survey of the flood zone. "None of the reclamation districts are menaced at present by the floods," Kaupke asserted. "Only the most unexpected flow of water at its peak would cause the districts behind the huge levees to be inundated."

Southern California

Citrus institute at Pomona July 14-15.

Niland, Imperial County, has been made a farm bureau center.

The Pomona-Chino district estimates its peach crop at 11,000 tons.

Second annual walnut field day will be held at Santa Paula, September 1-2.

Yucalpa Valley cherries are ripe and are drawing many visitors to the section.

A deciduous fruit growers department has been organized in the Los Angeles County farm bureau.

There will be a big walnut crop in the San Gabriel Valley according to estimate of J. E. Killian of El Monte.

The Imperial city council is proposing to plant fruit trees on city lots which have been sold to the city for delinquent taxes.

Orange County citrus growers will establish an insectary at Anaheim. Horticultural Commissioner A. A. Brock will be in charge.

Potato growers field day in Los Angeles County, June 27, convening at Van Nuys high school 10 A.M., field observations in afternoon.

Sales Manager Webber of the California Walnut Growers Association is urging an aphid and worm dusting campaign through June and July.

The Oasis farm center initiated a plan for a Grape Day for the Coachella Valley. It will be held on the Narbonne Ranch, July 11 as a combined grape institute and exposition.

The adjourned cotton quarantine conference opened at Sacramento will be held in Riverside in July. Palo Verde and Imperial cotton planters are asking embargo on cotton seed from outside the state.

The Imperial irrigation district has voted a bond issue of \$7,500,000 to buy up and consolidate mutual water companies and to construct drainage system. The consolidated district will include more than 600,000 acres.

Poultry culling demonstrations will be held by farm bureau in Los Angeles County at San Fernando, June 26; Van Nuys, Baldwin Park, 27; Lomita, Pasadena, 28; Downey, 29; Pomona, 30.

Members of the walnut associations of El Monte, Puente Valley, San Fernando Valley and Mountain View have voted to join the Los Angeles County farm bureau walnut department in a body.

Avocado top working demonstrations under auspices of Los Angeles County farm bureau at Pasadena and North Whittier Heights next week. Exact dates may be secured from farm bureau officers.

The justices of the peace of Imperial County townships have been notified by county supervisors and horticultural commissioners to rigidly enforce the laws prohibiting the shipment of green cantaloupes, watermelons and tomatoes.

Local farm bureau meetings in Los Angeles County: Baldwin Park, San Dimas, June 19; North Whittier Heights, Spadra, 20; Pomona, La Verne, 21; Rivera, Whittier, Owensmouth, 22; Downey, Tierra Bonita, 23; San Fernando, Owensmouth, La Canada, 26.

The Coast and General

A plague of grasshoppers is reported in grain fields of Tule Lake and Keno districts of Oregon.

Cotton chopping is in full swing in Arizona. Hot, dry weather has been favorable to quick growth.

Lettuce growers of Idaho have organized, adopting practically the same grades used by Californians.

The Association of Hawaiian Pineapple Canners is putting on another great national cooperative advertising campaign.

The state of Washington is starting a number of suits against Japanese for illegal holding of land under anti-alien laws.

More than 3,000 acres are being planted to potatoes in Malheur County, Oregon. Idaho Rurals are the favorite, with considerable plantings to Netted Gems.

Completion of the Sierra-to-the-Sea highway will be celebrated at Hanford, July 4. Kings, Tulare and Fresno Counties will join in the festivities.

A new bill is being drafted to stop grain "gambling", by Representative Tincher in place of Capper-Tincher bill which was nullified by decision of supreme court.

Aaron Sapiro of San Francisco is organizing tobacco growers of Wisconsin and a milk marketing association at Beloit along the lines of California's successful cooperative associations.

In keeping with the promotion of Bellingham, Washington as Tulip Town, local men have organized the Holland-American Bulb Company, with Bellingham as headquarters and a capitalization of \$60,000.

Last year Salt River Valley, Arizona, shipped over 1,000 carloads of cantaloupes. Growers this year are somewhat fearful that the late Imperial Valley melons may compete with theirs on the market.

Portland's annual Rose Festival June 20-23 will draw the usual large crowd railway officials announce. Following as it does this year the Shrine convention at San Francisco there will be a large number of Eastern visitors.

An agricultural demonstration train will be run over the Canadian Pacific Railway through the province of Quebec. It will carry instructors from various agricultural colleges. Two cars of the 12 in the train will be devoted to cattle.

Roundups are in progress in northeastern Arizona where the grass is reported as growing nicely and stock are improving. Favorable conditions prevail in the Pinedale, Prescott, Nogales and Williams districts; fair in the Thatcher section but poor about Grand Canyon.

A conservative estimate of this season's fruit crop for Yakima and Kittitas Counties of Washington by the district horticultural department is 14,675 carlots. This is 513 cars more than a year ago. The department estimates the crop in detail at 10,000 cars of apples, 2,500 cars of pears, 1,500 cars of peaches, 150 cars of prunes and plums, 140 cars of cherries, 65 cars of grapes and 300 cars of melons.

The Response of Deciduous Fruit Trees to Pruning

IN 1919 Tufts, in Bulletin No. 313 of the California experiment station, published some very interesting results of pruning young deciduous fruit trees. While he discussed numerous phases of pruning, the one which has perhaps attracted the most attention was his comparison of the results obtained by two different methods which may be designated as follows:

Reducing the tree severely by annual "heading back" or cutting the current year's growth to short stubs; a standard practice current in most orchards.

Reducing the tree slightly by thinning out surplus branches, especially those which crossed or interfered, in the center of the tree. No heading back was practiced unless necessary the first winter, to establish even development of about six main limbs properly spaced. Pruning mainly by thinning out, rather than by heading back, soon came to be referred to by many fruit growers as the "long" pruning system.

Tufts showed that trees pruned by the latter method made more growth; they had thicker trunks, a larger root system and stronger tops; they made shorter whips of new growth at the top, but far more numerous lateral branches and fruit spurs from the crotch of the tree upward; they came into bearing two or three years

By J. C. Whitten, Before Placer County Fruit Growers Convention

When John Charles Whitten came to California in 1918 from Missouri he brought with him some clean cut definite ideas on pruning of deciduous fruit trees, which were at wide variance with the ordinary procedure in California. His views were repudiated by some, accepted by others, questioned by more. He quickly made demonstrations which were so convincing that his long pruning theories were most generally accepted. This was made possible because he knew he knew and further because of his most delightful personality and his way of presenting things. Perhaps this way one of Dr. Whitten's strongest qualities, his ability to make others to see. It has been said of him that more of his pupils have become great in the realm of horticulture than of any other instructor in this country.

One of the last things written by Dr. Whitten before he went to Washington, where he died after a few days illness, was the article which appears on this page, and we are glad indeed to be able to give it as one of the best tributes to Dr. Whitten's worth because it reflects so much of his real personality. Dr. Whitten was a native of Augusta, Maine, where he was born in 1868.

earlier than the headed back trees; they have uniformly produced more profitable crops; their fruit has been better distributed from the lower branches upward and from the inside of the tree outward.

Tufts' bulletin and visits by fruit growers to the experiment station plots at Davis, where the pruning could be studied, resulted in requests to have the pruning work demonstrated in various fruit districts. The agricultural extension service and the division of pomology in cooperation with local farm advisers and fruit growers have held hundreds of pruning demonstrations during the past

three years. Thousands of fruit growers have attended these demonstrations.

It was the policy of the agricultural college staff to suggest that the few trees pruned at each demonstration (usually not to exceed ten) be observed during the following season, in comparison with the remainder of the orchard pruned in the usual manner. It was thought safest to try the method on only a few trees until its merits could be thoroughly tested for different varieties and different conditions. California fruit growers, however, are usually not content with modest beginnings, and they are not slow about

adopting a thing which appeals to their reason. If it appealed to them they tried it on perhaps half their orchard. If it appealed strongly they applied it to their entire orchard. Frequently they failed to leave even a few trees pruned in the usual way for comparison.

A large majority of the fruit growers who have tried the long pruning system have secured better growth of their trees, increased yields of fruit, and increased profits with less expense of pruning. Fruit growers in increased numbers are adopting the new pruning practice each year. Some are adopting it in part, by heading back much less severely than was their former practice. A few have tried it and abandoned it for the former practice of heading back.

At the present time long pruning prevails in perhaps one-half of the deciduous fruit area of the state, according to estimates of the farm advisers, farm center officials and fruit growers locally interested in observing the results. The degree to which it is practiced varies from a small proportion of the orchards in some counties to three-fourths or more of the deciduous fruit area in other counties. Leading fruit growers have said that they know of no other instance in which a standard agricultural practice has been so largely modified over so

(Continued on Page 663)

Frost Resistant Strains of Oranges

By H. A. Brandt

AMONGST the various suggestions that are now being made for overcoming the effects of cold there is nothing being said regarding the possibility of the discovery and propagation of frost resistant strains of our chief varieties of oranges. Anyone with experience in salvaging young orange trees after a winter like 1913 or 1922 must certainly have been struck by the difference in young trees in their resistance to cold. If this difference in resistance is inherent and transmittable it is a factor that may well be placed along with fruiting habits and proper root stock in the pedigree of young orange trees. It would be hard to think of a cheaper insurance against frost damage in the orchards of the future.

The probability of the existence of frost resistant strains of Navel and Valencia rests in the first place on the tendency of these varieties to vary. Since individual trees differ with respect to fruiting habits, size, foliage, etc., it seems reasonable to expect some difference in resistance to frost not accounted for by location, condition of tree, or cultural conditions. Not only do such differences seem probable and reasonable, but in actual experience the tree surgeon not infrequently finds all stages of resistance, from the tree that has to be cut off and sprouted to the tree that escaped unharmed. On the face of such findings it would seem that experience argues in favor of the existence of frost resistant strains of oranges.

There are several reasons why attention has not been directed to the importance of frost resistant strains of oranges in the past. Amongst these one naturally thinks of the difficulty of being sure just what factors make for the resistance or the susceptibility of trees in any given case. Little can be done toward the discovery of resistant strains until the values of all the controlling factors are known. This element of uncertainty has doubtless resulted in the neglect of the inherent resistance factor. A second reason why frost resistant strains have elicited no interest is the fact that the gains to be derived are rather in the future than in the present. The man with a bearing orchard is inclined to feel committed to the trees that he has; he might do otherwise the next time he planted an orchard if he does not forget about it in the meantime. Then, too, the maturity of trees brings increased resistance to frost. Thus,

trees that would have made a poor showing had a freeze come while they were young grow to maturity during a series of mild winters, after which for practical purposes they may do as well as harder trees. But whatever the reason the fact remains that the discovery and propagation of frost resistant varieties of Navel and Valencia is a task for the future.

So much for the theoretical aspect of frost resistant strains of oranges. What has experience to offer? In 1913 the writer did most of the surgical work on 15 acres of three and four year old Navels and Valencias about equally divided as to variety. Ten acres of three year olds were so badly frozen that they were cut off without fear or favor in the sound wood a few inches above the bud. Of course it was impossible to check up on frost resistance in the ten acre plot. The situation was very different with five acres of four-year old trees near by. These last were enough older so they showed considerable resistance from the standpoint of the age factor. In the five acre orchard the damage ran from twig damage to severe freezing of the main limbs and upper part of the trunk. After the tree surgeon was through some of the trees had received a light pruning, some had been bucked back, and those with trunk damage sawed off. It was a strange looking orchard, and since there was little in location and cultural differences to explain the variations in resistance the conclusion was that the factor of inherent resistance or susceptibility must have been important. However these orchards were planted old style; there were no pedigree trees available to the general public then.

The planting of pedigreed trees has enabled us to take the next step in evaluation of the frost resistance factor, and particularly to discover if resistance is transmittable. The writer has just finished going over 1,000 one and two year old trees about evenly divided as to Navels and Valencias. The damage in these orchards is not so severe but that many differences in resistance loom up, and in particular in a block of 256 two year old Valencias some interesting facts have come to light. The block is 16 rows square, and so far as soil and cultural conditions are concerned the trees in this plot are on a par. The trees are all pedigreed, the four rows on the west

being the progeny of one tree. These four rows have from the day of their setting shown some distinctive features, notably a very dark green color has been characteristic of both foliage and bark. As the tops have begun to form during the past two summers a certain compactness has been increasingly characteristic. Otherwise the trees in these four rows have developed like the other 12 rows. A casual observer would perhaps have noticed no difference, but one cannot associate with orange trees for 20 years and not begin to notice individual characteristics. Thus some little differences had begun to appear before the supreme test of the winter of 1922. Before pruning up this block of 256 Valencia trees the difference as between frost damage to these four rows and the remaining 12 rows had become apparent. At least there seemed to be a difference and so the tree surgeon carried a little card and noted the extent of the work done on each tree. Trees that showed no frost damage except the singeing of a few leaf tips and that were in full vigor were marked "S" for special. They were, so far as the 1921-1922 winter was concerned, immune to frost damage. Then there were more with no serious damage but with here and there a twig bitten back. They were the average trees, without serious damage of any sort, but not in a class with those marked "S". A third and still larger group were marked "OK" for all right. A third as a whole was the group needing trimming. Anything short of cutting in the trunk was marked "T" for trimmed. Where the trunk had to be cut the surgeon wrote "R" for reheaded. This class really included two groups; those trees needing to be sprouted just above the bud and those with enough good trunk that they could be cut off and reheaded. The tally for the whole block of 16 rows, or 256 trees, is as follows:

Grade	No. Trees	% total
Specials	33	13
OK	55	21
Trimmed	94	37
Reheaded	74	29
Total	256	100

The above figures show nothing except that as between individual trees there is a difference in resistance to cold which in this case seems best

explained by emphasis on the inherent resistance factor. Occasionally the condition of the tree furnished a determining factor, but on the whole general conditions as to location and culture were so similar that inherent resistance or susceptibility seemed the big determinant. A comparison of the per centages for the 12 row group and the four row group support this conclusion and indicate that in this case at least, resistance must "be in the blood" or sap. At any rate the four rows, the progeny of one tree, had about twice as many on the per centage basis in the Special and the OK groups as did the 12 rows. Of the four rows 25 per cent were Specials and 28 per cent were OK, total of 53 per cent in the two upper groups. In the 12 rows 9 per cent were Specials and 19 per cent were OK, or 28 per cent in the two upper groups. A second aspect of this difference is that the four rows had 47 per cent susceptible trees as against 72 per cent in the 12 row group. This would seem to indicate that with pedigreed trees it should be possible to locate frost resistant trees and that in addition from a study of their progeny the power to transmit this quality can be checked up. The comparative per centages for the 12 row group and the four group are as follows:

Grade	12 Row Group	4 Row Group
	%	%
Specials	9	25
OK	19	28
Trimmed	41	23.5
Reheaded	31	23.5
Total	100	100.

The table of comparative per centages shows differences between the two groups that are significant. This is the reason that attention is called to the importance of the discovery and the propagation of frost resistant strains. Of course, we can not expect to find in resistant strains the whole solution of our frost problem. What we may find is a factor that can be made to reduce the frost hazard in the orange industry, especially during the time that the young orchard is coming into bearing. A winter like 1922 has at least given us ideal conditions for testing out our stock, and now what remains is to check up and see as nearly as possible what trees are the least subject to frost damage. In this way orange growers may find some real compensation for present losses in the discovery of frost resistant strains of oranges that will reduce the hazards of the future.

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EDITORIALETTES

There will never be a finer fruit than the peach. It has been a staple since peaches began. The first recognition of this fruit in a large way was that given by Sutter County in the festival held a few weeks ago. This was not an occasion for glorification but intended to inspire growers to greater effort. The finest on earth is none to good for Sutter and none too good for California.

* * *

What are we going to do with our wine grapes? The question is being asked in all seriousness. It is being asked not because there is lack of market for the world has been surprised at the prices secured by the wine grape growers and there is no indication that they will be materially less this year, but the real trouble lies in the fact that there are not sufficient cars available to carry the enormous tonnage which will be delivered to the railroad companies in the short wine grape season.

* * *

A survey has been made in the wine grape producing counties extending

from Santa Clara to Napa and Mendocino and carlot shipments in 1921 found to be 543 cars. The anticipated demand and production of those seven counties in 1922 will exceed 4,000 carloads. Tokay and Emperor counties will also be shipping about the same time, and the question of the grape growers today is, "How can we do it?"

REORGANIZED

California Alfalfa Growers Exchange, which has been securing for alfalfa growers of California livable prices which have enabled them to remain in the business and occasionally go to the movies, has decided that under former methods of work those not members were receiving almost as much benefit as were the members who were holding the sack. The whole effort of the organization was to sustain and build up a stronger market. In order to do that most effectively reorganization was decided upon and along those lines followed by the raisin growers. A stock corporation to be the central selling organization was perfected and a \$350,000 capital stock subscribed and paid in. This selling organization may handle the product of the members and in addition make purchases on the open market and thus sustain and secure better prices for the members who have contracted to sell all their product through the one selling organization.

There are being organized in various alfalfa growing districts local associations of growers who affiliate and contract with the central selling association. Warehouses are erected so far as possible in the various producing communities. These may be filled with local hay and under the contract with the selling organization may be used as collateral which is readily accepted by the best financial institutions of California.

It looks as if the alfalfa growers are doing real business in a real business way.

FROST RESISTANT CITRUS

The article by H. A. Brandt of La Verne on "Frost Resistant Strains of Oranges," appearing in this issue is worthy of consideration by those engaged in citrus culture. The comparative tables given would indicate that buds from certain trees might produce trees more resistant to frost damage. However, this can not be definitely determined until these same trees have stood the test of one or more future freezes to determine whether they are more hardy or their resistance was due solely to the condition they were in when the frost came.

The ability of a citrus tree to withstand frost is dependent upon whether it is dormant or in a growing condition at the time of the cold weather. A tree that is in a growing condition will suffer much more than one that is nearly dormant and in which there is a minimum flow of sap, and it is not always possible to control this condition, hence a tree that passed through one freeze uninjured might suffer quite badly at another time.

Another phase of the situation and one that will probably interest the grower most is whether or not a resistant strain of tree will produce fruit that will be any more resistant. We hardly think that this is possible. However, there have been other things accomplished that seemed impossible to many of us, and we sincerely trust that Mr. Brandt's article may lead to the development of not only frost resistant trees but also fruit that will have the same resistance.

VACAVILLE CHERRIES

Through the courtesy of one of Solano County's enthusiastic cherry growers, Millard D. Sharpe, we have tasted Vacaville cherries—not one year, nor two, but many, and we wish to assure anyone contemplating eating cherries that it is a perfectly safe venture to try the kind made in Vacaville.

DON'T LIKE 'EM

Funny how folks kick about frozen oranges. Off up there in Winnipeg where they would fall dead if they saw an orange growing by the roadside they are objecting to the real California oranges now on that market. They would like some of California's climate, but they don't like it inside the oranges, and now they are talking of passing a law to prevent importation of that type of fruit. A committee has been appointed to investigate the situation and has reported: "We must have protective legislation or the products banned by British Columbia and the states of the Union would be dumped on the unrestricted provinces as was evidently being done. The city solicitor and the food inspector will frame the necessary legislation against the importation of frozen citrus fruit."

By the way, it would be a good idea for Californians to use that type of fruit for fertilizer. It doesn't pay to queer the game.

WELCOME TO CALIFORNIA

Florida fruit growers are inspecting California orchards. They are making comparisons as to their methods back home. This is the second journey of the kind made by Florida fruit growers. The former one, something less than a dozen years ago, resulted in the reorganization of co-operative movement in that state and the creation of a fruit exchange along lines identical with those of the California Fruit Growers Exchange. This resulted in a degree of affiliation or cooperation between the two widely separated states. We believe that both California and Florida were advantaged by the visit of the Florida growers. We trust the same will be true at this visit, and it occurs to us, "Why not Californians make a trip to Florida and learn the best of their tricks in the trade?"

The present visit is under the direction of Edgar F. Wright, editor of the Florida Grower. We believe every California grower joins the Cultivator in the most cordial welcome possible to our visitors. "Florida, the state is yours. But we hope you will leave it here next to the Pacific, and we will be glad to have you remain with us"

DON'T TAKE CHANCES

We are glad to note that the Covina district is making further investigations and experiments with frost fighting equipment.

We hope that the citrus growers will continue these investigations and that something definite will have been accomplished before another frost as disastrous as the last one hits the industry. However it is one thing to make investigations and determine what equipment will best serve the purpose and quite another to keep the growers interested to the extent that they will install the equipment and prepare for cold weather. One or two mild winters and the grower forgets his experience of the past and hesitates to make the investment necessary to protect his grove, hoping that he will get through another winter without injury and promising himself that next year he will prepare

to protect his grove. We think that every citrus grower, especially where frost is of frequent occurrence, should get behind these investigations and help keep the present interest in frost protection alive until the best equipment possible is produced and then proceed to insure his grove and crops by installing it.

ALMOND GROWERS

The fight is won, and the Almond Growers Exchange is safe. It has been one of the most strenuous fights which cooperators have had to face in California for sometime.

At the meeting held in San Francisco on June 1 careful checking up of contracts signed showed 2,500 almond growers in line on the five year contract, and these contracts were found to cover a sufficient per centage of the total tonnage of the state to make it entirely safe for Manager Tucker and the board of directors to proceed with plans for the crop of 1922. Sales are already making, and the exchange is receiving congratulations as well as orders from the Eastern trade. Under the old agreement any grower might withdraw any time from January 1 to April 1 of any year. This left altogether too much uncertainty; no manager can proceed with plans for the next year's crop when he doesn't know whether his constituency will stand by him or not.

The date for closing the membership rolls has not been definitely set, but the campaign is continuing until formal notice is given by the board of directors.

Practically all of the 1921 crop is now disposed of. The old board of directors is continued. This board has appointed a committee of 13 growers who will go over the by-laws of the exchange and submit recommendations for changes. It is now thought the board will be increased from five to nine, each of the nine to represent one of the almond growing districts of the state. Geo. W. Pierce remains president; the vice-president is C. D. Hamilton, while T. C. Tucker remains manager. In a recent interview Manager Tucker said:

"I know that our customers are going to be more than satisfied with the position in which the reorganization puts the exchange. Moreover our growers are going to be better satisfied. In other words, the exchange is going to function more efficiently, which should be to the best interests of both the grower and the buyer."

FUMIGATION SEASON APPROACHES



THE golden season for citrus fumigation is now approaching, for while both tree and scale are active is the surest time to effectively gas the insect pests. Woglum reported in 1920: "I wish at this time to emphasize that temperature is an important factor modifying fumigation results. For several years I have noted better results in some districts against the black and the purple scales during the high temperatures in August and September than during cold nights in November."

"It is a well known fact that insects are more active at high temperatures than at low temperatures, and generally speaking, as the temperature drops below 60 degrees and toward 40 degrees insects become more sluggish. With both insects and the poison gas most active at high temperatures it is reasonable to expect better scale kill with a given amount of gas at high temperatures. And this is what happens in sunlight fumigation as illustrated by the results of a series of trees infested with black scale which were fumigated at Alhambra with a 100 per cent schedule in February, 1920. The temperature within the tent on the sunward side was 90 degrees Fahrenheit, on the shaded north side, 70-74 degrees. The result was a 99 per cent kill on the sunny side where the temperature was 90 and but 93 per cent on the shady side where it was 70-74 degrees."

The normal hatch of the black scale is heaviest during July, and careful observers say that everything points to "normalcy" of the 1922 season. While some good results have been attained during cold weather it is the consensus of opinion with the experts

(Continued on Page 662.)

AFFIRMATIVE

(Continued from Page 647.)

the difference in interest between what is allowed private companies by the railroad commission and the interest paid on state bonds will amount to \$19,000,000 a year, or over 40 per cent of the present cost of the state government. This \$19,000,000 will remain in the pockets of the consumers instead of being paid out in rates to the power companies.

It is safe. Clyde L. Seavey, former chairman of the state board of control, says that it offers more safeguards in the expenditure of the state funds than any other state bond issue. The public interest is protected at every step. It will not increase taxation.

It is morally right. The investments of the private companies will be protected. Their bond and stockholders will not be hurt. The farming and all manufacturing industries thrive best with cheap power and water, which make employment steady and remunerative; and when every woman can afford to do all her cooking by electricity and use power for doing the household drudgery, she will be truly emancipated, and able to devote herself to the things in life most worth while.

Getting cheap power and cheap water is therefore a moral issue. California's water and power act will get them.

* * *

Dr. Walker, who is president of the state federation of farm bureaus, holds views contrary to those of Mr. Teagarden. In a recent interview Dr. Walker spoke of personal inspection of the great hydro-electric installation in the province of Ontario, Canada, showing wherein rural districts had been greatly benefited. Touching upon the California water and power act.

By W. H. Walker, President, California Farm Bureau Federation

As to that \$500,000,000 bugaboo: They claim they fear state bankruptcy if the state spends that amount right here in the state, yet the power corporations are preparing to spend several times that amount under supervision of the railroad commission and will ask and get 8 per cent return, net, above all extravagances and excessive overhead which the system encourages.

I haven't been able in my own mind to work up any fear over a board at least as easily controlled by the people as is the state railroad commission, whose job it will be to invest state money at low interest rates in revenue-producing projects which give us light and power at cost and carry interest and sinking fund. When the bonds have been paid off we will own the projects outright, free of debt.

The Farm Bureau Federation through its public utility department, has conducted for two years an investigation of power corporation methods. We have not found them so high minded, so idealistic, that I am willing to trust the entire development to them on 8 per cent perpetual returns of projects which the people never will own.

The four or five largest companies right now are asking for more than \$900,000,000 for new projects, and they have in sight other feasible projects that will increase that new investment to not less than \$1,600,000,000. They are not scaring me off with that half-a-million bugaboo.

* * *

Touching upon this question as it concerns one big irrigation district the Modesto Herald says:

"Why the people of these districts should generate power to sell to a private corporation to be resold back to them at a fat profit is beyond understanding. It would be just as sensible to do this with the water. It may be the easy and the expedient thing to sell the power at this time, but the harder thing will in the long run prove the way of wisdom."

PEACH DAY TO BE ANNUAL EVENT

Success of Sutter County's Peach Day has resulted in Sutter, Yuba and Butte Counties joining to make it an annual event. A three days celebration is being planned for June 1923.

NEGATIVE

(Continued from Page 647.)

ing to the board power to contract with the United States and other states regarding interstate waters? What interstate waters have we beyond the Siskiyou, the Sierras or on the borders of Mexico or the Pacific? There is but one point, southeastern California, traversed by the Colorado River. Why does the proposed measure provide that those nearest the

sources of supply are to be served first? There is one district which has aspirations to become the metropolis of the West, and it may be a coincidence that this section happens to be situated nearest the source of supply. This district is desirous of having an unlimited supply of power that it may become the manufacturing center of the West. This is a very laudable ambition if developed and financed by her own resources, but the farmer does not feel that he should be called upon

to pledge his hard-earned credits to develop a city leaving his own industry undeveloped.

We have encouraged private capital to develop and build the water and power systems of the state, and we, as farmers, have also been encouraged to develop and build up the agricultural interests of the state. How would we like to have the state empower this board to take over all the state lands and other agricultural

(Continued on Page 667.)

How To Crowd Two Days' Tillage Work Into One

MANY jobs are done on Fordson farms that would not be done if horses were depended upon for power.

More thorough seedbed preparation is possible because there is more time available for this important work. Good farming practice demands that stubble be disced immediately after removing the grain from the fields, to return valuable humus to the soil, to make fall plowing easier and to conserve moisture.

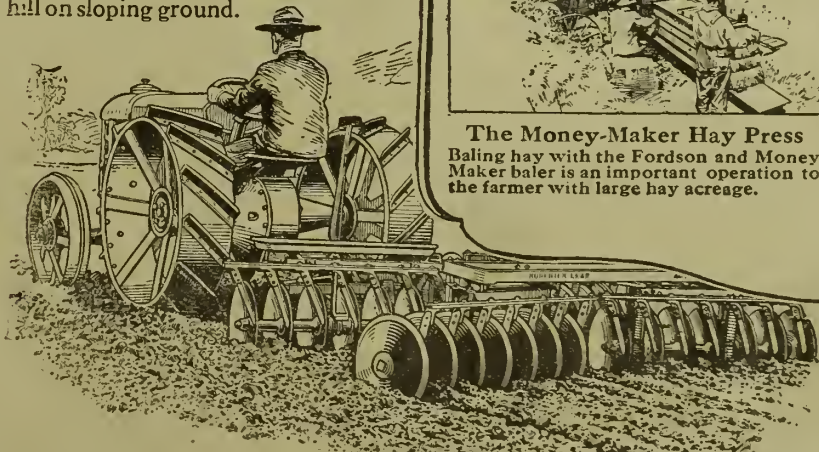
The success of the next crop may depend upon this saving of moisture already in the soil. For this work with the Fordson, as well as for cutting up corn stalks, cotton stalks, and for many other jobs, no other implement does as well as the double disc harrow. There is one disc harrow especially built in every feature to work with the Fordson.

Roderick Lean
Automatic Engine Disc Harrow

Made by Roderick Lean Mfg. Co.,
Mansfield, Ohio

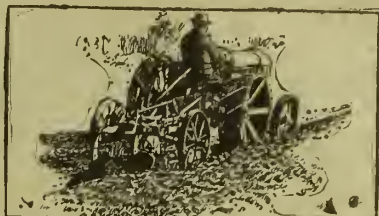
This tool is operated entirely from the tractor seat, and the angle of the discs changed by the power of the tractor, providing quick and easy adjustment without stopping and with little effort on the part of the tractor operator. The entire harrow may be fully and instantly straightened for wheeling through a wet spot, or over an obstruction, while the tractor is in motion.

Working your ground with the Roderick Lean means working every foot of soil. Double reach bars connecting the rear harrow to the front, make the rear disc blades always cut midway between the cuts of the front blades. They cannot track. The rear section cannot slide down hill on sloping ground.

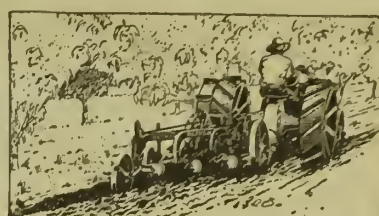


Because the rear section is flexibly connected to the front, this harrow turns short and works close in field

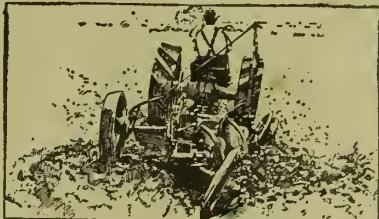
corners. No time is lost at headlands—straightening of gangs for turning is unnecessary. The harrow works



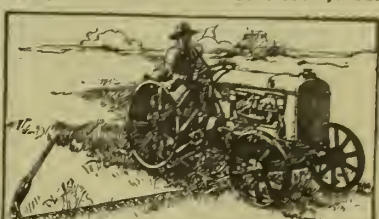
The World Famous Oliver No. 7
On thousands of farms, the world famous Oliver No. 7 has been the plowing partner of the Fordson from the beginning.



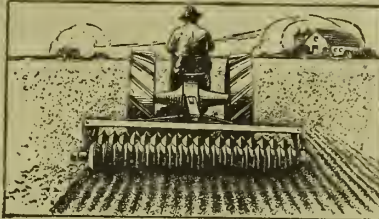
Special Oliver Orchard Plow
Fordson orchard plowing is done thoroughly with the Oliver special orchard gang. Branches and trunks are not injured.



Fordson Disc Plowing
Oliver Fordson special disc plows have set a new standard. They penetrate the toughest soils, yet are light running.



Roderick Lean "Cutmore" Mower
Attaches without changes to the Fordson. Power taken direct from driveworm. Makes a one-man outfit with Fordson.



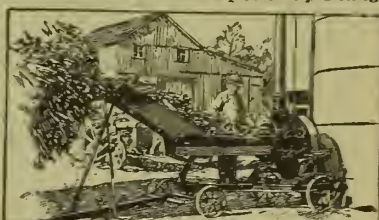
Good Work With Roller Pulverizer
Final fitting of the seed bed with Fordson power and the roller pulverizer has meant more bushels for many farmers.



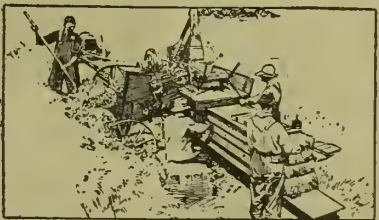
The Amsco Tractor Drill
Tractor speed and accuracy utilized by the Fordson owner with the Amsco special drill. Force feed makes positive planting.



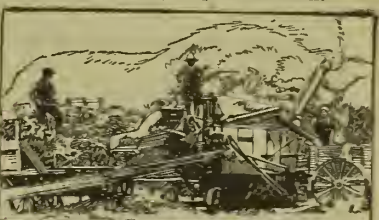
The Amsco Two-Row Cultivator
Cultivating corn is easy for the Fordson farmer with the Amsco Cultivator—special for the Fordson. Made for hard work.



Money-Maker Ensilage Cutter
Fordson silo filling with the Money-Maker done quickly and cheaply. Strength and scientific design give perfect work.



The Money-Maker Hay Press
Baling hay with the Fordson and Money-Maker baler is an important operation to the farmer with large hay acreage.



Wood Bros. Individual Thresher
The Wood Individual Humming Bird Thresher and Fordson make short work of threshing. All grain is saved.

at uniform depth its entire width, leaving headlands level and well pulverized.

These and many other features have placed the Roderick Lean Automatic Engine Disc first in the estimation of Fordson owners.

Ford Dealers Everywhere Sell Standard Fordson Equipment



How long should a shingle roof last?

Answer that by another question—How much service in a tractor? Depends largely on the care you take of it. Same for a shingle roof.

Unless you fill the pores of the wood with a weather-resisting preservative, natural oils will evaporate, rain will soak in, then shingles will warp and crack under the hot sun and withering winds.

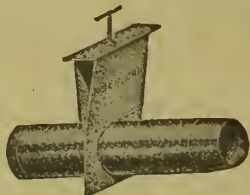
ORONITE SHINGLE OIL made by Standard Oil Company (California), is easy to apply, and will save your shingle roofs or shingled side-walls many a repair job. A tight, well-laid roof treated with it should last a lifetime.

Our agent near you will tell you the success others have had with ORONITE SHINGLE OIL in securing longer roof life. Ask him, too, for color-mixing formulas.

STANDARD OIL COMPANY
(California)



ORONITE SHINGLE OIL



WRITE US FOR PRICES ON

Tanks, Well Casing, Riveted Water Pipe
and Surface Irrigation Pipe with
Double Lock Seam

AMERICAN STEEL PIPE AND TANK CO.
354 Pacific Electric Bldg. 1228 H Street
LOS ANGELES, CAL. FRESNO, CAL.



AVOCADO SEEDLINGS

For orchard and nursery planting. Grown from selected seed from hardy Mexican stock, in open beds and untouched by frost. All first-class stocky plants, 12 to 24 inches in height. Can be taken out with small balls of earth or open root as preferred.

Price \$25 per hundred while they last.
Address THE R. M. TEAGUE NURSERIES,
SAN DIMAS, CALIFORNIA,
of Mr. James Stewart, La Habra, California.

When Writing Advertisers Please Mention the Cultivator.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Commercial Fertilizers

Please tell me through columns of Cultivator what commercial fertilizer to use for the following crops on black or sandy loam soil; alfalfa, corn, potatoes, oats and vetch.—Subscriber, Santa Cruz.

The simplest answer to the above is: "Any high quality, complete commercial fertilizer." But as there are a thousand and one angles to this matter of building up a soil a better answer would be: "Make thorough study of our soil conditions and lay out a plan of soil building which should cover a period of years." It has been fairly well established that the application to the surface of soil of certain chemical elements of fertility is not all that is necessary to secure greatest productivity. The fundamental of fertilization is knowing something of soil conditions as they are at present. Then proceed with the addition of vegetable matter or needed simple elements as the physical and chemical soil conditions seem to demand.

Sour Sap, Brown Rot, Etc.

Some of my apricot trees are dying. In some cases whole limbs die back, in others just the branches or small shoots. Where the whole tree has died from the fork up new sprouts are coming out from the trunk. Gum is also running out. The trees are on heavy clay soil and have always had plenty of water.—Subscriber, Lindsay.

There are literally thousands of growers asking this question or questions very similar this year. Placer County growers have not only asked it of the Cultivator, but their farm adviser, their horticultural commissioner, their neighbors and others have appealed to the University of California to make a study of this condition or this disease of deciduous trees. The more common theory today is that the trouble is either the same as or closely allied to the brown rot of the lemon, showing somewhat different conditions under different circumstances. The experiment station staff has recommended a fungicide spray to be applied as trees begin to bloom, say not more than one-fifth of the bloom out at time of spraying. This was tried very thoroughly this year and at least partial success secured. B. A. Rudolph has been stationed at Auburn by the state university to make special study of the trouble.

Apricots Die

What is the cause of the limbs of my apricot trees dying back? The trees are about 20 years old.—Subscriber, Paso Robles.

Many other subscribers are asking similar question. We refer them to similar query answered above.

Publisher of "Human Geography"

Will you kindly advise me who are the publishers of "Human Geography," a notice of which appears in the June 3 Cultivator?—Subscriber, Arcadia.

We are not informed as to the publisher of the geography but the author is J. Russel Smith, Columbia University, New York City.

Sulphur for Tuber Moth

Would it do any good to scatter sulphur freely along the potato rows to repel the tuber moth?—Subscriber, Arcadia.

We do not think it would have any effect other than it might be a preventive of fungous or other diseases. One of the best preventives of attack by tuber moth is thorough tilth of soil hilling up so that the moth is unable to reach the tubers. Cloddy or hard conditions of the soil which may cause it to open up in large cracks give the moth easy access to the potato. In harvesting use extreme care to get the potatoes into sacks as quickly as possible. If exposed on the ground for a part of a day there is serious danger of infestation. The danger is increased if left over night.

Marketing Table Grapes

We have eight acres of table grapes. Can you give us information on marketing, the price per pound and ton? If we contract to sell by the ton would we have to furnish boxes? Is a license required if they are peddled in different towns? How are they disposed of in Los Angeles markets?—Subscriber, San Fernando.

Nearly all towns require a license or occupational fee for the privilege of selling products or merchandise. Some towns, however, exempt farm products marketed by the grower. The only safe way is to make a visit to the office of the city clerk of each town and find out definitely from him. Some places have established free markets which are open without charge to all producers. We believe there are none in San Fernando Valley. As to marketing located as you are near a large city it appeals to us that there would be many openings for marketing direct. First sell so far as possible in home or nearby town and then depend upon the larger market to dispose of surplus. If possible to unite with neighbors in a cooperative effort chances for success would be greater.

There are many ways of disposing of products. In the first place they may be consigned to commission houses or there are opportunities in the terminal market for securing stall or one may dispose of them by private barter to hotels or other large consumers.

Cabbages—Strawberries Dying

Am sending specimen of worm that is destroying my cabbage plants, eating off stalk just under surface of ground. What is it and how can I get rid of it? At the rate my plants are dying I will soon have none left. Am also sending specimen of strawberry plant that is beginning to die.—Subscriber, McCann.

In the cabbage plants sent, the youngest had died from "damping off" as a wilted and collapsed section of the stem plainly shows. There is no mechanical injury apparent, either from insects or otherwise. On the other injury from insects eating into the stalk at the crown is very evident and the worms you sent are root maggots.

The insects on the strawberry plants are leaf hoppers and can kill plants only by eating them. Your plants evidently are dying as whole plants. Nothing above ground could do this—the trouble is in the soil, evidently a fungus. There is a secondary fungus on the leaves but this is not serious. What your soil conditions are we do not know but death of plants is due to something in the soil. When received the plants were too old and dried to detect nematodes had any been present. These might have killed the plants.

In neither case, strawberries or cabbages, can anything be done to save

present crop. We would advise taking the matter up with your county horticultural commissioner or farm adviser as these troubles are no doubt common throughout the district. For precise determination send specimens to the state insectary, Sacramento. But, we again state, insects on your strawberry plants are not killing them or working serious injury.

Borax in Pork Curing

I have read that in England borax is used in curing ham and bacon, instead of salt. Can you give me the process?—Subscriber, Carpinteria.

Dr. Wylie's "Foods" admits use of borax as a preservative but says it adds nothing to quality and still less to its desirability. The best preservative for all meats is, of course, salt. The addition of sugar suits most tastes, and to preserve the natural red color saltpeter is excellent. A formula said to be excellent for meat curing is for each 100 pounds meat, 12 pounds salt, 3 pounds sugar, 2 ounces saltpeter to 6 gallons water. If dry curing is preferred, omit water, thoroughly mix ingredients and rub into the meat once a week for three weeks. Then pack in barrel.

Worms on Walnuts

Under part of leaves on walnut trees covered with worms about quarter inch long, many jointed, bright yellow to green with three black spots, one at head, one on a sort of horn, one on tail. What are they; where did they come from and how do you get rid of them?—Subscriber, Riverbank.

Without specimens it is nearly impossible to determine the exact identity of the worms. They are, little doubt, tussock moth larvae or closely allied, all of which stand in the same relation to the orchardist so far as remedial measures are concerned. Poison sprays have proved unsatisfactory and only hand picking will avail. In some cases this is a pretty big job, but the only way "out of the woods."

Care of Chrysanthemums

Can you tell me anything of the care of chrysanthemums? If not, can you tell me where I may go for such information? Mine are growing very tall already and I think they should be cut back some way, but I don't know how.—Subscriber, Garden Grove.

Cut back to six inches in June and again to 18 inches the first week in August—not later. This is treatment for plants set out in April. If set out May 15-June 15, the August cutting should suffice. Each stem will then break out with many side shoots. Select the four or five strongest and rub the rest off. Keep all other growths from developing and disbud each shoot to one flower if you wish size. Keep well watered at all times and when the first signs of a bud appear begin to fertilize. Keep this up once a week until color shows in the buds, then stop, but water well to the end.

Irrigating Tokays

I have a tract of 12 year old Tokay grapes that have never had any water but would like to water them now. I have been told they will mildew if they are watered and to water when they begin to turn. Part of the tract has trees among the vines and they must have water. Please tell me when to water and how often and when to stop. I have sulphured them once. How often should they be sulphured and when?—Subscriber, Bowman.

Our advice on watering your Tokay grapes is that they should be watered before the ground becomes dry enough to cause them to suffer. Mildew will not develop because of watering, provided the atmospheric conditions are

not favorable to its development. You should, of course, examine the vines very carefully at frequent intervals for the appearance of this disease and sulphur immediately if it is discovered.—F. K. H.

Horticultural Commissioners

The horticultural commissioner for Los Angeles County is located in the Hall of Records building, North Broadway, Los Angeles. His name is H. J. Ryan, and we doubt not he has inspectors near the home of the Zelzah subscriber. Horticultural commissioners in other counties are usually located in the court house or at some point near.

Watering Lawn

Please tell me which is the best time of day to water lawn, flowers or vegetable garden—in heat of day or when it grows cooler?—Subscriber, Covina.

Early morning or late afternoon is the better time for watering lawn. Especially if the lawn is recently seeded and all the plants are young and tender sprinkling under scalding noonday sun might cause death of much of the grass. However, when lawn is recently seeded and hot sunshine dries the surface unduly the afternoon irrigation should be as early as possible and the next morning's as late as possible in order to carry the sprouting seed through the heat of the day. With an old established lawn, especially where it is largely composed of devil grass, it might be immaterial as to the time of day for sprinkling.

Cutworms

Would like to ask how to destroy cutworms in hot beds and in gardens.—Subscriber, Lake Mountain.

Hand picking is safest and best. Early in the morning before the worms have crawled under clods or boards a little deft finger work is worth more than poison bait. However, if the job is too big and assistance is needed use the poison bran mash or citrus bran mash given under formulas 21 and 22 in the last special pest fighting number of the Cultivator issued September 24, 1921.

Spreader for Spray.

I would like to know if it pays to use casein spreader with arsenate of lead on apple trees for codling worms. They claim in the ads that it spreads better and sticks on better if this spreader is used, but this is first year it has been used here and I don't know from experience how it will work.—Subscriber, Watsonville.

The cost is but little increased by use of the spreader. It holds the poison longer on the fruit and leaves and certainly is worthy of trial. It is being used quite generally this year.

Rotate

I raise good potato vines with blossoms but no potatoes excepting a few small ones.—Subscriber, Orange Cove.

Change your crop. Rotate for two or three years. Meantime build up soil and get in best of condition. New seed, especially certified seed, might also prove beneficial.

Irrigation?

I would like to know the best methods of irrigation, if you please.—Subscriber, San Fernando.

This question surely calls for one long answer and is far beyond the limits of this publication. One would irrigate strawberries or barley or eucalyptus trees or alfalfa or a citrus orchard in materially different manners. Again 'dobe soil and sandy soil

(Continued on Page 663.)

Here's a real treasure from Nature's storehouse



GOOD old Mother Nature has placed in wheat and barley the wonderful food properties which build and sustain life and health.

Many so-called "refined" foods are robbed of vital elements which the body needs.

Grape-Nuts—that famous wheat and barley food—brings you all the natural goodness of the grains in perfected form, with a crispness and flavor that charm the appetite.

You will find Grape-Nuts an ideal dish for breakfast or supper-time. Ready to serve from the package, with cream or good milk.

Order Grape-Nuts from your grocer today.

Grape-Nuts—the Body Builder
"There's a Reason"

Made by Postum Cereal Co., Inc.
Battle Creek, Mich.

Insure Your Crop by Using

Trade Mark **TIZIT** Registered
Tree Spray

(Basic Arsenate of Lead Base)

The Premier Insecticide and Fungicide for the Control of
Black and Citricola Scale, Thrips, Red Spider and Fungi

Manufactured By

Tizit Spray Manufacturing Co.

Tel. 821551

Los Angeles, Calif.

1344 Willow St.

WAGNER'S Giant Winter RHUBARB

May and June best time to plant. Should return up to \$1000 per acre first year. The California Rhubarb Association could have used the output of 1000 acres this season. Plant now for next Spring's market.

WAGNER'S NURSERY
1550 EAST VILLA STREET

(J. B. Wagner & Son)
"Originators of the Giant Winter Strain"
Dept. C PASADENA, CALIFORNIA

SURFACE IRRIGATION PIPE
PROMPT DELIVERY
Write for Catalog and Prices
Manufactured by

Woolwine Metal Products Co.

8th St. and Santa Fe Ave. Los Angeles





Wall Paper Free

Here is our offer. We will give you enough wall paper for the walls of your bedroom, absolutely FREE OF CHARGE with each purchase of sufficient border to cover same. State size of room when ordering. One room free to each order. We are overstocked on hundreds of patterns and must make room for heavy shipments now coming in. All patterns of late design and first class in every way. Send for sample books and state size of rooms when ordering.

LATE DESIGNS 1c PER ROLL

Our enormous buying power enables us to make exceptionally low prices on a complete stock of designs for living, dining, kitchen and bedrooms.

Lot 1	Lot 2	Lot 3
Living and dining room. Your choice of many attractive designs at	Kitchen and Bathroom Tiles	Bedroom. Your choice of many of our attractive designs at
1c a Roll	35c a Roll	1c a Roll
Border to match HIGHEST GRADE	HIGHEST GRADE	Border to match HIGHEST GRADE

Lot 4

30-in. Papers, Tapestry and Grass Cloth Effects, 65c a Roll Borders must be sold with Lots 1 and 3. Look over our prices. You will find they are much lower than elsewhere. No returns. No exchanges. Remember, the stock will not last long at these prices. You will have to act quick. Order today. Return sample to us of patterns desired.

PAINT PRICES ALSO SMASHED

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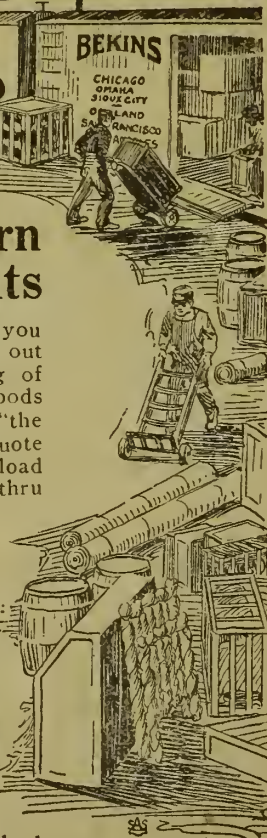
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Household Department

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The town is full of khaki folk
Headed for the hills,
Headed for the spaces far
That cure the city's ills.
Headed for the long, long trail
Where the golden sunlight pours,
For the open ways and the sunny days
Of the fragrant out o' doors.

The old machine is loaded down
Until you think she'd choke;
But there's smiles upon the faces
Of the happy khaki folk
They're headed for the white trails
The tilt of woodland streams.
The scent of pine so pure and fine
The summer land of dreams.

They know the guerdon of the quest,
They know the quiet skies;
They hear the gentle voice of rest
In Nature's lullabies.
They know the forest whispers
Though ne'er a word is spoke,—
They're off today for the great white way
Oh, happy khaki folk.

—Harry T. Fee.

"I WISH I WERE"

By Clara Ingram Judson
in Youth's Companion



ONE summer morning a fairy awoke so late that the dew was all gone from the flowers and he had to run down to the brook to get his before-breakfast drink. And after he had his drink he discovered that he was too late for honey, too; he could not find a speck of honey, not even one taste. You see, the fairies usually get up so early that they can eat all the honey they want long before the bees start from their hives.

But on this particular morning the lazy little fairy had slept so late that the bees had been round and eaten all the honey,—every scrap,—and that made the fairy so cross that he did not even remember that he might stir round and hunt for something else to eat.

He sat down at the foot of a tree, intending to sulk all day long; but before he had more than started sulking a robin came by.

"Good morning, Friend Fairy!" said the robin cheerfully: "Isn't this a fine day?"

"No, it's a very bad day," said the fairy crossly, "and I wish I were an apple!"

"What a funny wish for a fairy to make," said the robin, laughing. "If you change into an apple, I'll eat a hole in you."

"Then I won't be an apple," replied the fairy crossly, "for I don't want a hole eaten in me! I'll be something else."

The robin laughed and flew away just as a big toad hopped out from behind a tree.

"Good morning, Friend Fairy!" he croaked. "Isn't this a fine day?"

"No, it isn't," said the fairy crossly; "and I wish I were a spider!"

"What a funny wish!" croaked the toad. "Don't you know that spiders have to work very hard and spin a web before they can crawl on it through the air? But I hope you do change into a spider; I'm looking for spiders this very minute, and if you become one I'll gobble you up."

"Then I won't be a spider," said the fairy, "for I certainly don't care to be gobbled up. I'll be something else."

The toad laughed and hopped away, and the fairy was left alone to sulk.

"I don't know what I want to be," he sighed fretfully. "This is such a horrid world—no dew, no honey, no nice wishes! I think I'll be a star."

"A star?" exclaimed a soft little voice by his side. "Would you be a star and leave this beautiful world—all the flowers and birds—to live up in the bare sky?"

The fairy turned and looked. There, near by was a tiny ant tugging away at a big grain of sand.

"Do you think this is such a fine world?" asked the fairy. "I should think you would hate it. You have to work all the time."

"To be sure I do," replied the ant proudly. "That's the reason I like to live. Working is the jolliest and most interesting thing in this whole big world—didn't you know that? It's true." And the sturdy little ant picked up his burden and started away.

Left by himself, the sulking fairy began to feel very foolish and very sorry. He remembered the flower bud

he ought to have opened long ago; and he thought of the sunbeams he should have helped.

"What I should be wishing for," he whispered to himself, "is work. And then should hunt round and answer my own wish."

Slyly he slipped round the tree to open a buttercup bud he was sure he had seen there. And as the flower opened, what do you suppose that surprised fairy found? A drop of fresh, sweet honey all ready for him to eat!

As he sipped the honey and planned what to do next, a cardinal bird hopped by.

"Good cheer! Good cheer, Friend Fairy!" called the cardinal. "Isn't this a fine day?"

And the happy little fairy called back, "A fine day for working, indeed it is!"

AFTER THE CIRCUS

By Rollin Lynde Hartt



WHEN the circus moves grandly along its route, the wonderful thing is not the "stupendous aggregation of monster shows" or the "entirely new street parade" or the "world's greatest congress of living curios." Instead, it is Sonny. For weeks before the circus comes he is too good to live and for weeks afterward too daringly acrobatic.

You don't so much mind when wings threaten to sprout on Sonny, but this board fence tight rope walking, this aerial monkey-shining—oh, saints preserve us! A hundred times a day it brings your heart into your mouth. Needless, one may add. For there happens to be a safe and sane outlet for Sonny's Darwinian aspirations—an outlet Tarzan himself would have prized—namely, the horizontal bar.

Open the classified telephone directory, call up a dealer in playground apparatus, and within a surprisingly short space of time Sonny will be swinging in imaginary spangles and green tights, dangling like a jungle ape, and doing nine-and-twenty soul-satisfying stunts, which, viewed from across the way, speak for themselves and save him the bother of shouting as of yore, "oh, Skinny, c'mon over!"

But a properly constructed horizontal bar entails something of a bill if you get it from a dealer and pay to have it set up, and that is why Community Service has issued plans and specifications for a horizontal bar which any handy man about the yard can call into being and which any impecunious playground can afford, granted only that some enthusiast supplies the wits and the muscle to carry out directions. Here they are:

Provide yourself with a galvanized iron pipe six feet long and an inch and a quarter thick. Also, provide two posts—of strong wood, naturally—and ten feet tall by four inches square. At points two inches from each end of the galvanized bar drill holes five-eighths of an inch across. Then, six inches below the top of each post, bore a hole an inch and a quarter across. After that has been accomplished, bore a new hole intersecting this at right angles (the two holes must cross in the center without unevenness) and measuring a half-inch in diameter.

It sounds elaborate, all this fuss about perfection in a thing as simple as a horizontal bar, and yet strength and security are the object, and any circus actor will tell you that, while he never distrusts his skill, he lives in constant terror lest something may go wrong with his apparatus. Better safe than sorry.

After making sure that the bar and posts comply with the regulations furnished by Community Service, you dig two pits, three feet deep and about ten inches square and far enough apart so that the space between posts will measure exactly five feet and four inches.

Into these pits you spill six inches of concrete, made by taking a shovelful of Portland cement, two shovelfuls of sand, and four shovelfuls of gravel, and mixing with water. Then, you set the posts upright in the pits, careful to have them the stipulated five feet and four inches apart and to have the large holes near their tops exactly fac-

ing each other and—still more important, if anything—to have these large holes at exactly the same height from the level ground, as otherwise the bar will not be horizontal.

You are now ready to slip the bar through the two large holes. As soon as it is in place, you secure it by poking carriage bolts through the small holes in the posts. A carriage bolt four and half inches long and half an inch thick is the right size. And the bolts not only go through the posts, but also, thanks to the holes you bored in it, through the bar itself. Now you pour in the concrete to fill the space around the posts.

At this point it is advisable either to chloroform Sonny or to clap him in irons. Left at liberty, he will instantly begin turning himself around the bar like a demented cruller. Restraining him, and give the concrete two full days to harden.

If you prefer to get along without concrete, and use bricks and stones at top and bottom of the pits to brace the posts, well, so be it; only, in that case you must stamp the ground down firmly around them.

After the posts and bar are securely set, you can improve on perfection by drilling additional holes in the posts, at intervals of six inches, to within four feet of the ground. That makes the bar adjustable to various heights, so that the smaller small boys can perform on it and the big ones vault it.

Survey your handiwork. If any doubt remains as to its importance or your own, the doubt will soon enough be dispelled by Sonny's grin.

HINTS FROM HOUSEKEEPERS

Mint Sauce

Noticing direction for making mint sauce in the Cultivator of May 27, a reader says that she always cooks her mint sauce. She chops the leaves and tender stalks, covers with cold water and simmers 10 to 15 minutes to extract all the mint flavor, then takes from the fire, adding a little vinegar and sugar to taste.

Pretty Seam Finish

Here are directions for making a pretty seam finish for dainty summer things. I learned it from a high school girl who is using it on a dress she is making for a tiny niece—doing this as part of her class work. The little sleeves are set into the dress with a seam that looks like double hemstitching, only it's prettier and is made on an ordinary chain stitch (not lock stitch) machine. The edges to be stitched together are laid together in the regular way except that sheets of soft paper—newspaper will do—are laid in between (about 24 thicknesses, but this you will determine according to taste). Stitch together and pull out papers carefully. Open seams, press back raw edges on each side and you will see an even "double hemstitching." Press seam with iron to have perfectly flat and smooth and stitch along each edge of seam—on right side. This finishes the "hemstitching" and makes it very durable.

If you have a chain stitch machine, try this. You're sure to like it.—Reader, Los Angeles.

Many Ways of Using Mint

Query as to mint sauce in last week's Cultivator made me want to pass on to other housekeepers some of the many other ways we have of using mint leaves. First of all, there is always a patch of mint growing under the drip of the hydrant at our kitchen door. My mother always had a mint patch growing at her back door—it seems as much a part of the household as the screen porch or the honeysuckle over the arbor. Well, to come back to the mint, when I want some to use I run to the mint patch and gather fresh tips, wash them under the kitchen faucet thoroughly, and they are ready to add to glasses of cold lemonade or orangeade—just a

few tender tips of fresh green leaves in each. Their main charm is in their perfect freshness it always seems to me. Then often I add leaves, cut up fine with sharp knife as you would parsley, to mashed potatoes. Just before putting on the table, beat the leaves quickly into the fluffy white potatoes. We like very much a dinner dish of a mound of mint potatoes on a platter, surrounded by creamed dried beef.

Then instead of mint sauce with roast lamb we like to use just the cut up green leaves. We also use these with cold lamb or other meats just as one does parsley. This makes an especially nice addition, we think, to cold meat loaf. It is good too in creamed chicken, cream soups, etc.—Subscriber.

HOUSEHOLD QUERIES

Jelly Crystallizes

Answering query as to cause of grape juice and jelly crystallizing, W. V. Cruess, in charge of fruit products laboratory at the University of California writes:

"The crystals which appear in grape juice and grape jelly are cream of tartar crystals and are perfectly non-injurious to health. They can be made to go into solution by heating the juice a short time to 150-160° Fahrenheit. Bottles containing rough spots or sharp points on which crystallization may start develop crystals more quickly than perfectly smooth bottles; but usually all bottles of juice will in time develop the crystals. They may be eliminated by storing the juice at a low temperature (32° Fahrenheit) several months, followed by decanting from the sediment, rebottling and re-sterilizing.

Paint Remover

The painters have left our door knobs, bathtub, etc., splattered and streaked with paint till I am almost wild trying to get it off. Have tried turpentine, sandpaper, etc., but it hardly has any effect. There must be some way of getting it off. What is it?—Subscriber, Fresno.

My arms and back fairly ached—reminiscently—when I read this letter. Don't I know what that paint cleaning nightmare is! But cheer up, of course there is a way. There are too many splashy painters and too many nice new houses and bathtubs for some bright man not to have concocted a paint remover that will leave the new houses in good shape in spite of the splashiness. In fact, there are a number of perfectly satisfactory paint removers. Just ask your hardware dealer.

OUR BABY COLUMN

By Mrs. M. S. Sirdevan

Sometimes it is very hard to break a child of taking a bottle, especially if it has had one up to two years or more. This little incident may solve the problem. The parents talked to the child for several days, saying what a big lady she was getting to be, and wanted to know if she wouldn't throw her bottle in the garbage can, and she finally consented, doing it herself. Of course it was the topic of conversation all that day, but she remained a true little sport to her bargain.

It is every child's ambition to be like some one who is several years its senior, and a great deal can be accomplished along these lines. The child will eat certain foods if it will make it "grow big like John," and never think of crying because John is a big boy and doesn't do those things. On the other hand, it is very demoralizing for John to know of this hero worship, so my advice is not to do it before him.

Start in when a child in very young, by giving it either a doll or animal to take to bed, for it is company and soon becomes part of its little life. The child goes to bed happier and better contented.

I am going to give a short prayer that my babies love to say:

"Jesus, tender Shepherd, hear me, Bless Thy little lamb tonight. Through the darkness be Thou near me, Keep me safe till morning light."



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SUCCESSFUL JELLY MAKING

By Arthur W. Christie, Assistant
Professor of Fruit Products,
University of California



FRUIT jellies are annually prepared by many housewives who take just pride in their ability to successfully prepare this most delicate fruit product. The process of jelly making appears very simple, merely a matter of boiling together fruit juice and sugar until the mixture jellies on cooling. However, even the most experienced housewives are occasionally unsuccessful in jelly making, indicating that the process as ordinarily practiced is at times uncertain. Most such failures are caused by lack of familiarity with the fundamental principles of jelly making which if, understood and applied, lead to the making of ideal jellies.

A perfect glass of jelly is clear, sparkling, transparent and of beautiful color. When turned out of its mold it will retain its form and not flow and yet will quiver. It should be so tender that it may be cut with a spoon and yet so firm that a sharp sparkling edge remains where it is cut. It should not be syrupy, sticky or gummy and should retain the delicate aroma and flavor of the fruit from which it was made.

A fruit jelly depends for its consistency on three substances. These are pectin, acid and sugar, the first two of which are obtained from the fruit and the latter to the greater extent added. The most important of these is pectin, the substance which, when combined with proper proportions of sugar and acid, gives the stiffness to jelly. Pectin is found in many but not all fruits and is more abundant in slightly underripe than in fully matured fruit. Without pectin jelly is impossible. As can be seen from the accompanying table some fruits are rich in both pectin and acid and lend themselves readily to jelly making. Some fruits are deficient in either acid or pectin and must be blended with other fruits in order to secure jelly. Fruits low in both acid and pectin can only be used to flavor jellies made from a jelly stock, usually apple. There are now on the market several concentrated pectin preparations. These are usually made from apples although one Los Angeles firm is now making a pectin powder from oranges. These pectin concentrates are inexpensive and a few spoonfuls will stiffen the most impossible jelly.

Suitability of Fruits for Jelly

From—Cruess, "Home and Farm Food Preservation."

Rich in Pectin and Acid Jelly Readily	Medium Acid and Pectin Jelly if Careful	Rich Pectin Low Acid Add acid fruit	Low Acid and Pectin Blend with fruit from Column 1
Sour Apples	Ripe Apples	Guavas	Apricots
Crab Apples	Blackberries	Feijoas	Peaches
Currants	Oranges	Figs	Pears
Loganberries	Grapefruit	Pie Melons	Raspberries
Cranberries	Plums		Strawberries
Lemons	Quinces		
Sour Plums	Sour Cherries		
Eastern Grapes	California Grapes		

Sugar and acid besides being essential ingredients in the physical consistency of a jelly are important in furnishing the desirable sweetness and tartness. Sugar is also the preservative which prevents the jelly from spoiling, making up about two-thirds of its weight.

Sound and clean fruit should be used. It is desirable but not always essential to use partly ripe fruit to impart the fine flavor and color and partly underripe fruit to furnish the necessary pectin concentration. This pectin is held in the tissues of the fruit and must be released by boiling. Very juicy fruits such as berries need only be crushed and boiled a few minutes without addition of water. Less juicy fruits, as apples and quinces, are cut in small pieces, barely covered with water and boiled 10 or 15 minutes till tender. Citrus fruits require about an hour boiling because of the tough skins which contain the pectin.

The juice is then drained or pressed through a cloth. If only drained a clearer juice results but a greater yield is obtained by pressure. Probably the best method is to drain off most of the juice first and press the

remaining pulp. This pressed juice will be cloudy and must be filtered through a jelly bag several times till clear. The juice should be as clear as possible before jelly making is started. The pulp from fruits rich in pectin may be mixed with water, boiled and pressed two or three times, yielding juices not as concentrated as the first but still capable of making good jelly if the proportion of sugar added is reduced.

Freshly made jellies are always best. If the juice intended for jelly is sealed in jars or bottles and pasteurized in a tub of water at 175 degrees for 30 minutes, it will keep indefinitely and may be made into jelly at any time by adding the proper amount of sugar and boiling down to the jelling point. An added advantage is that such jelly stocks clarify during storage and the clear juice may be poured off from the sediment.

If there is any doubt as to the jelling property of the juice, it should be tested for pectin. This simple test will avert failure. To one tablespoon of juice in a glass add an equal quantity of grain alcohol. This alcohol must be of 95 per cent strength, and if denatured is equally satisfactory. Mix the juice and alcohol. A juice rich in pectin will form a bulky gelatinous mass of pectin, almost solidifying the mixture. Juices moderately rich in pectin show a few large pieces of gelatinous material while juices too low in pectin to make jelly will only show a few small pieces of flaky sediment.

There is no simple way of testing for acid but if the juice is not rather tart the acidity may be increased by the addition of a small amount of lemon juice.

Knowing the pectin content of the juice the proper amount of sugar to add can be judged. To each cup of juice rich in pectin at least one cup of sugar may be added. If the juice is high in both pectin and acid 1 1/4 to 1 1/2 cups of sugar may be added. On the other hand if the juice is shown to be only moderately rich in pectin only 3/4 of a cup of sugar is added and if only a small amount of pectin is present the sugar is reduced to 1/2 cup per cup of juice.

Reducing the amount of sugar in proportion as the pectin is low makes it necessary to concentrate the mixture further than if equal quantities of sugar and juice had been used. In any case boiling must continue until the jelly contains over 60 per cent sugar. During this boiling the concentration of pectin increases because water is evaporated. If a large quantity of sugar is added only a short boiling is required to reach the proper

concentration of sugar, and this may be insufficient to reach a pectin concentration high enough to jelly. If a smaller quantity of sugar is added, necessitating a greater concentration by boiling, the pectin may reach a sufficient concentration to make jelly.

More failures result from adding too much sugar than from all other causes. When failure occurs housewives are prone to blame some ingredient. Beet sugar has been unjustly blamed for the failure of many a pot of jelly. Impartial tests conclusively show no difference between cane and beet sugar for jelly making.

The juice should be boiled for a few minutes and well skimmed before the sugar is added. Best results are obtained by cooking rapidly in small batches, enough for a dozen glasses, over a quick fire. Long slow cooking causes loss of flavor, darkening of color and the pectin may become partly inactivated by the action of the heat and fruit acid.

There are several ways of ascertaining when the jelling point has been reached. The "sheeting test" is fairly satisfactory and consists in dipping a large spoon in the boiling jelly and holding the spoon in the air so

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the jelly will drip from it. If drops of syrup leave the spoon boiling must be continued further, but if the jelly drops from the spoon in a sheet or flakes the jelly is considered finished and removed from the fire.

A more reliable method is to use a thermometer in the boiling liquid. As the boiling progresses the liquid becomes more concentrated and when a temperature of 221 is reached it indicates that the jelly consists of 65 per cent sugar and should be stiff when cooled. If a soft jelly is desired boiling may be terminated at 219 or 220 degrees. This is the simplest and most accurate method of determining the jelling point. However, unless a sufficient amount of pectin and acid are present, merely boiling down to 221 degrees will not alone insure the formation of jelly.

Pour the hot jelly into clean and dry glasses and cool thoroughly. If necessary strain into the glass although if well skimmed the jelly should be clear. When the jelly is cold and stiff cover with a layer of melted paraffine. If a little stick is run around between the glass and the jelly about 1/4 inch down from the surface before the paraffine is poured, a much better seal is made. The hot paraffine sterilizes the surface of the jelly and makes a tight seal which protects the jelly from contamination.

In hot climates jellies finished below 221 degrees may ferment. In such cases the jelly must either be concentrated further or the hot jelly may be poured into scalded jars or glasses, tightly sealed and immersed in water, at 180 degrees for 30 minutes. Such jellies will keep indefinitely.

Jelly should be stored in a cool, dark and dry place. Light injures the color and warmth and moisture may cause the jelly to soften and "weep."

The following list of the more common jelly difficulties suggests the cause and prevention in each case:—

Soft Jelly: Too much sugar for the amount of pectin. Add more juice or pectin and reboil to 221 degrees.

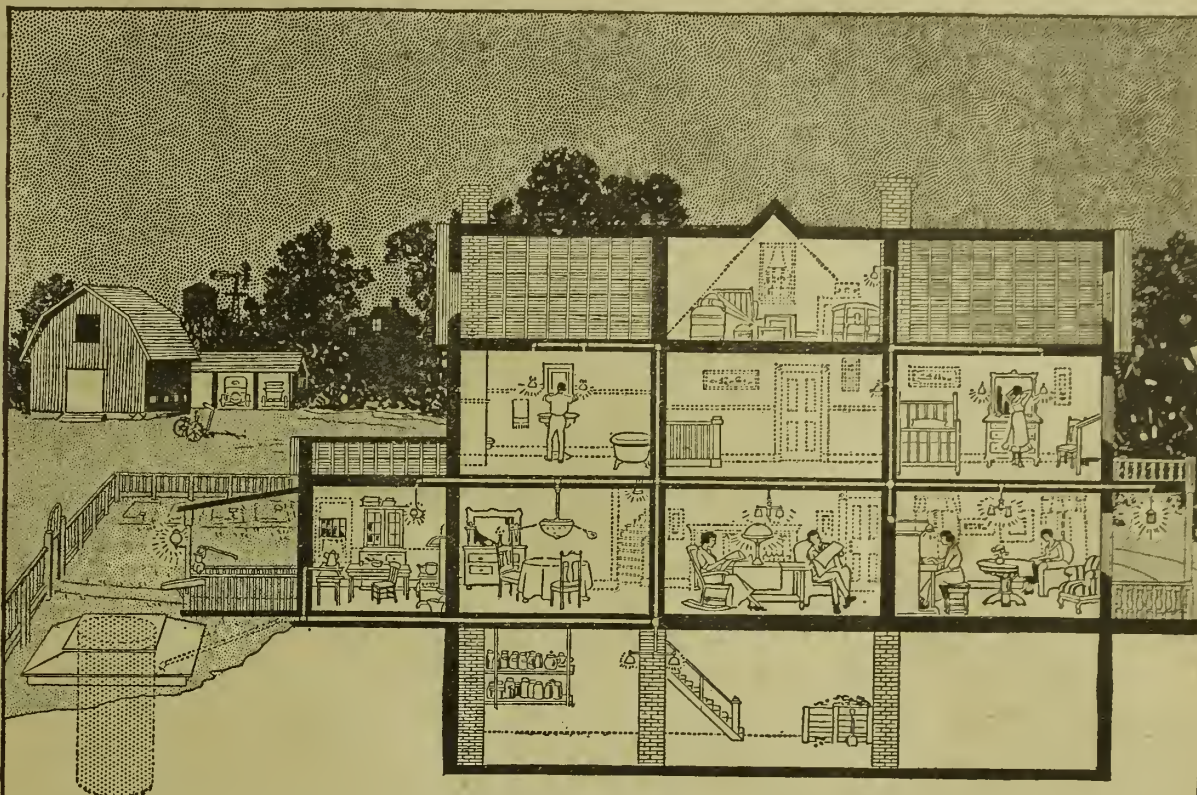
Tough Jelly: Too little sugar for amount of pectin.

Gummy Jelly: Overcooked. Stop at 221 degrees.

Cloudy Jelly: Juice not well strained. Jelly not well skimmed. Partly congealed before pouring into glasses.

Sugar Crystals: Insufficient cooking or stirring after addition of sugar. Too much sugar because too much added or boiled too long.

(Continued on Page 663.)



How Simple to Install the Marvelous Colt "Gas Well"!

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Even though no provision was made for piping when the house was built it is a simple matter to pipe it now for Carbide Gas.

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And you'll have a cooking and lighting system that is unequalled for simplicity, economy and little attention. The gas is made automatically by the generator. No expensive parts needing continual replacement—a lifelong investment.

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California Breeding Farms

By Jack Klein

THE GUASTI BERKSHIRES



ABOUT three years ago the Italian Vineyard Company at Guasti near Ontario, which has over 4,000 acres of the choicest wine and table grapes, installed a hog department in order that the hogs could eat the waste pulp and seeds of the grapes and provide much needed fertilizer for the big vineyard. Some of the vines are getting to be close to 50 years old and so little fertilization has been done that it was becoming a necessity.

Alex Wilson, who had been in charge of the hog department at the Pontana Land Company, was the one chosen by Secondo Guasti Jr., manager of the vineyard, to superintend the new department, and he has achieved wonderful success with it. An exceptionally capable hog man and a good mixer, he has a host of friends up and down the state.

While at Pontana Wilson had a number of different breeds of hogs under his care and when given the

The queen of the sow herd today is Violet's Festline who was grand champion in all the California shows last year. She is one of the best Berkshire sows of all time and she deserved every bit of the credit which came to her. There is a tragedy connected with this sow which is common among pure bred animals. Her sire was a boar called August Fisher who had no well known animals very close up in his pedigree and yet he was a truly great sire. He was bred to a few sows and before his get had a chance to prove his worth he was sent to the butcher. If the man who did this had restrained his impulse to get rid of the boar he could probably have topped all prices paid for Berkshire boars as practically all of his pigs were exceptionally fine ones. One of Violet's sisters was grand champion at Portland in 1920 and her own daughter had that honor last year. Violet is in wonderful shape now and is being carried along easily in order to be ready for the shows. She has four daughters in the herd



Violet's Festline and Four of Her Progeny

The Italian Vineyard Company's great Berkshire sow who was grand champion of all the California shows in 1921, with some of the good animals she has produced.

chance to choose which breed he desired to have at the Italian Vineyard he picked the Berkshire. There was a time when the Berk was the leading hog in Southern California, but when the Italian Vineyard Company started in to gather a herd of foundation animals, good ones were few and far between in that vicinity so Wilson had to go to Oregon, to Northern California and to Indiana for them. From the day of their arrival interest in Berks perked up and last fall at the Riverside show they led in numbers, and this year they promise to almost flood the place.

The Italian Vineyard Company has been a great asset to the Berkshire in California as it has always specialized on the big, high backed, straight sided and good footed hog that has become the accepted type in the past few years. It has maintained a representative show herd which has visited practically all of the big shows of the state and last year in six shows the herd won 46 firsts and about 20 championships and always against the stiffest kind of opposition. The company has done a great deal to foster pig club work and it is reaping the reward of its efforts. During the first three months of the year over 100 breeding animals, mostly young boars and gilts, were sold, and since that time the demand has been steady. In fact, the stock available for sale is just about sold out.

There are about 100 females on the place reserved for breeding. This includes the brood matrons, young sows and yearling gilts which will soon be bred for the first time. Among these are some of the greatest sows the world has ever known, and just recently a hog judge who has travelled widely and judged in all parts of the Union was heard to remark that he had never seen such a collection of sows in one herd in all his travels.

The best known of these great sows is probably Riverby Princess who as a pig was the grand champion of the World's Fair at San Francisco in 1915. Her day as a brood sow is past but she has left some excellent progeny. One of these, a sow by Baron Duke 201, is also in the herd as well as some younger ones. Another great sow who has left her progeny was Lady Rookwood 100, the grand champion of the National Swine show in 1917.

and some of them will also be included in the show string.

Another great sow is Grape Wild Rose 6th who won all the championships for A. B. Humphrey in 1920. She was purchased in the American Berkshire Congress Sale at Riverside in February. Although she was sold as an open sow it was found that she had been bred and is just now ready to farrow. Having pigs at this time of the year will probably keep her from being in the best of condition for the early shows but she should be in good shape for the Riverside and Portland. With Violet and Grape Wild Rose 6th, and with one of three or four of the other good sows to go

with them the female end of the aged herd could not be better.

The boar to be shown with these sows will be probably either Model Leader 3d. or Guasti's Rival. Model Leader 3d. is a littermate to Grape Wild Rose 6th, and he is a real good boar. He fitted up in fine shape for the Berkshire Congress show and was made grand champion. He is in good condition now and will be a lot better before fall.

The pride of the Guasti herd is the young boar Guasti's Rival commonly known as "Bobbie" because for some unknown reason he lost a part of his tail when only a day or so old. As a junior pig he was undefeated last year and was four times junior champion. He is an ideal junior yearling now. On the day he was a year old he weighed 510 pounds in just good breeding condition. He was sired by Mayfield Rookwood 2d. who was grand champion of the state in 1917, and is out of one of the best brood sows the ranch ever owned, Rival's Wondress 48th.

At the head of the herd is the great sire, Rincon Leader, one of the last two living sons of Grand Leader 2d. He is out of a littermate sister to the dam of Real Type who is probably the best known young boar of the breed. Real Type is at the head of the Barker herd in Indiana.

Another great sire is Winona Leader Champion, a son of Laurel Champion out of a daughter of Grand Leader 2d. Both of these boars have sired prize winners and their pigs are going to be hard to keep out of the honors this year.

The crop of about 350 spring pigs now on the place shows the results of mating such animals as are in the foundation herd and the Guasti Berkshires are going to demand a lot of attention in the near future.

Started to feed largely on waste and provide fertilizer, the hog department has become a valuable asset to the company. The hogs thrive on the fresh pulp in the crushing season and when it is over they earn a part of their living by picking the seeds out of the dried pulp which is used for bedding. While barley was high it was profitable to separate and grind the seeds as they contain a large amount of food value and can be fed up to 15 per cent of the ration. Now it is cheaper to let the hogs salvage them.

The Italian Vineyard plant is a show place and one of the cleanest we have ever visited. The soil is sandy and well adapted for cleanliness and everything is modern. The pens are so arranged that one man can transfer any hog or pen of hogs to any other pen without assistance. The farrowing houses are adequate and convenient and there is plenty of

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shelter for the entire herd. Small fields of alfalfa provide ideal accommodations for sows with litters and for the growing stock.

The herd is cared for by A. W. Longley who has been with it from the beginning. Wilson Rough who has been in charge of the lowana herd at Davenport, Iowa, for a number of years, and August Sagehorn, a Davis farm school boy who distinguished himself by showing this herd last year and by showing the farm school bar rows at the International last winter. All of these men are very enthusiastic over the herd and its prospects of becoming one of the greatest herds in America.

WANTED: INFORMATION

Some of us believe that California has been slow to develop its hog and beef needs to correspond with population increase, because it lacks definite markets. A definite market may come from a stockyards or it may come from scattered auction sales of small numbers throughout counties and under an association or farm

STATE EXPENDITURES THAT WOULD PAY

By A. L. Spellmeyer

California is a wonderful state, in climate, soil and potential water development. It is great in some lines and woefully lacking in development of its livestock possibilities. Think of a country that grows its grass in the winter time in normal seasons, that can fatten livestock when other states are bound in snow and cold, yet as compared to developed, Middle Western states, which must fight the difficulties we don't experience, is producing livestock on a 20 per cent basis.

One specialist in one ill paid department of our state university is struggling along as best he can to ascertain and encourage the development of new forage grasses. With all its advantages California has a peculiar range condition for cattle and sheep. Our grass starts in good years in December and in fair years along in February, drying up by June. The period between August and February is usually hard on the range cattle

IMPORTANT NOTICE TO DAIRYMEN AND BREEDERS

Beginning next week the Cultivator will offer a series of important articles written by Earl J. Sturgis, superintendent of the Fred Hartsook Ranch at Lankershim, on the feeding and care of the dairy cow. These articles will be short and to the point and written in language that a child can understand. They will cover such subjects as the feeding of calves, rations for the dairy cow under ordinary conditions, fitting and feeding for both the short and long time tests and for the show ring. There is no necromancy nor slight-of-hand necessary in producing high records. They are the result of careful selection of the animal and the application of certain basic principles of feeding, before and during the test, which are learned by study and experience. Mr. Sturgis will not go into long discussions as to the relative values of various feeds and why he uses them. He will simply tell you how study and experience have taught him to feed to get the best results. There is no question as to his ability to achieve them.

Born and raised on a dairy farm in New York state, Mr. Sturgis came to California as herdsman for A. W. Morris and Sons of Woodland about ten years ago. While with the Morris Company he fed the calves, helped with their show herd and fed and milked their test cows. He finished the record on Tilly Alcartra which made her the first 30,000 pound cow in the world; made the first 33 pound seven day record in the state and made practically all of the state A.R.O. records for that time. After 2½ years with the Morris Company he became herdsman and later superintendent of livestock at the Santa Anita Ranch. While there he made a world's eight-months-after-calving record on Miss Valley Mead De Kol Walker as a senior two year old and later made her record of 36.81 pounds in seven days as a junior three year old. He also made the first strictly official 1,100 pound yearly record in the state and the first 34 pound junior four year old seven day record. He was responsible for the purchase of the great bull, King Korndyke Pontiac Acme, for \$41,000.

In February 1921 he became manager of the Hartsook Ranch and its great herd of cattle. Since that time he has completed four world's records; has made numerous high seven day records, two over 40 pounds and eight over 30 pounds; has made 17 yearly records from 800 to 1,121 pounds with five over 1,050 pounds; as well as a number of high 305 day records.

No one milking cows—grades or pure breeds—can afford to miss these articles. They should be read by everyone on the place, should be studied, and then filed carefully for future reference.—The Editor.

bureau management. The last might be best, but it appears so difficult to consummate, with the conflicting elements to consider, that it is impractical and stockyards are a practical possibility at once.

A yards are projected for Los Angeles, and without doubt the backers are responsible or they would not have secured any support from the Los Angeles Chamber of Commerce.

It would seem wise to know who these people are, and their plan, and the charge schedules intended to present for a general livestock patronage from this Southwest. We have had some bad experience in the last few years in farming and livestock raising, and we may be inclined to unjust suspicions, but no good can be possibly gained by a reticence in a matter of this kind.

Few stockmen will support anything blindly. A stockyards for Los Angeles concerns a wide circle which affects a part of California, Utah, Arizona and Nevada vitally as we are their cattle market and that district is our market for our merchants. The cattle supply of certain neighbor states is more affected and concerned about a stockyards here than the cattle districts of our own state north of the San Joaquin, where the bulk of California cattle are. However, people like to see the cards on the table frankly and exactly. They can then judge and if a stockyards secures a bulk endorsement it will probably succeed and prosper. Folks may be OK, but there is nothing like people being told so.—A. L. S.

because our general forage is of a short lived luxuriant type.

A vital need of California is the propagation and general distribution of some species of forage grass that will maintain a flesh producing quality in the summer and fall. California lacks summer rains, hence ordinary types usual in most districts of other states will not thrive. Several types have been found that may do but they are not fully proven. It is not enough to find the right grass or browse as these plants or seeds must be raised in great quantities and distributed on the great ranges.

This one thing would pay the state yearly a greater profit from livestock than the present cost of state government, and that is a mighty amount.

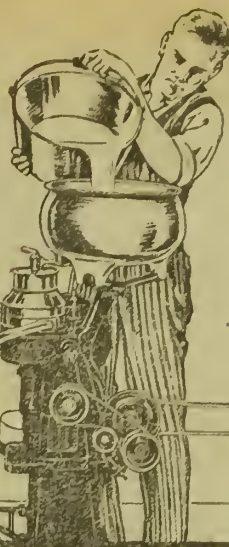
Jap's Rose 296927, owned by the University of California, recently completed a Register of Merit test of 12,810 pounds milk, 720.88 pounds butterfat, making her the second highest record Jersey cow over five years of age in the country.

Athenia Roderick Luecke, the Hartsook cow who recently completed a 36 pound seven day record, has just finished her 30 days with 134.2 pounds butter from something over 2,600 pounds milk.

Manure is worth money—if it gets into the soil.

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"Last week we replaced a machine made by which had been used only five years. Our customer, Mr. Crawford Cook, living near Foyil, Oklahoma, shipped one can of cream from and then one from the De Laval, and changed about in this manner for four weeks, the result being that the De Laval got him exactly two pounds more butter-fat per day, and he is milking 12 cows. This amount at 35c per pound makes 70c per day, or \$255.50 per year, more than twice as much as the new De Laval was worth. Mr. Cook said we could use his name and this information, and if they didn't believe it, he would make an affidavit to that effect."

This was taken from a letter from one of our agents, but there is nothing unusual about

it. We are constantly receiving letters of a similar character from people who say they waited too long before buying a De Laval.

On hundreds of thousands of farms today there is an enormous amount of butter-fat being wasted by inferior or worn-out separators and by hand skimming. Perhaps such waste is going on right on your farm. Stop it at once by getting a new De Laval. It is not only the world's best cream saver, but lasts longer and is easier to clean and turn than any other.

Call up your De Laval Agent today and ask him to bring out a new De Laval so that you can try it, or write us for full information. Sold on such easy terms that it will pay for itself while you are using it.

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Five Nearest Dams and Three Nearest Sires Almost Solid White.

Two crosses to De Kol of Valley Mead and four to Juliana King of Riverside.

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He is a splendid individual and is guaranteed healthy and right. The price is only \$250.00. Don't delay.

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31x4	10.75	18.65	2.20
32x4	13.75	20.95	2.25
33x4	13.85	21.75	2.35
34x4	13.95	22.50	2.40
32x4 1/2	19.50	26.25	2.75
33x4 1/2	20.25	27.00	2.85
34x4 1/2	21.00	27.80	2.95
35x4 1/2	21.75	28.85	3.00
35x5	22.50	34.20	3.40

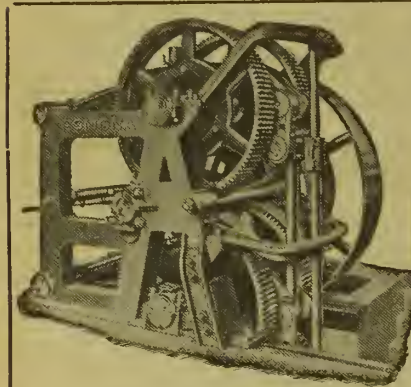
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One Man One Team

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Skin Diseases (Horse)

I have a horse that has some kind of an itch in the skin. It is always rubbing and scratching on something. The trouble seems worst on the belly, shoulders and legs and the flies seem to aggravate it. Otherwise the horse is in good condition. What can I do for him?—Subscriber, Chico.

Probably there is a small mite in the skin. If the hair is long have the horse clipped. Then scrub him all over with warm water and soap, rinse the soap off with clean water and when dry wet him all over with a solution made of a bucket of warm water in which you have put a teacup of zeno-leum or some other good sheep dip. The solution should be applied once a week until three or four applications have been used. This is to get the young mites that may hatch after the first treatment. Put a blanket on the horse when he is wet and let him dry off slowly so he will not catch cold.

Skin Disease (Goat)

For six months my goat has been troubled with what seems to be small lumps in the skin about her head and neck and a few over the body. They never seem to have any pus in them nor go away. They are about the size of a pea and cause her to scratch. She is fed alfalfa and oat hay and some rolled barley. She has been fresh about a month. Please advise what to do for her.—Subscriber, Alta Loma.

This is probably cow pox. Feed her mostly green feed and give a tablespoon of epsom salts in a little dry feed or dissolved in a teacup of water twice a day for a week. Also bathe her all over with a gallon of warm water in which you have put two tablespoons of borax.

Brood Sow Ailing

My boy is a member of a pig club and is having some trouble with his project. First he got a three months old sow that seemed all right and in due time took her back to the ranch from which he got her to breed her. Nineteen days later we noticed a discharge of pus from her and next day her teats were filling as if milk was coming. Five days later she came in heat and again in 21 days, at which time we bred her again. Six days later the discharge appeared again and in due time she came in heat again. We gave it up with her and exchanged her for another that was supposed to be bred. In due time the pus discharge began with her and she has passed through about the same troubles as the other. In the meantime the first boar that we bred to died but we could not find out what was the matter with him. Does this look like contagious abortion and would you advise breeding the sow again?—Subscriber, Etiwanda.

We can not say that the trouble with the sows is the regular contagious abortion or not, but it is surely some disease that causes abortion. Of course we can not say positively that the disease came from the boars but there are few chances that they contracted the disease in any other way. Coming from the same source the second time we would not advise trying it again. Breeding that sow again to any boar would be useless and would probably transmit the disease to the new boar. We can only advise getting a sow from some other source if you wish to continue the experiment.

Running Sores

Horse has running sore on the front

leg between knee and elbow. It does not make her lame but the sore never stops running. It started two years ago when I was leading her home from pasture and she fell down on the highway. Do you think it is fractured? Please tell me what to do for it.—Subscriber, Vacaville?

No. the bone is not broken or she would be lame. Probably there is a thorn in there or something that punctured the skin and broke off, leaving a piece inside. Split the skin open from the sore down, an inch or more. Scrape out the cavity and wash it out clean. Then wet the inside of the cavity once a day with a solution of permanganate of potash. Use a teaspoon of potash to the quart of water.

Swelling about Neck

I have a nine year old mare that has been swollen about the neck for about a month. The swelling is from the ear down. Sometimes it nearly goes away and then comes back again. I feed her rye, hay and oats. What can be done for her?—Subscriber, Mac Doel.

Probably something has punctured the tissues from the inside, as barley beards sometimes do, and formed an abscess that empties periodically inside. That gives relief and the swelling goes down. When the swelling is at its worst you could probably find a spot where the pus is and by opening it there and washing out the cavity heal it from the outside so it would stay. Better get a veterinarian to open it for you. He would be more apt to find the pus.

Bitter Milk

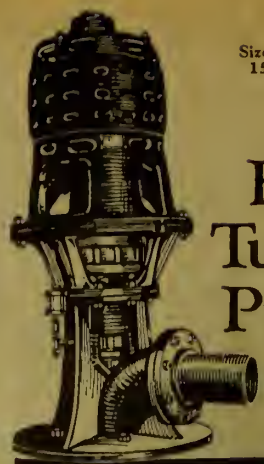
The milk from our goats, especially after setting for 24 hours, is slightly bitter and in the case of one is very much more acid than the others. It fairly stings the mouth and throat. They are in the same pasture and getting the same kind of feed as they did last year. What is the cause and what can be done about it?—Subscriber, El Cajon.

The bitterness of the milk may be due to something the goats are eating, to an acid condition of the system of the animal or to a germ that has gotten into the utensils that are used for keeping the milk. First thoroughly cleanse all the milk utensils with boiling water and dry in the sunshine. Look to the feed and see that there are no new weeds in the pasture and give these powders in the feed for a week. Salicylate of soda 2 ounces, bicarbonate of soda 2 ounces, calcium phosphate 4 ounces and corn meal 8 ounces. Mix and give a teaspoon of the mixture in the feed once a day.

DAIRY PRODUCTS IN CALIFORNIA IN 1921

A recent statistical report of the state superintendent of dairy service shows that in 12 months California produced \$79,671,907 worth of dairy products. Of this amount approximately \$32,514,430 was the value of the butter and \$3,280,747 that of the cheese. The greater portion of the balance was the value of the market milk and cream in their various forms. Stanislaus County led the state in butterfat production with 9,931,685 pounds and Humboldt, Los Angeles, Merced and Imperial Counties followed in the order named. Monterey County led in the production of cheese. Compared with an approximate production of \$16,000,000 in gold for the same period, it is easy to see that the real gold mines of the state are the dairy cows.

Royal I Am, grand champion Duroc boar of all California shows and at Portland in 1921, owned by Peter B. Kyne's Sierra Vista Ranch at Perris, died recently. He left a long line of excellent progeny.



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Educating for Fire Prevention

WE recently referred to the campaign of education in fire prevention carried on by the Farmers Mutual Insurance Company of Turlock. Through its secretary, John A. Orr, the high schools of Stanislaus County were appealed to to make a study of fire prevention methods. Prizes were offered and the young people presented a large number of fire prevention suggestions. One of the prizes was won by George James of Hughson high school. It has so many valuable suggestions that we are glad to reproduce:

"Suppose that someone should make you the following extraordinary offer: You were to make certain for one year that conditions about your home were as fire safe as you could reasonably make them, no matter how little of your time it took and in no case the total amount of work put in by you to average more than ten minutes a day. At the end of the year \$1,000 to be deposited to your credit for services performed— would you take him up? Without hesitation you would.

"Let us change the case a little. No doubt insurance is carried on your home building. How many of us, though, even if full insurance is carried, would be willing for \$1,000 to go through the harrowing experience of a fire? Certainly not many. Even that, however, is only as you personally are concerned. As far as the nation is concerned the wealth, whether insurance is carried or not, is lost. Fire prevention is by all means worth your best efforts.

"Let us see if we cannot cover in a few brief rules the main points of a home campaign of fire prevention. "Perhaps the one thing along this line most often spoken of and least often practiced is the disposal of oily rags. Use rags for cleaning off grease in small pieces and burn them immediately afterwards. Be especially careful of linseed oil.

"Keep matches away from children. "Take out ashes in metal containers. Never dump them in boxes. Have a piece of sheet metal under the stove.

Do not allow stove pipes or flues to touch wood.

"Keep kerosene, gasoline and distillate in galvanized iron tanks away from buildings.

"Do not allow rubbish to accumulate. Burn it often. See that there is no dry grass where it will cause danger.

"Gasoline and oil lamps are, unless carefully used, a constant menace. Never let the children light them, and never leave the children alone with one. If you wish to be perfectly safe, you should not allow the lamp to rest on a tablecloth that falls below the edge of the table.

"Be sure that electric wires are nowhere exposed to dampness. If there is any danger of papers or trash falling across them, these should be inspected at intervals. Never try to make extensions yourself unless you know exactly what you are doing— And while we are speaking about electricity, remember that any electrician can very easily install an automatic fire alarm that will ring in any part of the house from any part of the house, or an outbuilding.

"When re-roofing, you should, if possible, use some fire resistant roofing material.

"A bucket of water standing in the attic and another in the cellar may never be used, but if they are wanted, you may depend on it that they will be wanted badly. Certainly you should keep them always ready.

"If you have an oil stove in the kitchen, you should have a small bucket of sand standing in a handy corner. It is, of course, useless to attempt to put out an oil blaze with water. If you have a fire extinguisher, by all means keep it in the kitchen. That is the one place where it is the most necessary.

"All of the above rules may be briefly summarized as follows: Don't take chances. Remember that it is still true that fire is a good servant but a bad master. Remember that it is still true that an ounce of prevention is worth a pound of cure. Use common sense. It is better to be safe than to be sorry."

Changes in U. S. Potato Grades

Proposed changes in the United States potato grades, to go into effect June 15 or July 1, have been submitted for consideration to 400 of the principal factors in the potato industry by the United States department of agriculture. The suggested changes contemplate the elimination from United States No. 1 of badly misshapen potatoes and potatoes affected by hollow heart, and the addition of a grade to be known as United States No. 1 Small. There appears to be a widespread demand in the potato industry for these modifications.

The principal reasons advanced for the proposed changes are: Hollow heart is universally conceded to be a serious defect which should be eliminated from the United States No. 1 grade, and the revised grade simply places official approval upon common commercial practice. For the past year or two it has been the practice to consider hollow heart as not affecting the grade, but in spite of this policy the inclusion of such stock has caused large numbers of rejections which necessitated allowances. The only argument in favor of admitting hollow heart stock to United States No. 1 grade has been the difficulty of discovering the defect. It is believed that this is not a sufficient reason for continuing the old policy, for unless United States No. 1 potatoes are recognized as being free from serious internal defects the grade is bound to fall into disrepute.

Badly misshapen potatoes also injure the appearance of the product and cause excessive waste. Since their undesirability is generally recognized the department believes that they should be excluded, just as are potatoes damaged by deep scab, growth cracks or grub injury. Many growers and shippers are culling out such stock at the present time.

United States No. 1 Small will provide a grade for potatoes which are

of good market quality, but too small to grade United States No. 1. During the movement of early potatoes from the Southern states and to a lesser extent from some of the late producing states two sizes are frequently shipped, as follows: Stock above 1 1/4 or 1 1/2 inches respectively, the United States No. 1 minimum sizes for long and round stock, and stock between these sizes and 1 1/2 inches in diameter. In the past this small stock has been sold as United States No. 2, but as this grade also includes large stock which varies widely from this standard of market quality an additional grade is deemed necessary for the sake of clearness. Such a grade is already provided by several state departments of agriculture.

It is the intention to recommend the revised grades for the old ones at some definite early date, perhaps June 15 or July 1.

PHILIPPINE ADLAY

In California gardens we sometimes grow an ornamental grass from the East Indies, known as Job's Tears, and to botanists as *Coix Lacryma-Jobi*. The beads or "tears" are pearly white or light lead color, hard and bony, much used as beads or in "everlasting" bunches of flowers, etc. There is a more ornamental variety with striped leaves. In the Philippines and other tropic lands they have a soft hulled variety quite distinct, which in Manila is called "adlay" and designated by the botanist as variety mayuen. It may largely replace rice in the drier districts for it does not require the flooded fields rice demands. Just at present adlay is the crop of most interest and value of all now recommended for Philippine culture, for it makes excellent bread, either used alone or mixed with rice or wheat flour. The growing plant also makes excellent hay or forage for cattle and the seeds are fed to poultry.



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White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chix guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks—Barred Rocks and Rhode Island Reds from carefully selected stock; 25 chicks \$4.50; 50, \$8; 100, \$16; 500, \$75. S. C. White Leghorns (Emerson strain, the best); 25 chicks, \$3.75; 50, \$7.50; 100, \$14. We ship every Monday by parcel post, pay all charges. Hargett & Son, Route 2, Box C, Compton, California.

Baby Chicks from my pure-bred, heavy laying strain of S. C. White Leghorns, June and July delivery \$12.00 per 100; \$33.00 per 300; orders taken now for August and September delivery. Write for particulars. J. R. HEINRICH POULTRY YARDS, Arroyo Grande, California.

Thrifty Range Grown White Leghorn Pullets. Two, three, four months old. Two year old hens from imported English stock of highest egg records. Cockerels. Prices reasonable. Mrs. Robert Goddard, Route A, Box 122, Los Gatos, California.

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Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

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Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

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Weanling Boars and Glits by Pathfinder Wonder (Great Wonder 1 am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and glits. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

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For Sale—Sixteen high grade Holstein cows, all milking heavy. One Holstein bull. Nine three year old mules and four one year old. One Standard bred Jack. Will sell cheap for quick sale. 160 acres of river land, well improved, will subdivide. Chas. Hubbard, Owner, Riverdale, California.

Holsteins—For Sale—Jane Garden Nero Abbeikir, a son of Sir Aggie de Kol Aemo out of a 34 pound cow. Also two of his sons, and several high class females, registered and grade. Derryfield Farm, Capital National Bank Bldg., Sacramento.

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Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

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Mammoth Bronze Turkey Eggs 25 cents each, \$20 per hundred. W. L. Duvall, Pomona, Calif.

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We are not entertainers. Haven't much time to visit, but make up the difference.

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1—No. 5 American Centrifugal Pump
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34 feet 7 inch pipe
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All in good condition. Can be seen at Acme Pump Works, 52nd and Santa Fe Ave., Los Angeles. Make offer. Owner—RFD 6, Box 3, Santa Ana, California.

For Sale—Luitweiler Pump No. 1510, 200 ft. casing 7 inch and double rods 7 inch cylinder and valves, all new. Write for prices and description. Geo. E. Small, Terra Bella, California.

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Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Picotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

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Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint.....\$2.20 a gal. Roof Paint Special.....35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdway. 5401. Los Angeles, Calif.

POLAND CHINAS

POLAND-CHINAS STRALOCH FARM Two and one-half miles west of Davis, Calif. on Highway. C. Harold Hopkins, Woodland, California.

GEESE

Owing to More Room Needed for young stock will dispose of some of our yearling geese at \$7.50 each, and Wyandotte hens at \$5 and \$10, and cocks at \$10 and \$25 each. Pearl Guineas \$5 a pair. Paradise Valley Poultry Ranch, National City, California.

SEEDS AND PLANTS

A Few Thousand New Stone Tomato Plants. (No others.) Large sweet peppers soon. Outdoor grown. Home Nursery & Seed House, Maywood, Los Angeles. Route 1, Box 1335, Slauson and Cudahy.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery. Jordan and Casey, Box 40, Manhattan Beach. Phone 4951 Redondo

For Sale: Guaranteed Banana Squash Seed, Two Dollars Pound. Prompt delivery. Mrs. Wilkerson, 7050 Kester Avenue, Van Nuys, California.

Sweet Potato Plants—Yellow Jersey, \$1.00 per 1,000, F.O.B. Shipment by express preferred. W. E. Van Gorder, R. 5, Box 91, Santa Ana, Calif.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, California. Telephone Downey 1186.

For Sale: Yellow Sweet Potato Plants strong stock, \$1.50 per 1,000, F. O. B. Santa Ana. S. D. Teel, R. D. 3, Box 8

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Wanted a Position as Manager or Foreman on large ranch, have had years of experience with machinery including gas engines, tractors, etc., and the successful handling of the working man. Eight years on present ranch; cause of change, part of ranch sold and the reduction in salary. For references any one that knows me. Address Box 321, Glendora, California, Telephone 643.

Wanted—Work as herdsman or assistant, with beef cattle or hogs. Experienced in showing, fitting, conducting of sales and herd management. Single, age 27, agricultural college graduate. References furnished. State full particulars. Address, Box 17, Cultivator, Los Angeles.

Wanted: Men With Spare Time to represent established California companies selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

Wanted Throughout California, men with autos to represent established farm publication selling and collecting subscriptions. Flat salary. Write or call. J. H. Yetter, 317 Central Ave. Los Angeles.

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DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California.

FUMIGATION SEASON

(Continued from Page 650.)

that hot weather fumigation is by far the most generally effective. One of the lessons all must learn is that if fumigation is to be highly successful the dosage must be truly proportionate to the size of the trees. Since the improved and simplified methods of fumigation have come with the use of liquid gas, closer attention has been paid to proper dosage through precise scheduling based on tree measurements with a tape. Woglum has this to say on what he terms "guess scheduling."

"The fallacy of the contention that estimating dosage is as accurate as measurement scarcely needs comment. There are in California careful, experienced fumigators who can estimate with a considerable degree of accuracy, and particularly is this true of orchards in which the trees are of uniform sizes. But when it comes to variable sized trees in the same orchard the accuracy of guess scheduling departs widely from the accuracy of the tape. And particularly is this true of large trees for on these there is a great tendency to cut well below the regular dosage schedule, and even this schedule is too low for big trees as I have already stated. Now, taping demands an effort, and I know many fumigators prefer to dispense with and actually do use the tape very little. I feel, however, that the grower as a protection to himself should demand that his trees be taped.

"Daylight scheduling is done before the trees are covered and based on a guess of what the size will be when tented. Now there are ways of covering trees—and other ways as well. If the tents are so carefully kicked in as to give the tree its proper draped form the inaccuracy is reduced to a minimum, but how often have you seen tents not properly kicked in, tents where the skirts were angling way out toward the next tree, in some cases even as they fell from the last tree? In such cases even the guess scheduler of excellence supreme fails completely. The taping of such tents not only necessitates a certain amount of kicking in of the edges when taped but also develops a dosage commensurate with the extra amount of space subtended by the outstretched skirts."

FIRST RESISTANT STRAINS
OF ORANGES

(Continued from Page 649.)

large an area in so short a time. Inasmuch as the standard practice of successful fruit growers is generally the safest to follow, it is not surprising if one-half the fruit growers of the state still regard long pruning with doubt. The remarkable thing is that so large a number have so quickly adapted it to their local conditions and made a success of it. The writer doubts whether this could have been accomplished in any other state than California, where fruit growers have taken the lead in innovations in fruit growing and fruit handling.

We may better comprehend a comparison of pruning methods if we recall to mind facts concerning the annual cycle of growth and development of a fruit tree. A tree puts out its leaves (and blossoms) in spring. This new growth is supported by plant food reserves (mainly starch or sugar) stored in the tree before it shed its leaves the previous autumn. Much of the reserve food stored in the tree is used up in pushing the tree into leaf. Crude plant food is supplied to the tree from two sources. Part of it is taken from the soil, through the roots. A larger portion is taken from the air (in the form of carbon dioxide) through the leaves. None of the crude plant food taken in by the leaves and roots can nourish the tree until it is manufactured in the leaves. The green coloring matter in the leaves does this work; sunlight, which reaches the leaves, being the source of energy. From the leaves the manufactured plant food is distributed to the grow-

ing layer, where it promotes growth of all parts of the tree.

The main length growth of branches and the formation of additional leaves normally should take place in the first few weeks of early spring and summer. So long as plant food manufactured daily in the leaves is being largely used in promoting rapid length growth of branches and formation of new leaves, just that much less remains available to nourish and develop the fruit crop, the blossom buds for the following year, and to store for winter in the tree.

As soon as length growth and new formation slows down, more manufactured plant food becomes available to promote diameter growth of the tree, to nourish the fruit, to develop flower buds for the following spring and to be stored as reserves in the tree for the following winter and spring. Studies made in connection with pruning show that normally the sap of a fruit tree is least concentrated (contains the least sugar and manufactured plant food) during the period of rapid length growth in spring and early summer. Sap becomes more and more concentrated after length growth ceases. The supply of plant food be-

comes greater as the tree goes into winter condition. The later a tree continues length growth in autumn, the less concentrated its sap becomes and the less abundant its supply of plant food reserves. The more concentrated the sap and the better lignified the wood of the tree, the more drouth it can endure and the more cold the tree can safely stand, either in winter or during spring frosts. In one plot, peach trees which had continued rank length growth until frost in autumn, had all their flowers killed on a night the following spring at a temperature of 27 degrees. The following night the temperature dropped to 22 degrees. An adjoining plot of trees, which ceased length growth early, but which maintained healthy mature leaves to store plant food until autumn, endured this lower temperature safely without injury to their blossoms.

Trees severely headed back call for more moisture, or are less able to endure drouth. The rank new branches and leaves at the top are soft, tender and succulent. This condition continues throughout the summer. The rank, succulent leaves at top are able to draw water out of the green fruit on the lower twigs whenever water supply is not adequate for both. The rank growing limbs above tend to rob and shade out fruiting twigs down on the tree.

Where the main limbs are not headed back, rank length at the top of the tree is not stimulated. Branches of shorter growth and fruit spurs are distributed about equally throughout the entire tree. Length growth ceases early. The tree early attains a concentrated sap, perfects firm wood

tion there are in the Cultivator library nearly a score of books, each of them containing several hundred pages discussing the problems of the duty of water and irrigation.

SUCCESSFUL JELLY MAKING

(Continued from Page 657.)

Mouldy Jelly: Paraffine not hot enough when poured. Paraffine seal not tight because glass wet or layer too thin.

Fermented Jelly: Not concentrated to 221 degrees. Boil down further or pasteurize in sealed jars.

AND THE OVERHEAD

"Are you sure you have shown me all the principal parts of this car?" asked the prospective purchaser.

"Yes, madam, all the main ones," returned the dealer.

"Well, then, where is the depreciation? Tom told me that was one of the biggest things about a car."—American Legion Weekly.



In their New Home

The Motors Equipment and Tractor Company is now occupying its new quarters at 1341 South Hope Street, Los Angeles. This firm has for the past four years been distributing tractors, disks, and other dependable implements. H. T. Hayes is president and L. G. Dodge is treasurer of the company.

comes greatest as the tree goes into winter condition.

The later a tree continues length growth in autumn, the less concentrated its sap becomes and the less abundant its supply of plant food reserves. The more concentrated the sap and the better lignified the wood of the tree, the more drouth it can endure and the more cold the tree can safely stand, either in winter or during spring frosts. In one plot, peach trees which had continued rank length growth until frost in autumn, had all their flowers killed on a night the following spring at a temperature of 27 degrees. The following night the temperature dropped to 22 degrees. An adjoining plot of trees, which ceased length growth early, but which maintained healthy mature leaves to store plant food until autumn, endured this lower temperature safely without injury to their blossoms.

The merits of the new pruning system now being advocated are better understood in the light of the above facts. The prominent feature of the former standard pruning system is that the trees are severely headed back each winter. As a result, rapid new growth is stimulated at the top of the cut back branches. This rank, succulent, spongy, tender growth continues to lengthen and make new leaves throughout practically the entire summer. It looks rich and luxuriant, but it fails to mature for winter and it prevents storage of plant food reserves and concentration of sap in the tree.

In the new system of pruning the main limbs (about six) are established as early as possible. Once they are established they are not subsequently cut back, unless a very long limb is shortened to maintain the symmetry of the tree. They are pruned by thinning out surplus limbs. Length growth is shorter at the top of the tree, but more light, lateral branches and fruit spurs from the crotch of the tree upward. Long pruned trees grow larger and stronger. Not being headed back their length growth early slows down toward the top of the tree and terminal buds form early at the tips

growth and stores plant food reserves. These slower growing twigs and leaves are firm in texture and do more efficient work. The leaves are less likely to draw water out of the green fruit on hot dry days. The concentrated sap gives up its water less readily.

Judicious summer pruning may be understandingly practiced. Indiscriminate summer pruning may severely weaken the tree. The removal of mature branches, which have ceased length growth, reduces efficient leaves which are needed to do the work of the tree.

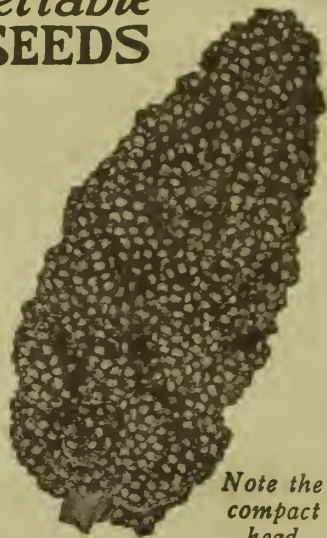
Late summer pruning may be severe enough to induce the formation of late autumn sprouts and tender leaves. This draws upon stored plant food reserves and results in a thinner sap just when the tree should be storing reserves and perfecting its growth for the winter. Judicious early summer pruning may be done to shape the young tree or to remove succulent sprouts that are growing where they are not wanted. It is not desirable to reduce the leaf surface of desirable branches.

QUESTIONS AND ANSWERS

(Continued from Page 663.)

call for still other treatments. Alfalfa is of necessity irrigated in checks or basins excepting that in more recent years several kinds of irrigation pipe have been brought into action and the supply of water carried from point to point and simply allowed to flow over the land. For gardens and ornamentals around the house the ordinary furrow method of irrigation is the best. Southern California vineyard and orchard irrigation as a rule is by the ordinary furrow method though some will combine with the basin method along the lower edge of the orchard. In the North there is more general recourse to the basin method.

If our subscribers will give more particularly the exact line of information desired it will enable us to bring our answers within the limits of this department. In the matter of irriga-

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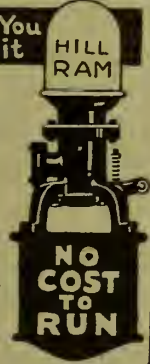


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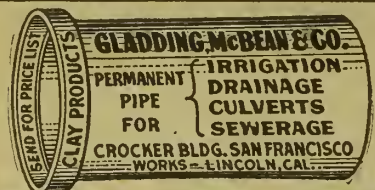
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Weeding Out the Unfit

By Jean A. Koethen



CULLING the flock has just as important a place in the poultryman's program as renewing the flock by raising pullets each year. As long as chicks are hatched there are bound to be some in every lot that do not come up to the mark. Whatever the cause, whether it is lack of vigor in the parent stock or error in hatching or in management of the growing stock, some will inevitably fall behind, and it is these backward individuals, of whatever age, that must be eliminated. Some may be fit only for the table, while others, unable to stand the strain of commercial egg laying, are useful for the small family flock. To put every bird to its best use and retain in the commercial flock only such hens as are fully fit is a necessary and by no means an easy task.

Culling begins the day the hatch comes off. Chicks that fail to get themselves out of the shell are usually best left to die in it. All cripples and weaklings should be put out of the way at once. Very few of them will live long, and none will grow up into vigorous, profitable pullets. Killing them outright sometimes seems cruel but it is really kindness.

Unless coccidiosis or some other epidemic disease attacks the flock it is safe to say that every droopy chick should be removed, not necessarily killed; sometimes a few weaklings, when put by themselves with more room and care than they would have in a large flock, will make such gains that they may be returned to the flock. Take them away from the others and give them a chance if you can. The weaker and smaller chicks in a large hatch have little show. Special feeding and care sometimes have surprising results.

Successful poultrymen remove from the flock all through the growing period every chick that for any reason whatever falls behind the others in development. If these chicks are not sick, but merely undersized, they are fed on a good fattening ration and sent to market as soon as possible. When the pullets are ready for the laying house they are carefully culled again and any that lack vigor are sent to the fattening coop. The pullets that go into the laying house should be as near perfect as possible, with budding combs, fresh plumage and the alert air which always marks the up-and-coming hen.

Shall We Hoganize?

While I would be the last to minimize the debt of the poultry industry to the late Walter Hogan of Petaluma I have never felt quite sure that he is to be followed to the limit. In calling the attention of the world to the place of type in determining fecundity he did a great work, but his rules for picking out prospective layers have failed in so many cases that I doubt if they can be depended on except as they are supported by other marks of vigor and fecundity. Many poultrymen do Hoganize their pullets when they put them in the laying house, but I have yet to meet one who depends exclusively on pelvic bone and abdominal tests. If the distance from keel to pelvic bone is right, the pelvic bones are thin and elastic, the comb is red and the eye alert, the plumage glossy, and other signs of vigor apparent, the pullet will get by, but keel and pelvic bone tests are hardly half the examination. Vigor is the one essential in a layer. If she is vigorous the chances are other things will be right. If she is not vigorous nothing is right.

Let us Hoganize then as carefully as we may, but let us Hoganize with common sense, recognizing that vigor, the vigor that shows in alertness and singing and scratching, a red comb and glossy plumage, is more important than the number of fingers between keel and pelvic bones or the character of the pelvic bones.

Spring Culling

Hoganizing is generally done when the pullets are put in the laying house in September or October and removes the pullets that will not be profitable layers. Culling, in the sense of going through the flock and picking out the pullets that have not been profitable

layers, or, at least, will not continue to be, begins generally in May or June and continues at intervals till October.

The culling that begins in May aims mainly at finding out how good a layer a given hen has been through the season that is now past its height. The theory is that a hen with bright yellow shanks, beak and earlobes and glossy plumage in May must be a slacker, else she would have laid the color out of the yellow parts of her body and would be more or less faded instead of glossy. Another theory, and, to my mind, an easier one to follow, is that the hen that goes broody early or often cannot be a satisfactory layer. Some poultrymen cull out every hen that goes broody before the first of July and every hen that goes broody more than once after that date. In many cases these hens that are given to broodiness will be found to be the ones with bright yellow color.

Culling Early Molters

From the first of July till the latter part of September or the first of October the hens that are removed are mainly the molters. The theory in this case, and it has the best possible foundation, is that the early molter cannot be a long distance layer. The more months a hen lays before she stops to molt the more profitable is she for both present and future. The pullet that starts the molt in July has only eight or nine months of laying to her credit, while the pullet that goes ragged and frowsy till October has a year. Hens have been known to lay from October of one year till January of the next without stopping to molt, and these are the priceless layers. On one ranch I have visited every pullet that begins to molt before the middle of September is culled out, and every pullet that molts before November is banded. The hens that are kept for the cockerel pens are the hens that lay till November or later before they stop to molt.

September culling by color and appearance is really a culling of early molters for the hens that have finished molting by this time are those that show bright yellow in shanks and beak and are appareled in all the glory of glossy plumage, while the faded, ragged biddies are the ones that have been too busy to think of their summer dressmaking. Hens that do not molt till September will probably be profitable for another year. Hens that delay the molt till October are among the best in the flock. The hen that is ragged in November is head of the class and may be a profitable layer for several years.

Keep the Good Hens

The above tests, accompanied by the constant removal of birds that show any signs of lack of vigor, will effectually decide which hens should be kept two, three, or even four or five years. Don't sell a hen just because she is two years old. Many hens are profitable for three years and a few for four. Age is no test at all. The only test is "what is she doing?"

Poultry Queries

Conducted by Jean A. Koethen

Wild Morning Glory

Will wild morning glory poison chickens? We fenced in a patch of it for a chicken yard, but a neighbor tells us it will poison the chickens. Is there anything that will kill it and not injure other vegetation?—Subscriber, Galt.

As to killing the morning glory, I shall have to pass that on to the agricultural editor, except to say that I have never seen a weed yet that did not succumb in the end to repeated attacks of the hoe, especially if you plant something vigorous, like rape, in its place. Will it kill chickens? It might if they ate it, but I have too much respect for Mrs. Biddy's instinct to believe that she will touch it. Chickens have a wonderful sense of the fitness of things when it comes to noxious weeds.

Sour Milk

What is the best way to sour milk and feed it to chickens?—Subscriber Daggett.

I know no way of souring pasteurized milk, except to give it time. There ought not to be much trouble about souring raw milk this weather. If you have an abundance it is all right to keep it before them in pans and cut the beef scraps out of the laying mash. If you can feed it only part of the time it is better to use it once a day for moistening the mash. If you want to save labor just put it on top of the mash in the hopper or trough. The hens will eat milk and mash together.

Too Much Milk

Is it possible to feed laying hens too much sour curd where they have wheat twice a day and run on alfalfa morning and evening? I have lost several lately and can lay it to nothing else. They droop and die in a few days. Combs stay a good color and only one out of five showed bowel trouble.—Subscriber, Madera

Lay it to anything else you please, but not to the milk. Sour milk never made a hen sick, unless it was moldy, and there is no excuse for mold. If you buy your milk from a dairy it is possible that it has been doped to keep it from souring, but clean milk is the best poultry feed. You have upset your hens' digestions by feeding an unbalanced ration. Wheat is good, but wheat as the only grain feed is not good. Keep a laying mash or at least a hopper of bran, before the hens and let them have a mixture of grains including cracked corn instead of wheat alone. Is it possible that there are mites in your nouse? Better investigate and spray or paint with kerosene and crude carbolic acid or carbolineum. If you do not spray regularly there are almost sure to be mites at this season, and mites have been known to kill hens when there were enough of them.

Losing Feathers

Why are my hens losing the feathers from the front of the neck and down the breast? Is it a disease or an insect? Would throwing the feed in sand so that the hen gets a mouthful of sand with every grain cause it? Could stale, bad smelling water have such an effect? I found little biscuit shaped red lumps about as big as a pinhead on the neck of one hen, did not examine the others.—Subscriber, Elsinore.

I think a mite is at work on the necks and breasts of your hens—not what is called the depluming mite, for that begins at the tail, but a mite which causes body mange, a disease much like favus. You can cure it, I think, by a half and half mixture of lard and sulphur, rubbed on the affected parts twice a day. If this does not cure it, try oil of caraway ointment or balsam of Peru. There are certain mites which live on grains and bushes, which sometimes attack the bodies of fowls. Possibly these have such an origin, or they may come from lack of sanitation in the houses and yards. Eating sand could hardly affect the skin but it cannot be good for the digestion. Why not feed in a box or pen if you have no litter?

Dipping for Lice

"Poultry for Profit" mentions sheep dip as a remedy for lice, and I want to try it on our hens which are very lousy. Can you tell me how to dilute it?—Subscriber, Sanger.

If the dip is a Cresol dip you can make a one per cent solution, that is, one part of dip to 100 of water. There are a good many kinds of sheep dip, and I could not give the proportion without knowing what the dip contains. Kerosene emulsion is easily made and is said to be very effective. Dissolve a bar of laundry soap or a pound of soap powder in a gallon of boiling water, add a gallon of kerosene and a pint of crude carbolic acid and churn for 20 minutes. To use, dilute a quart of this solution with nine quarts of water. Dipping should be done in the morning of a hot day, and care should be taken to keep the liquid out of the mouths and eyes of the fowls.

Pullet Eggs

Pullets hatched in September lay a small egg. Will they lay larger eggs as they grow older?—Subscriber, Norwalk.

That is the one objection to hatching in September. Pullets begin to lay in February or March and invariably lay smaller eggs than spring hatched pullets which begin to lay in October or November. Their eggs will ultimately reach normal size.

Blackhead

Some of my three months old turkeys were suddenly taken sick and lived but a short time. Post mortem examination showed spots on the liver of one, while the second looked as if blood settled through it, and the liver of the third seemed normal. Can any one tell me what to do for them and the cause of the disease?—Subscriber, Santa Barbara.

The one with the spots on the liver certainly had blackhead, and if you had noticed the ceca or blind pouches near the end of the intestine of the other two you would probably have found them inflamed or full of pus, indicating that they had the same disease. The cause of blackhead in turkeys as old as these is always overfeeding or wrong feeding. Some turkey growers are having fair success with the ipecac treatment recommended by the Doctors Wegforth of San Diego. As soon as a bird begins to droop separate it from the flock and give ten drops of fluid extract of ipecac three times a day for three days, then twice a day for three days, and finally once a day for three days. To prevent blackhead give a teaspoon of powdered ipecac twice a week in the food for each unit of 20 turkeys. This treatment does not always cure but it is the only treatment that is even measurably successful.

Roupy Eyes

A few of our hens have trouble with their eyes. The eye is open but eyeballs turn a lighter color, almost white. Houses are dry and well ventilated, water fountains cleaned every day.—Subscriber, El Centro.

It looks as if there were a roup condition there in the eyes, or possibly what is called roup of the eyes. The best wash for the eyes is a boric acid solution made by dissolving 1/2 teaspoon boric acid in a cup of warm water. You can wash the eyes with an eye dropper or drop the solution from a bit of absorbent cotton. Wash thoroughly twice a day and at night anoint with white vaseline. If the boric acid alone does not relieve get your druggist to put it in a decoction of chamomile flowers which is particularly good for roup of the eyes. As you keep your houses so clean and well ventilated it is evidently not filth or dampness which causes the trouble, but there may be a crack or knothole behind the roosts through which the wind blows onto their heads, or they have been exposed to a very high wind. I am not sure but that lack of shade in very hot weather might cause just such trouble.

Gapes

Our chickens are dying with what we call gapes. They gasp and make a noise in the throat. Last fall we lost 200, and now the same disease has appeared in chicks hatched by hens as well as among those hatched in incubators. Houses and yards are clean. We feed cracked corn, sprouted wheat, barley, sometimes soaked and crushed, fresh meat scraps, and they have young alfalfa to run on. They have some clabbered milk.—Subscriber, Santa Maria.

Your chicks ought to have a growing mash, but it is not the ration that makes them sick. If the disease is really gapes—and the description sounds as if it were—it will reappear year after year as long as the chicks are on the same ground. The gape worms are in the soil and can only be eradicated by several years' cultivation. The chicks pick them up and the worms attach themselves to the membrane of the throat. Salicylic acid or salicylate of soda in the drinking water has been known to relieve gapes. Use 15 grains salicylic acid or three drams salicylate of soda to a quart of water. If this does not

bring relief you may have to extract the worms. That is done with an extractor, which you can buy at the supply store, or you can make one with a hair from a horse's tail doubled or a small quill feather stripped of all its web except a small tuft at the end. The chicken's beak is forced open with the thumb and fingers of the left hand, while the extractor is held in the right hand. When the glottis (the small aperture at the root of the tongue) is opened for breathing, the extractor is carefully inserted and pressed downward into the windpipe. The neck should be kept extended in a straight line so that the extractor will enter freely and not injure the delicate walls of the windpipe. At the first insertion the loop or brush should not pass more than an inch below the glottis; then it should be given two or three turns between thumb and finger and withdrawn. In any worms adhere to it, these should be burned. The extractor may now be inserted a little deeper, and so on till it reaches nearly the full length of the neck. If there is any resistance to the entrance of the extractor it should not be pressed upon or inserted any farther. In all cases the extractor must be quickly withdrawn to avoid suffocating or otherwise injuring the chicken.

Yellow Spots

Please tell me what causes yellow spots on the livers of my turkeys? I have lost a good many and all have these yellow spots. They look well and live four and five days after they begin to droop. Are lettuce and clabbered milk good for them?—Subscriber, El Cajon.

Please note reply to Santa Barbara subscriber. Your turkeys are undoubtedly dying of blackhead. It is not so much what they eat as the amount that develops this disease. Cut down the ration and be sure they have grit always before them. You had better try the ipecac treatment. The feeding of lettuce can be overdone, I believe, though a little does no harm. Alfalfa is better. Clabbered milk is one of the best feeds for turkeys.

COOPERATORS MUST STAY ON THE JOB

By J. H. Barber, General Manager
Poultry Producers of Central California

It has been well said that "Eternal vigilance is the price of liberty," and certainly with cooperative marketing associations constant watchfulness is absolutely necessary to success. The speculative dealer, deprived of his former opportunities of making money at the expense of the producers, is always on the alert to attempt something that will breed dissatisfaction among associate members.

Let us say that by "speculative dealer" we do not mean the legitimate distributor. The man who is engaged in the legitimate business of distributing farm products to consuming channels is performing a useful service and is entitled to reasonable compensation for his service and a reasonable profit on the money that he has invested in his business. We would be the last to deny him either. The speculative dealer, on the other hand, makes his profit by working the market; that is, by manipulating prices up and down for his own benefit. Sometimes he may also be a distributor, as well as speculator, but the two lines of activity are quite sharply differentiated and often the speculator does not handle the product at all—he simply gambles in it. To this type of man, who thrives on market manipulation, the cooperative marketing associations, which seek to stabilize market conditions, are especially distasteful, and he loses no opportunity of attacking them.

An illustration of this is a long article in the last issue of a Los Angeles trade paper attacking the state division of markets for supporting the membership campaign of the Almond Growers' Association. The writer of the article apparently is ignorant of the fact that the state market act not only authorizes, but specifically instructs the chief of the division of markets to promote the organization of producers' marketing

associations. The reason for this provision is obvious: the framers of the law realized that cooperative marketing contributes greatly to the prosperity of the producer and thereby increases production of farm products, thus resulting in a better supply at reasonable prices to the consumer and so benefiting the entire state, with the exception possibly of the speculators referred to above.

Every cooperative marketing association has at times to contend with this kind of misrepresentation, which often produces considerable effect upon members who are not acquainted with the facts.

One reason why many members of the marketing associations are susceptible to these antagonistic influences is because they are relatively new in the business. The prosperity that has come to various rural industries through the operations of the cooperative marketing associations handling their products has brought into these lines of production a great many new people whose experience of the industry is entirely confined to the period of prosperity. The older members of the associations, who can look back to the time when the associations did not exist and when the condition of the producer was much less satisfactory than at present, are seldom influenced by these misrepresentations; but the new people in the industry, who never knew the hard times which led to the organization of the associations, often fail to appreciate the benefits that they are now receiving through cooperation. They are apt, therefore, to be influenced by misstatements of interested dealers, overlooking the fact that what the dealer desires and what he is working for is to disrupt the organization so that the producers may revert to the former conditions in which they were absolutely at the dealers' mercy.

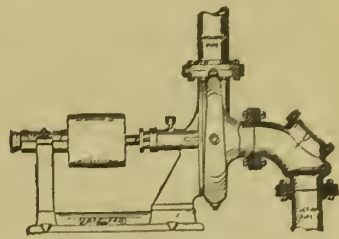
POULTRY PRODUCERS BUSINESS

Poultry Producers of Central California reports for April. San Francisco, May 31, 1922. Receipts of eggs during April were 18,507 cases weekly, or an increase of about 8 per cent over March receipts. However, April receipts were 7 1/2 per cent less than for the same period last year. April in both years was the high point of production. According to the bureau of markets, receipts of eggs on the San Francisco market have not been as heavy this year as last. On the other hand, in direct contradiction, we have the storage figures showing over 6000 cases more in storage in San Francisco this year. This difference is undoubtedly due to the fact that fewer eggs have been shipped East this year than last during the periods under comparison, for we firmly believe that consumptive demand has been greater recently.

The storage holdings in Southern California are greater than ever before at this season, and latest advices from Los Angeles show that there are 33,584 cases more in storage now than a year ago at this time. We also learn from the bureau of markets that the holdings in the four leading markets (New York, Boston, Chicago and Philadelphia) are more than 600,000 cases greater than last year. The movement into storage during the month of May has continued heavy, and, while production locally seemed to have dropped off somewhat, the receipts at all the principal markets

of the United States continued very heavy. The storage season is about to close, and we shall have to depend upon outside consumptive markets to absorb our surplus.

The market during May ranged high.
(Continued on Page 667)

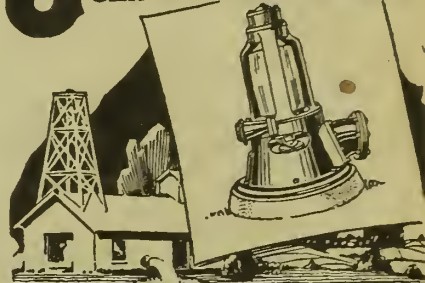
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Every American Pump is guaranteed to meet all conditions specified and to perform the work for which it is sold. If your water problem can be solved with any pump it can be solved with an American. Write for catalogs of horizontal and vertical centrifugal pumps and deep-well turbines and name of your nearest dealer.

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Installations can be made in wells 8 inch or larger. Produce 100 to 4,000 gallons per minute. Ask for Folder No. 4, Johnston Pump Co., 447 E. 3rd, Los Angeles

Mt. Lowe

MILE HIGH WONDER TRIP \$2.50

Pacific Electric Railway

LEE'S LICE KILLER

Kills lice, mites, bed bugs, etc., affecting poultry. Spray or paint on roosts, etc. Gets body lice on chickens, too. Works while they sleep. No dusting, dipping, greasing or handling. Saves lot of unpleasant work. At most towns, stores handling Lee Poultry Supplies. Write for information and FREE Book. GEO. H. LEE CO., Dept. F-30. OMAHA, NEBR.

Poultrymen Attention!

USE

HAUSER'S

HIGH PROTEIN

MEAT SCRAPS

Mail Orders Promptly Filled

HAUSER PACKING COMPANY
LOS ANGELES

Los Angeles Markets

Los Angeles, June 14, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 41 cents.

Prices extras past week:
June 8 9 10 12 13
42 42 42 42 41½

CHEESE

Brokers' prices:
California flats, 18@20.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 29; case count, 26½; pullets, 26.

Prices extras past week:
June 8 9 10 12 13
29 29 29 29 29

POULTRY

Price to producers: Hens, 19; colored, 30; broilers, 24@28; roasters, 35; old roosters, 12; fryers, 30; ducks, old, 20; ducklings, Pekin, 3½ up, 26; others, 23; geese, 20; turkeys, live, young toms, 40; dr., 43; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 38@43.

Belgian hares, 10@12; old, 8.

LIVESTOCK

Los Angeles, June 13.—Weighed and delivered off cars without food or water.
Hogs (hard grain fed), 125 to 150 lbs., 10.25; 175 to 225 lbs., 10.50.

Cattle (on foot gross weight), steers good, 700@7.50; medium, 6.25@6.75; cows, good, 5.00@5.50; medium, 4.25@4.75; bulls and stags, 3.00@4.00; calves, 125 to 175 lbs., 8.00@9.00; 175 to 250 pounds, 6.50.

Sheep: Ewes, 4.00@5.00; lambs, 9.00@10.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, June 13, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market steady. Idahos, Russets, 3.00@3.50. Stocktons: Ordinary, 2.00@2.50. New Stock: Best, locals, 1.00@1.25 per lug; small, 60 @75.

Sweet Potatoes: Movement light, market steady. Locals: No. 1, best, per lug, 65@75. Arkansas: Nancy Halls, per bu., mostly 1.25@1.50. Oklahomas: Baskets, 1.25@1.50.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, No. 1 Whites and Yellows, 85@1.25; mostly 1.10@1.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, June 13, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern and local, best, 75@1.00; poorer, low as 25.

Asparagus: Per lb.: Local, best, 14@16; Northern, 11@12.

Beans: Market steady. San Pedro Wax, 8@9; Ky. Wonder, 11@12.

Bunched Vegetables: Per doz. bunches: Turnips, 45@50; beets, 35@40; carrots, 40 @45; radishes and parsley, 15; spinach, 20.

Cabbage: Market steady, quality ordinary. Field cr., best 2.50@2.75.

Cucumbers: Local, 1.25 per cr. 23-35's; lug, 2.25.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 6.50 @7.00 per crate.

Corn: Green, Imp., best, 40@60 doz.

Eggplant: Imp., 15@16 lb.

Lettuce: Market steady. Locals: 75@90 cr.

Okra: Lb., 20@25.

Peas: Best Northern, lb., 7@8.

Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 14@15; Mexicans: Bells, 10@15; local, 17@20; Imp., 16@18.

Rhubarb: Local, best, Crimson, 75@1.00; mostly, 90.

Squash: Market steady. Locals: Summer, crates, 80@90; lugs, 1.00@1.25. Italian, lugs, 1.50@1.60 according to quality.

Tomatoes: Mexicans: Repacked lug, 3.75@4.50. Imperial and Coachella Valleys: 4-basket crates, 3.25@3.50, mostly 3.50. Mississippi: 4-basket flats, 2.75@3.00.

FRESH FRUIT

These are actual prices obtained June 13 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: Imperial Valley, Arizona, and Northern, 6@7; Royal, 8; Moorpark, 11@12.

Blackberries: Cr., 3.50@4.00.

Cantaloupes: Imperial Valley: Standard, 3.00@3.50; ponys, 2.60@3.00; flats, 1.50.

Cherries: Black Tartarians, 13@15; Royal Annes, 14@15; Bings, 14@16.

Currants: 3.25@3.50 per crate.

Figs: Brown Asiatic and White, 2.00@3.00 per 7-lb. flat.

Gooseberries: 15@17 lb.

Loquats: Best, 10@12 lb.; No. 2, 5@3.

Peaches: 10@12 per lb.

Raspberries: No. 1, cr., 3.75@4.00.

Strawberries: No. 1, 4.50@4.75; No. 2, 4.00@4.25.

Watermelons: Tom Watsons, 5@6 lb.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock June 13 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.50@4.00; market pack, 3.00@3.50; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 2.25; special brands, fancy, 6.75@7.50; choice, 5.50@5.75.

Oranges: Demand moderate, market steady. Navels, culls, 1.50 per field box; Valencias, special brands, 7.75@8.75, according to size.

HONEY

New honey is arriving in very light quantities but the quality is said to be excellent. Due to the early freeze and to disagreeable weather during blooming period of the oranges and other fruits, the yield from deciduous fruits has generally been light except in some few counties which were not hit by the freeze. Present prospects excellent for a good sage crop. Shippers are asking in carlot quantities F. O. B. California points for extracted white orange blossom or white sage 8@9 per pound and for light amber 6½@7 per pound. No recent carlot sales reported. Beeswax is bringing the beekeepers 22c per pound cash.

HAY

Following are prices in the general market to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00
Barley 18.00@22.00
Prices quoted f. o. b. L. A. to producers are:
Rabbit Alfalfa 17.00@19.00
No. 1 Alfalfa 15.00@17.00
Standard Alfalfa 12.00@14.00
Some growers report prices as follows:
Rabbit Alfalfa 20.00@23.00
No. 1 Dairy 17.00@20.00
No. 1 Alfalfa 15.00@18.00

GRAIN

Prices L. A. Grain Exchange, June 13.
Barley: 100 ton lots June Del. 1.20.

San Francisco Markets

San Francisco, June 13, 1922.

BUTTER

Sales on Dairy Exchange:
Following quotations carry a jobber-to-jobber discount of 10 per cent, plus a seller's handling charge of 2 per cent of net invoice:Extras 40½
Prices Extras last week:
June 7 8 9 10 12
40½ 40½ 38½ 40½ 40½

CHEESE

Dairy Exchange quotations:
California Young America, fancy 25½
California Flats, fancy 18-20
Oregon Trips 21½
Oregon Young America 25

EGGS

Dairy Exchange Quotations:
California Extras 29½
Extra Pullets 25½
Undersized Pullets 20
Prices Extras last week:
June 7 8 9 10 12
30 29½ 30 29½ 29½

POULTRY

Prices furnished by state department of agriculture division of markets:
Broilers: 1 to 1½ lbs. 28@29 per lb., 1½ to 1¾ lbs., 30@32. Colored, 32@34; 1¾ to 2 lbs., 32@34. Colored, 43@45.

Fryers: 2½ to 3 lbs., 53@58.

Young Roosters: 3 lbs. and up, 54@60.

Staggy showing spurs, 25@30.

Colored Old Roosters: Slow, 17@18.

Leghorn Hens: 2½ to 3 lbs., 16@22; 3 lbs. and over, 23@24.

Large Colored Hens: 28@31. Off stock, 26@27.

Ducks: Young, 20@22. Off stock, 10 @15.

Geese: Young, 24@26.

Live Turkeys: 32@35.

Dressed Turkeys: Young, 36@40. Off stock 26@32.

Belgian Hare: Live, 14@16. Dressed 18@23.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@3.50 doz.

Old Pigeons: 2.50@3.50 per doz.

Guineas: Young, 9.00@10.00 doz.

Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:

Weighed off cars at our yards in South San Francisco:

Cattle: Steers, first quality, 6¾@7¼ per lb.; second quality, 5¼@6¼; cows and heifers, No. 1, 4¼@5¼; second quality, 4 @5; bulls and stags, 3¼@4 per lb.

Calves: Light weight, 8@9 per lb.; heavy, 5@7 per lb.

Sheep: Wethers, 6½@7 per lb.; ewes and stags, 3@4 per lb.

Lambs: 10½@11½ per lb.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 12 per lb.; 200 to 250 lbs., 11 per lb.; 250 to 300 lbs., 10 per lb.; light sows, 10 per lb.; heavy, 9 per lb.

California Farm Bureau Marketing Association reports:

No. Hogs Av. Wt. Dock Price

Wasco, June 3

67 189 10.25

87 152 10.00

3 230 9.50

2 240 9.00

2 320 7.00

1 crippled hog

162 hogs

2 cars, 20 consignors, \$2,771.12.

Corcoran, June 5

99 172 10.25

2 295 6.50

101 hogs

1 car, 2 consignors, \$1,771.62.

Modesto, June 7

68 164 11.65

4 222 11.15

4 247 8.65

76 hogs

1 car, 15 consignors, \$1,484.33.

Chowchilla, June 6

91 184 11.20

45 174 11.05

24 feeders 129 10.55
7 204 10.05
11 231 9.55
2 265 8.55180 hogs
2 cars, 22 consignors, \$3,387.12.
Fresno, June 980 178 11.00
88 187 10.75
11 234 9.50
6 311 9.00
2 485 3.00187 hogs
2 cars, 22 consignors, \$3,782.67.
Totals for the week: 1,306 hogs, 8 cars, 69 consignors, \$13,199.91.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60@2.00; Oregon Burbanks, nominal; Idaho and Wash. netted gems, 2.25@2.35; Salinas, 2.25@2.75 per cwt.; new, 2½@4.

Sweet Potatoes: Per cwt. 3.50@4.00; Arkansas, 1.75@2.00 per 50-lb. crate.

Onions: New Crop White, 1.25@1.35 crate; Yellow, 1.00@1.15 cwt.; Gr. Onions, 1.75@2.00 box; Stockton Red 1.50@1.65 cwt.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, May 22, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00@6.00 per cr.; Extra Fy., 8.00.

Asparagus: 3@6 per lb.; white, 5@7 per lb.; graded, 8@10 per lb.

Beans: Ky. Wonder, 15@17 lb.; wax, 15; Italian, 22.

Beets: Sack, 1.00@2.00.

Bunched Vegetables: Carrots, 60@1.00 per dozen; turnips, 55@60 per dozen; beets, 50@60 dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: River, 2½ per lb.

Cauliflower: Half-moon Bay, doz., 1.00.

Carrots: 3.00@3.50 sack.

Corn: New, doz., 1.00@1.25.

Cucumbers: Ariz. and local, sm. cr., 50@75; do, English, 1.75@2.00; Texas, hamper, 3.00; hot-house, 1.00@2.00 doz.

Lettuce: Local, 50@75; Walnut Creek, 50@75; iced, 1.00@1.25.

Mushrooms: 50@1.00 lb.

Parsnips: 3.00@3.25 per sack.

Peas: Bay, 1½-3 lb.; Half-moon, 3@3½.

Peppers: Florida and Mexico, 15@25 lb.; Chili, 8@12.

Rhubarb: Box, 1.25@1.50.

Spinach: Lb., 3@4.

Squash: Summer, 1.00@1.25 cr.; Italian, 1.25.

Tomatoes: Mexican, repacked, 4.50@5.00 per L. A. lug; off grades, 3.00@4.25; Imperial, 3.50@3.75 lug.

Turnips: 1.25@2.50 per sack.

FRESH FRUIT

Apricots: Lb., 5@10.

Avocados: 10.00@15.00 per doz.

Bananas: Hawaiian and eastern, 7@7½ lb.

Blackberries: Dr., 65@75.

Cantaloupes: Imperial Valley, pony, 4.00@5.00; do, standard, 5.00@7.00.

Cherries: Black, 1.25@1.75; bulk, black, 7@13; white, 6@9; Royal Anne, 10@15.

Currants: Dr., 1.25.

Figs: 1.00@1.50 box.

Gooseberries: 10@15 lb.

Loganberries: Dr., 55@65.

Pineapples: 5.00@6.00 per doz.

Peaches: Cr., 1.25@1.75.

Raspberries: 90@1.00.

Strawberries: Watsonville and Salinas, 90@1.50 cr.; locals, 45@70 dr.

Watermelons: Lb., 6@6½.

CITRUS FRUITS

Grapefruit: Cal., fancy, special pack, 4.25@4.75; some, 7.00 per box; Tulare, 3.00 @3.25.

Lemons: Special pack, 6.00@7.00; Choice, 5.00@5.50 box; Lemonettes, 2.00 @3.50.

Oranges: Culls, 2.50@4.50; Valencias, fan., 7.50@8.50; Choice, 6.50@7.00.

DRIED FRUITS

Packers' Quotations:

Apricots—1922—In 25s:

Standard 20

Choice 24½

Extra choice 26

Fancy 27½

Prunes—1922:

Size Basis Per lb. in

30-40s 11½@11¾ 15¼@15½

40-50s 9¼@9½ 12½@12¾

50-60s 8¼@8½ 11 @11¼

60-70s 7¼@8 10 @10¼

70-80s 7¼@7½ 9 @9¼

80-90s 6¾@7 8 @8¼

90-100s 6¼@7 7½@7¾

Raisins: Sun-Maid Raisin Growers' prices, for shipment to July 1:

Seeded—Sun-Maid, 15-oz., 15½. Bakers (in 25s and 30s) 13½. 1-crown (in 25s and 30s), 13½.

Loose Muscatels—4-crown (in 25s), 15½. 3-crown (in 25s), 14½. 2-crown (in 25s), 13½. 1-crown, recleaned (in 25s), 13½. 1-crown, not Sun-Maid (in 25s), 13½.

Seedless—Thompsons, bulk (in 25s), 15½. Thompsons, bakers (in 25s), 15½. Sultanas, bulk (in 25s), 14½.

Bleached Thompsons—Choice, sulfur (in 25s), 18½. Fancy, sulfur (in 25s), 19½. Extra fancy, sulfur (in 25s), 22½. Soda

dipped, 15-oz., 17½. Soda dipped, 8-oz., 9½. Soda dipped, bulk, 15½.

Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points, 3.65. Valencias, bulk (in 25s), 12½. Feherzagos, loose (in 25s), 12½. Malagas, loose (in 25s), 12½. Zante Currants (in 25s), 15½. Black grapes, 1920 crop (in 25s), 16½. Layers—All grades, withdrawn.

BEANS

California Bean Growers.
Large Whites 8.25
Small Whites 7.75
Pinks 5.85
Mexican Reds 4.50
Red Kidney 8.25
Cranberries 8.00
Bayos 5.80
Blackeyes 4.65
Henderson Bush Limas 9.25

HAY AND FEEDSTUFF

A. W. Scott Co. reports under date June 10.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Ton
Wheat Hay, No. 1 16.00@18.00
Wheat Hay, Fair Grade 14.00@16.00
Tame Oat Hay 15.00@18.00
Wild Oat Hay 11.00@13.00
Alfalfa Hay, Old Crop 15.00@18.00
Alfalfa Hay, New 1st Cutting 13.00@15.00
Stock Hay 10.00@12.00
Barley, Ground 31.00@32.00
Rolled 28.00@31.00
Oats, Rolled Feed 38.00@40.00
Bran 38.00@40.00
Millrun 25.00@39.00
Middlings 46.00@50.00
Linseed Meal 49.00@52.00
Coconut Meal 33.00@35.00
Alfalfa Meal 22.00@24.00
Cottonseed Meal 50.00@55.00
Sugar Beet Pulp 32.00@34.00
Molasses, tanks 17.00 Barr 25.00
Milo Ma

NEGATIVE

(Continued from Page 647.)

lands and interests that they might need, with power to issue all necessary bonds in order that they might furnish farm products to the people of the state at cost? The farmers would certainly ask what does this board know about farming? Perhaps the reply would be that they know as much about farming as they do about water and power.

We can offer no greater argument in opposition to the proposed measure than to ask that the bill be carefully read. The idealistic impossibilities of the measure are not so much to be feared as the dangerous entanglements which will so throttle and stagnate business that it will require many years to remedy.

* * *

By Alden Anderson, Sacramento

The present is no time to even consider such a scheme as the water and power act. We are now just recovering from the effects of the great World War. Business has been unstable, farmers' prices low and crops largely unremunerative, and taxes, on account of war expenditures are extremely high. In addition this state has properly committed itself to increased expenditures on account of its schools and highways. To support our present commitments means a heavy burden of taxes on the farmers, every property owner and business generally. To add to this burden now would be akin to a species of insanity. It would stop the inflow of money and home-seekers to California, and it would lower property values.

* * *

In a statement issued by several bond houses the following appears: To California Investors:

There will be on your ballot next November a proposed amendment to the constitution of California known as the water and power act and authorizing an issue of state bonds to the enormous amount of \$500,000,000 bearing interest as high as 6 per cent.

The act would create a super-government of five persons appointed by the governor and removable only by recall or by the vote of two-thirds of both houses of the legislature. This board would have authority to issue \$500,000,000 of state bonds and to invest the money as it pleased in unspecified hydro-electric ventures and in any incidental business. The act provides for the issue of bonds to pay interest as well as principal of prior issues and also to meet operating and maintenance costs of the projects to be acquired or developed.

California today has more bonds outstanding than any state except New York and Massachusetts. With \$500,000,000 added to California's present debt of \$75,000,000, California would have about 45 per cent of the aggregate debt of all the states of the Union.

Bonds mean increased taxes, no matter what theorists supporting the water and power act may assert to the contrary. Taxes—national, state and local—have become a serious drag on business. What we need are proposals for reducing, not for increasing, debts and taxes.

You can help to suppress the menace of the water and power act by spreading correct information about it now before the scheme gains headway.

True, the scheme is preposterous, but no voter can afford to ignore it for it is an alarming menace to your welfare and to the prosperity of this state. It goes before the people with a clamor of slogans and catchwords artfully designed to conceal the real nature and consequences of the proposal.

Investors are men and women of affairs and should be informed about the water and power act which vitally concerns them. Unless the leaders in this state take the trouble to inform themselves regarding this dangerous act, demagogues are likely to do to California what the non-partisan league did to North Dakota.

* * *

The Journal of Electricity of San Francisco gives as possible results of the water and power bill the following:

The creating of a vast self-perpetuating political machine (hiring and firing are wholly within the control of

the five super-governors of the state who may be on the governing board).

The opening of metal mines, cement works, textile mills, machine shops, canneries, laundries, etc.—under state control in competition with private concerns.

Cut-throat competition with present power systems. The duplication of transmission lines, distribution systems and generating plants with the ultimate resulting higher costs to the consumer.

The abandonment of the principle of regulation and the resulting unfair distribution of power costs between consumers, determined by the particular bias of those in control.

The development of the state's resources by that portion of the state which asks for them first—the furthering of the interests of one section of government served at the expense of another which receives its power from private companies.

The increase of taxes. Owing to the lesser amount of taxes paid by the district doing away with its public utilities, the remainder of the state and other sources of revenue will have to bear a large share.

The lessening of market value of all private securities placed on the market, owing to the competition of this great block of tax free bonds.

High power rates to farmers. Owing to their distance from power sources and the long stretch of lines needed for each farm, costs will grow beyond the ability of the farmer to meet them.

The failure of certain portions of the enterprise to meet required returns, especially during the first few years, and the consequent levying of a tax for payment of bonds and interest.

Increasing burdens, through the gradual growth of the system—a tendency more and more to spread into related enterprises, to take up side lines of manufacturing, to control irrigation, as well as power. A growing feeling of irritation on the part of certain sections of the state against

others who have greedily reached for all in sight and shifted tax burdens from their own shoulders to those of their neighbors. Numerous weaknesses and failings in the act, which are not now apparent but which will develop in operation. At the same time a growing power on the part of the controlling board and a great difficulty in bringing about a reform through popular vote.

COOPERATORS ON THE JOB

(Continued from Page 665.)

er than a great many authorities had predicted.

Our operating fund made a further gain of \$6241.97 during April, and on April 30 showed a credit balance of \$24,978.59. Additions to our Eastern shipments account during April were \$4789.19, which brought the total credit up to \$37,579.80 on April 30.

Capital stock deductions during the month of April brought our capital stock fund up to \$400,071.24, exclusive of reserves; and you will note from the financial statement that up to April 30 it had not been necessary for the association to borrow any money with which to carry on the business and take care of storage requirements.

During the month, 57 members signed the produce sale agreement, of which two were members who had previously withdrawn.—John R. Denman, President; John Lawler, Assistant Manager.

NATIONAL EGG LAYING CONTEST

By T. W. Noland, Director

The 300 hens in the Eleventh National Egg Laying Contest, Mountain Grove, Missouri, laid 6,133 eggs during May, or an average of 20.44 eggs per hen. Pen S. C. Anconas, owned by Frank Van Bree, Zeeland, Michigan, won the cup by laying 133 eggs.

Number of eggs laid by the different breeds for the month and to date are: Wyandottes, 1005, 6502; Plymouth Rocks, 1107, 6446; Leghorns,

1065, 6323; Miscellaneous Varieties, 966, 6251; Anconas, 1101, 5996; Rhode Island Reds, 889, 5634.

Ten leading pens for May: S. C. Anconas, Michigan, 133; S. C. White Leghorns, Washington, 132; White Wyandottes, England, 130; R. C. Rhode Island Whites, Missouri, 130; S. C. White Leghorns, Missouri, 129; Barred Rocks, Missouri, 126; S. C. White Leghorns, New Jersey, 124; S. C. Anconas, Missouri, 123; Barred Rocks, Missouri, 123; S. C. Anconas, Missouri, 120; S. C. Dk. Brown Leghorns, Missouri, 120.

Ten leading pens to date: White Wyandottes, England, 789; S. C. White Leghorns, Washington, 776; White Wyandottes, England, 770; Barred Rocks, Missouri, 751; S. C. White Leghorns, England, 748; S. C. White Leghorns, England, 741; Barred Rocks, New Jersey, 729; White Wyandottes, Missouri, 727; R. C. Rhode Island Whites, Missouri, 727; R. C. Rhode Island Whites, Missouri, 724.

Farm home department meetings will be held in Tehama County at Red Bluff, June 19-20; Corning, 21; (These two will be home evaporator demonstrations); Flournoy, 22; Reed Creek—Red Bank, 23; Bowman, 27; Squaw Hill, 28.

The chamber of commerce of Williams, Colusa County, is having films made of farming scenes in that locality. These will be used for making known the resources of the country.

There is a project for carrying electric power from Norway to Denmark.

WEATHER REPORT

San Francisco, Cal., June 10, 1922.

Stations—	—Rainfall—			—Temp.—	
	Past Wk.	Season	Norm.	Max.	Min.
Eureka	.10	34.71	45.44	84	47
Red Bluff	.01	16.67	24.77	86	56
Sacramento	.1	14.05	20.04	82	50
San Francisco	.24	19.89	22.20	71	51
San Jose	.02	14.78	16.77	73	48
Fresno	.1	10.71	9.68	86	55
San Luis Obispo	.0	25.29	20.51	76	48
Los Angeles	.0	19.66	15.60	76	55
San Diego	.0	18.65	10.01	68	56

THE Northwestern Bell Telephone Company uses Red-Tops on all its cars, because "not alone do they give a greater amount of service, but because they give it without interruption."

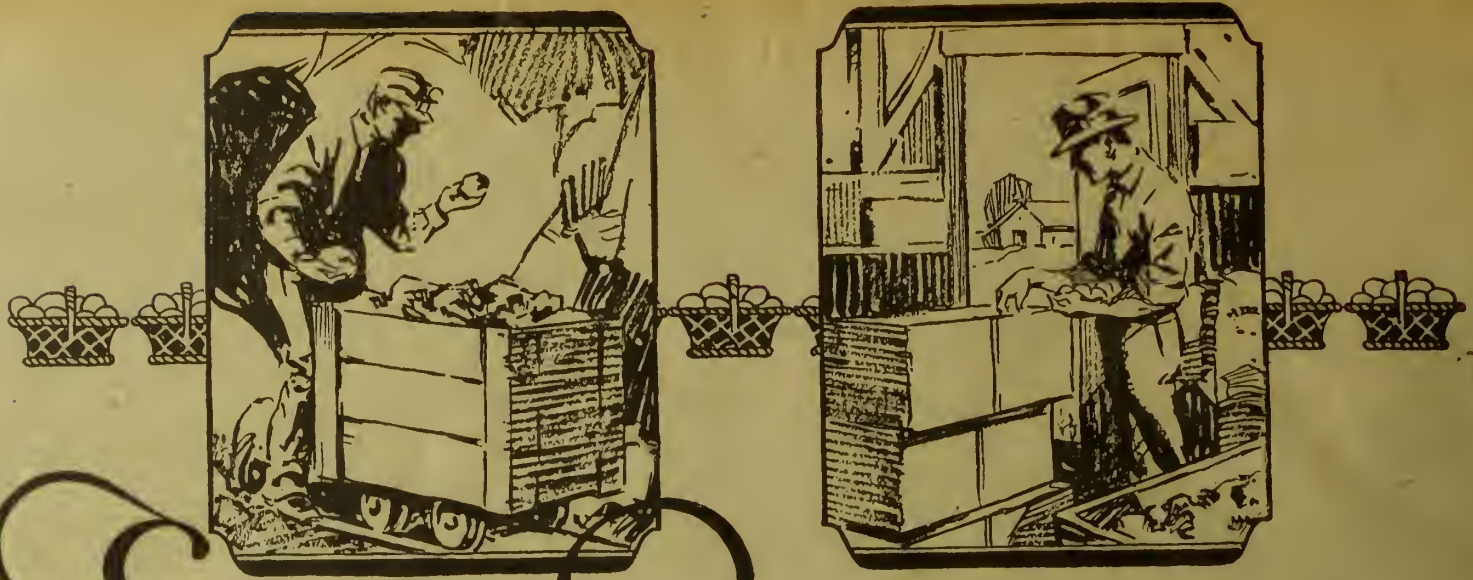
Their men, who have to do the greatest part of their work in the worst kind of weather, when the telephone lines are down, always where the roads are roughest, feel certain when they go on these trips that no Red-Top is going to blow out or be punctured.

Last year this telephone company bought \$15,000.00 worth of Red-Tops for one district — and put them on every car it used.

The extra ply of fabric and the heavy tread of the Red-Top will carry any small car over the roughest road, under any weather conditions and with heavy loads, for a longer mileage than any other tire we know.

There's a Fisk Tire of extra value in every size, for car, truck or speed wagon.





Every Poultryman

FINDS THIS "PAY-STREAK" SOONER OR LATER

EVERY good hen is a mine—a golden mine of eggs. This mine will yield a certain revenue even if you go at it hit-or-miss. But, you can never expect to get the greatest yield—to strike the real "pay-streak"—until you tap the right vein. *And that's feed!*

No matter how carefully selected your stock may be—no matter how good the housing and care you give them—sooner or later you will "dig down" to this rock-bottom fact: feed is the nub and the rub of the situation.

Even the big poultry operators who have been mixing their own feeds and have switched to SURELAY will tell you it's the "cheapest" feed in the long run—cheapest because it nets *more egg-money* in return for the feed-money it costs.

These seasoned poultrymen realize—as you must—that a hen uses more energy in converting poor feed into money than she does in converting good feed into money. And, at that, how little is the difference in cost between good feed and poor feed! But look at the difference in the egg-sheet when you're through!

SURELAY has helped to put many a poultryman on his profit-feet by proving two things to him: First—that cheap feeds lessen the profits of every hen in his flock; second—that our large scale production enables us to turn out a better and more economical feed than he could hope to.

Blended and balanced according to a true-to-test formula, SURELAY stands top-high as a uniform egg mash that will make your hens pay by making them lay. The best way is the find-out-way. Order a sack of SURELAY from your dealer—and see! See how this high-grade mash "assays" in feed value. See how our daily laboratory tests insure the same feed value every time. See how SURELAY actually "pans out" with your flock. See how it rids your mind of feed-worry for all time. For "what's on the tag is in the bag"—always!

Also, send for the new edition of our booklet, "Makes Hens Happy." It is by far the most complete and helpful book we have ever issued on poultry feeding. And it's free! Simply clip the coupon—and mail today!

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Poultry and Stock Feed Dept.

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your new booklet, "Makes Hens Happy."

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CA

CALIFORNIA CULTIVATOR

and **LIVESTOCK** and **DAIRY JOURNAL**

Los Angeles

An Illustrated Weekly for the Rural Home and Ranch

San Francisco

Vol. LVIII

June 24, 1922

UNIVERSITY OF ILLINOIS LIBRARY

No. 25

JUN 28 1922

Moving Day in the Orchard



1. Roots bared, rope sling adjusted. 2. Roots covered with wet burlap, awaiting auto truck. 3. Hoisting trees on truck with special crane. 4. Planting and irrigating at same time. 5. An average tree ten days in its new home. See article on third page of this issue. Photos especially taken with California Cultivator camera.

Established 1877

Forty-fifth Year

CALIFORNIA CULTIVATOR

A Journal of Horticulture, Agriculture and Livestock
Rural Californian, Established 1877,
Combined with California Cultivator, 1914.
Livestock and Dairy Journal, Established
1901, Combined with California
Cultivator 1916.

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W. R. Wood, Sec. and Treasurer

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Ernest Branton, Associate.
Wm. R. Wood, Associate
R. A. Condee, Livestock Editor.
Jack Klein, Livestock Field Editor.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors
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ruary 12, 1900, at the postoffice at Los
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Saturday, June 24, 1922

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against
loss through dishonesty of any advertiser
in the Cultivator. We do not attempt,
however, to adjust trifling differences
between subscribers and honest, respon-
sible advertisers, nor will we pay the
debts of honest bankrupts. Notice of
complaint must be sent us within 30 days
from date of the transaction, and the
subscriber must have mentioned the Cul-
tivator when writing the advertiser.

If among the more than 40,000
Cultivator's weekly circula-
tion any fail to find any article they de-
sire to purchase advertised in the Cul-
tivator's columns, a special request is
extended to you to let your wants be known
to the California Cultivator and we will
place you in touch with proper parties.

APRICOTS ARE WINNERS

The apricot grower who has a
crop is in clover. One Los Angeles
County orchardist who estimates a ten
ton production per acre has contracted
orchard run at \$52. Some with ex-
ceptionally fine high quality canning
fruit have reported as high as \$100
per ton for green fruit. There is
money in apricots.

A FIELD

There are some 14,000 raisin
growers sending the products of
their California vineyards two or may-
be three thousand miles to consumers
located in a section generally termed
"Back East." Of course there are al-
so some table grapes, and other grape
products which may go to Kalamazoo,
Timbuctoo or even more remote sec-
tions, but "Back East" furnishes the
great market for thousands of tons
of stored California sunshine and
sweetness. And they like 'em. We
believe it has been recorded that the
New Englander has said "Wall, I reck-
en them air raisins is purty good;"
but, in addition he, with a few South-

erners, Middle Westerners et al have
expressed appreciation more emphat-
ically in big round dollars which they
have sent to sunny California and
then remarked "Please pass the rais-
ins again." This has aggregated a
right neat sum, say, 'round 40 or 50
or may be more millions of dollars
and all within the one period of vine-
yard pruning to the next pruning. The
variations of a few millions in dif-
ferent years may be due to the con-
dition of appetite of those Easterners
or possibly the mood in which the
vineyardist was when he plowed, or
sulphured or suckered or cultivated
or pruned. If due to variation in ap-
petite, why?

Then there are some 15 or 16 more
thousands of growers who live in the
" . . . land where the lemon trees
bloom, Where the gold orange glows
in the deep thickets gloom." And be-
side the joy of living there they expect
not only the glow of the golden orange
but the more material glow of the
gold of those same Easterners—and
to the extent of some 50 or 60 or even
70 millions.

Then there are some dozen of thous-
and Californians who are caring for
and canning or drying or sending
lush and fresh from the tree, peaches
—beg pardon, California Peaches.

There are 12,000 prune growers,
other thousands of almond, walnut,
cherry, plum and 207 other distinct
products of California climate, water,
soil, toil. Much of this great range of
products calls for cooperative market-
ing organizations—250 of them. No
state in the Union has as many.

We boast—no, we tell the truth—
about our more than 200 products and
feel self sufficient. But really that
Easterner is quite an important per-
sonage. He has come out to Califor-
nia and admired and praised us, he
has staid at home and eaten our fruits.

We all know him pretty well. Each
year we get closer together, distances
are shortened, and sometime—maybe
—freights will be lower. Let us know
him better.

We Californians were, most of us,
born back there "in the states," but
we have forgotten.

It is "high onto" 40 years since
the editor of the Cultivator as a
youngster left the old home. Now he
is going back for the first real visit.
A half a dozen times he has dropped
in as an incident to a longer trip.

We are now on the way back with
time enough planned to see some of
the old-time friends, visit God's acre
where the names of many more are
graved in marble, look in the Little
Red School house and hunt for the
ole swimmin' hole.

It will be an even score of years
on the first day of September since
"we" began service at a Cultivator
desk and the score of years of service
is also justification for a bit of a play
spell.

Beside going "home" which is on
the Fire Lands of the western Re-
serve there will be trips beyond.

At Niagara a look will be taken at
the great power plants, then there
will be visits to Boston, New York,
Washington, New Orleans for infor-
mation as to procedure in federal
plant quarantine enforcement; down
into Florida to eat a Florida grape-
fruit—But why anticipate other than
to say that all the while we will be
endeavoring to get the opinions and
viewpoint of those Back Easterners
who render unto California the things
that be California's. As we get
those viewpoints they may work them-

selves into short notes, and if the
Cultivator folks at the office don't get
so excited in the fun of writing
their own pieces for the paper that
they will refuse to let my stuff in, I
will talk direct to Cultivator folks and,
if I may, will adopt the form of home
letters with the editorial "we" and
"our" dropped out here on this Utah
desert. If there is—and there will be—
lack of rhyme or reason at any time,
it is because the sway of the train
'round these Rocky Mountain curves
is jabbing holes in the copy paper.
Don't blame the proof reader—nor
me.

Also lest there be an occasional
tenderfoot whose memories of the old
home are so fresh that he takes ex-
ception to "Back" East, let me explain
that we Californians have become
accustomed to looking out through the
Golden Gate or other front doors of
the good old U. S. A., and taking the
boundless expanse of the Pacific as
indicative of the boundlessness of op-
portunity in California, and besides
the wending of Empire is responsible
for our expression regarding those
who still insist on remaining "Back"
there.

JANUARY TO JUNE

With this issue the California
Cultivator closes one volume of the
chronicles of the California farm, Vol.
LVIII. It is a volume of 700 pages,
and it has come in weekly install-
ments to 40,000 farm homes. Those
700 pages are a chronicle of the ups
and downs, the problems and the plans
of the California farm and home. In
running through the 25 issues the one
thing that impressed us most was the
number of questions which have been
answered. Of course, we knew the
questions had been coming and being
turned over to our attorney, our vet-
erinarian, our poultry editor, to spe-
cialists in potatoes, in walnuts, in
raisins, in calves, in rabbits, roses,
recipes, and so on, but as we turned
the pages we began to count. Here
is what we found. In those 25 issues,
835 questions have been answered
directly; there are 191 columns of
them; they appear on 180 of the 700
pages making up the completed vol-
ume.

Those 835 questions are to us an
indication of the close relationship
between our readers and our contrib-
utors. Not a question comes in but
is carefully and sympathetically
answered by specialists in daily touch
with the problems involved. Keep the
questions coming. We will do our
best. Keep the answers coming too.
We are more than glad to publish sug-
gestions and helps from our readers.
What we aim to be is a clearing house
for information and service.

Then the illustrations, 129 of them,
a large majority taken with one of the
Cultivator cameras by specialists who
are on the lookout—not for pictures
merely—but for concrete illustrations
which will convey at a glance accurate
information. Note the cover on this
week's issue.

But we can't go on talking about
the interesting features of this Jan-
uary to June volume; there isn't space
enough. Just turn to the index on the
last two pages of this issue; there
they will be found in outline. And
next week or next month when you
want to find an article or a formula
that appeared in the Cultivator in May
or maybe June or possibly as far back
as April or March, just turn to the
index to locate it quickly. That index
is a time saver—especially if the files

are kept in order on a handy low
shelf.

July to December brings another
volume, and both are delivered at
your home for one dollar. Pretty
good investment!

SPILLING THE BEANS

The bean growers need to wake
up. They are jeopardizing not only
the industry but the values of the
very lands on which the beans have
been grown. In a recent statement
issued by Mr. Churchill who is en-
deavoring to pull the Lima folks to-
gether we note:

Swapping dollars is an outdoor sport
which holds no charm for Carlyle
Thorpe, general manager of the Cal-
ifornia Walnut Growers Association.
For years he has been growing wal-
nuts, lemons and Lima beans on his
ranch holdings, and all of his crops
have been marketed through coopera-
tive growers' organizations, but he
frankly admits that producing Lima
beans under existing conditions is
pretty much of a dollar swapping prop-
osition.

"I wouldn't grow Lima beans and
market them outside the California
Lima Bean Growers Association," says
he, "but if the Lima growers don't
jump in and build up their member-
ship to a point where the organization
can eliminate the speculator and
handle the market in such a way that
a satisfactory average yearly return
can be had I'll be tempted to quit
growing Limas and plant other crops."

The only way a cooperative organi-
zation can prove highly efficient and
of the greatest benefit to the industry
is through not only moral support but
the active and wholehearted support
of its members.

GREEN VS. RIPE FRUIT

In the June 12 issue of The
Brawley News is given a sugar test
of five samples each of green cantal-
oupes, cantaloupes on the line and
ripe cantaloupes, the average of the
five samples being as follows: "Green"
—3.59 per cent sugar; "On the line,"
or half ripe, 5.81 per cent; "ripe" 6.82
per cent or almost twice the amount
of sugar in the ripe as in the green
and more than one per cent more in
the ripe than in the half ripe, which
has been the customary stage for
picking in the past. This showing
should convince the cantaloupe grow-
ers of the advisability of holding their
cants as long as possible without en-
dangering their shipping quality be-
fore picking in order to give the con-
sumer a product that will be relished
and for which he will call again. Green
and immature fruit of all kinds is
bound to reduce consumption while
ripe fruit increases it, and increased
consumption means better prices. Of
course there is a limit in the degree
of ripeness at which it is advisable to
hold fruit that is to be shipped but if
it must be picked so green in order to
stand shipment that it is not fit to
eat the grower can never hope to find
a satisfactory market for it.

NEW 1921 YEARBOOK

We wish to call attention to
the short article printed elsewhere in
this issue regarding the proposed
change in the new 1921 year book.
This change should certainly be ap-
preciated by the farmers as it will
make the book much more valuable
as a reference work and the articles
on production, marketing and distri-
bution will be appreciated by all in-
terested in farm products.

California Cultivator

Vol. LVIII, No. 25

Los Angeles, June 24, 1922

One Dollar Yearly

Moving 5,000 Mature Orange Trees

(See Cover for Illustrations.)



THE Limoneira Company of Santa Paula has a large tract double-set to citrus trees, about 15,000 altogether. It became necessary to transplant either the lemon or the Valencia orange trees, and orders were dispatched to the field force to have the orange trees "moved on." They are six years old and therefore the job of moving 7,000 or more trees is a gigantic and costly undertaking, for no doubt the undertaker will get some, figuratively speaking, as indeed he does with the first move.

For not all are worthy and only those found in past years to bear good crops of good fruits are transplanted. The others are decapitated and the stumps and roots will be removed later. The performance record of these orchards shows, however, but few trees unworthy of a new home. After the empty heads are cut off the remaining trees are heavily pruned about a month before moving day. Just enough foliage is left on to function feebly and partially resume the former sap circulation until the day when the tree undergoes the major surgical operation.

By Ernest Branton

After pruning the trees are at once whitewashed to protect from sunburn. A circular trench is then dug, three feet deep, three feet from the trunk, and the roots are cut. On the day of moving the trees are tilted, the tap and roots cut and the soil shaken from the roots. A sling of large rope is tied under the main roots and about the stem, by which the tree is raised by crane on to the auto truck. After roping, the roots are covered with wet burlaps and kept wet by an occasional sprinkling from a large garden watering can. When the truck with loading crane arrives the coverings are pulled off, the tree is loaded by hooking into rope and as soon as deposited "on deck" the roots are again covered with burlap. About 20 trees may easily be loaded on a large truck. They are then whisked away to the planting field.

Before replanting bruised, battered or split roots are smoothly cut on the ends, the smaller by shears and the larger by saws. Just at this point the close observer notes a startling range in the root system. Two trees are

closely alike above ground. When dug, one has short shaggy masses of fibrous roots, an ideal condition; the other has roots like large ropes, unbranched, same size all the way out, not a fibrous root in the three foot zone. The latter tree may have had a better root system than the former but it developed outside the three foot zone. The question arises: shall the two trees be treated alike? One has a root system ready to resume work at once; the other has none, but must grow one before it can begin to draw moisture and food from the soil. Will not the larger top overbalance the present insufficient root system before help arrives and so die or dry out in whole or part? It would appear that if each tree had six leaders the one of fiberless roots should be reduced to three. A wise head is needed to direct the work at this stage.

Of course holes of sufficient size have previously been dug to receive the trees. Water is first run in these holes so that roots may be made wet again as soon as possible. A stream

also immediately follows the planters so that all possible aid is lent to the preservation of their natural functions. The flow of water is long enough and sufficiently checked at each tree that there is no doubt as to the wetness of the entire zone. When finished dry soil is banked well up against the trunks to help conserve moisture and hold tree upright as the soil settles with percolation of water.

In addition to trees moved as herein outlined the Limoneira Company has a test plot of the same lot of trees moved by all the different methods thought worthy of trial. Some were boxed, others balled, still others moved with bare roots. On each tree is a large duplex wooden label on the inner side of which is written a history of the operations, dates of pruning, defoliation, moving, etc. The trees show for themselves the amount of pruning they received, some having but a heavy framework, others full tops with small branches. The present condition is best in the boxed trees and no doubt it will always be so, but the boxed trees cost the most to move.

The Control of Grape Mildew

By Fred K. Howard



ONE of the most common questions asked by producers of grapes at this season of the year is, "How many times is it necessary to sulphur my vines?" It is to answer this question in a measure that this article is prepared for the California Cultivator. It is not to be supposed, however, that there can be any set rule laid down for the time and number of sulphurings necessary to effectively combat this disease. Climatic conditions will determine how serious the trouble is any one year. It is possible, however, to so describe a disease that we may more thoroughly understand the nature of the thing to be combated and in view of this explanation can perhaps more intelligently apply the control measures.

What Mildew Is

Most of us have seen the gray felt-like growth which is quite common on some varieties of roses during the early spring. This is a mildew commonly known as rose mildew. Grape mildew is similar to this trouble although not usually quite so conspicuous. Mildew is a very low order of plant. It is commonly known as a fungus. It does not have the power of supporting itself from the crude minerals and chemicals found in the soil combination with the gases of the air as have the plants having green leaves, but must depend for its existence on the elaborated plant food which has been stored up for growth in the plants. There are a great many different kinds of mildew, some preferring to live on certain types of plants. The grape mildew prefers the grape vine. It has tiny root-like parts which penetrate the tissues of the

green parts on the vines and take up the stored or elaborated plant food from the cells. The growing part on the surface of the leaves develops very rapidly and soon forms spores which are really the seeds of the fungus. These spores are carried very quickly to other portions of the vineyard or to other parts of the same vine by the slightest movement of the wind. As the colder weather approaches the spore type changes, and there are developed spores which are hardier than those produced during the spring and summer. These winter spores as they are called, are capable of withstanding great extremes of heat, cold or moisture without affecting their ability to germinate and produce new fungus growth under proper climatic conditions. The winter spores gain lodgment on almost any part of the vine or even in the soil at the base of the vine and remain dormant throughout the winter. With the return of the first warm days of spring these winter spores will germinate and produce new infections. It is of course a practical impossibility to kill all of the winter spores by sprays during the winter period because they may lodge in such out of the way places that they could not be reached by the killing agent. Then too, as all are not killed, enough still remain to make summer control necessary in addition. So, after many experiments it has been determined that attempted winter control is a waste of effort and money. It has been said that it is far better to start control measures early in spring before the mildew has gained much

headway than at any other time. This sort of control is accomplished by ordinary dry sulphur, provided this sulphur is properly distributed over the entire green surface of the vine, and provided further, that climatic conditions are such that it will do the work effectively. Very little is definitely known regarding the action of the sulphur upon the growing parts of the mildew, but we are sure that whatever the action is it is a very effective remedy for the disease. The difficulty in the use of sulphur seems to be that a grain of sulphur has a very limited range of action; that is, the fumes given off (if the fumes are the killing agent) will not act at a very great distance from the grain of sulphur. This observation was brought to the attention of investigators probably due to the fact that distribution of the sulphur is very essential to the proper control of the disease. It is, in fact, now generally believed that the failure to control the disease has been due almost entirely to the improper distribution of the sulphur.

Kind of Sulphur To Use

The very finest sulphur that can be obtained should be used for this purpose. The reason for this is that only the fine sulphur can be distributed evenly over the vines. The fine sulphur particles float through the air and finally adhere to the lower surfaces of the leaves. Originally sublimed sulphur was used almost entirely, for this purpose, but in the past few years grinding facilities have been developed and a very finely

ground sulphur has been placed on the market and appears to do the work as effectively as the sublimed sulphur. A mixture of ten per cent lime with the sulphur also helps to improve the distribution of it.

Time of Sulphuring

It has become the usual custom to apply sulphur during the early morning hours. This is done for two reasons. First, because there is usually less wind at this time of the day and consequently sulphur can be better distributed. Second, because less wind makes for the comfort of the operator. The leaves are also then usually wet with dew and the sulphur has the chance to adhere to the surfaces of the plant better than if applied to drier surfaces. Care should be taken, however, to see that there is not enough dew on the leaves that it will collect in drops and carry with it as it collects the grains of sulphur. Aside from these reasons there seems to be no particular value in sulphuring early in the morning. Quantities of sulphur, however, should not be used during the middle of the day, particularly if the temperature is well above 100 degrees, as such application may cause a slight sulphur burning of the forming fruit.

When to Sulphur

Real mildew control is prevention of a further spread soon after the first summer spores develop in the spring. For this reason it is essential that the first application of sulphur be made about that time. This has been found to be when the shoots are no longer than eight inches. If sulphuring is done at this time it will

(Continued on Page 574.)

Agricultural News Notes of the Pacific Coast

Northern California

In the week ending June 3 Petaluma shipped nine cars of eggs to New Jersey.

Bids on construction of the state highway between Auburn and Colfax in Placer County will be opened July 10.

Contra Costa County is asking that roads and trails be built on Mt. Diablo and other nearby mountain sections.

Demonstrations of summer pruning and thinning of deciduous fruits were given throughout Placer County orchards last week.

Highest testing cow for May in the Petaluma association was Kate, owned by E. A. Lichau, with a yield of 74.4 pounds fat.

R. B. Easson, poultry specialist of the state university, closed today, June 24, a week of culling demonstrations in Sonoma County.

"All crops a month late" is the word from Fall River Mills in Shasta County. Cattle are in good condition and wheat crop will be large.

The stockmen of Sonoma and Marin Counties attended in force the Valley Ford Livestock Show, June 10-11. Over 200 head of dairy cattle were exhibited.

The Butte County Farm Bureau Market Exchange has been formally organized. Sam Cheney of Dry Creek will represent the exchange on the state board.

A committee of Colusa County farmers appeared before the state reclamation board at Sacramento to protest expenditure of \$520,000 by trustees of reclamation district 2047.

Napa Valley will harvest a 60 per cent prune crop this year according to estimates of Farm Adviser Baade. Between St. Helena and Calistoga the yield will be fully 100 per cent of normal.

The Livermore Valley Stockmen's Protective Association is cooperating with E. V. Sands of the United States department of agriculture in coyote extermination in the Corral Hollow district.

Superintendent Duffy of the Napa State Hospital reports sale of finished leather manufactured from beef raised on the farm, for \$9862.25. Leather manufacturers offered for the hides only \$1600.

Napa County poultrymen are planning inspection tour of Petaluma poultry plant. They will also visit the packing plant of the Poultry Producers. The trip is under management of the farm bureau.

Directors of the California Grape Protective Association met in San Francisco June 8 and set prices on wine grapes. \$105 a ton is named for Alicante Bouschet, Alicante Ganzin, Petit Bouschet, Grand Noir, and Lenoir, 18 per cent sugar.

In the effort to find orange variety better adapted to Butte County conditions than the Washington Navel the citrus experiment station at Riverside has sent to County Agent Drobish selected buds of Enterprise seedless, Boone's Early seedless, Indian River and Pineapple seedlings. Australian oranges in the Thermalito, Palermo and Wyandotte district will be budded with the new varieties.

Central California

Heavy rains last week made it necessary to close the roads to Sequoia Park.

The Tulare County board of trade is planning details of its exhibit at the state fair.

J. J. Hardie of Standiford, Stanislaus County, reports sale of his Zinfandels at \$125 per ton.

Farm center meetings will be held in Stanislaus County June 28 at Claus; June 29, Patterson.

Fresno chamber of commerce has acted to refuse admission to county fair grounds of games of chance.

May report of cow testing division of Kern County farm bureau shows 43 cows giving over 50 pounds fat.

The joint boards of the Turlock and Modesto irrigation districts have endorsed the Turlock melon carnival.

The highest testing cow in the Kern County Association during May was a grade in the herd of P. G. Grundt of Wasco. She made 80.7 pounds fat.

This year's bean crop in the district about Kings City, Monterey County, is estimated at about 50,000 bags, mostly Pinks and Limas. 800 more acres are planted this year than last.

The new state olive growers association reports more than 25 per cent of the acreage already signed up. Meetings are being held through the state this month to secure growers contracts.

The Shrine Hospitality Committee secured from the Sun-Maid and Fig Growers' associations thousands of baskets of specially packed fruits to distribute to visiting Shriners at San Francisco.

Turlock melon growers say conditions are just as satisfactory as they could be. Acreage approximates 2,500. Eighty-five per cent will be handled by the Turlock Melon Growers Association.

The Owens Valley local of the California Alfalfa Growers closed its year's business with showing of average net price to growers for choice dairy hay of \$19.04 as against the best price of \$10.70 offered growers last fall.

Carload shipments of loganberries will be made from Watsonville to Eastern cities. This was decided upon by the Central Berry Growers' Association which is also starting campaign of publicity to popularize the loganberry.

The first grain of the season to be delivered to warehouses in the Salinas Valley was received June 6 at Soledad. E. J. Hart, on the Salinas Land Company tract, and Al Eade, King City, were among the first to start harvesting.

The Turlock Melon Growers' Association will hold a two day melon carnival at Turlock. The chamber of commerce and the American Legion are cooperating. The carnival will be held the latter part of August, exact date not yet announced.

At the June 15 meeting of the Delhi farm center Consulting Engineer Shoemaker of the Turlock Irrigation District answered questions as to distribution of power from the Don Pedro dam. This question will soon be put to a vote of the people of the district.

Southern California

Potato growers field day at Van Nuys, June 27.

Imperial County has voted bonds for \$300,000 for a new court house.

Covina held its annual community picnic on June 22 at Ganesha Park, Pomona.

A party of Florida citrus growers is now making tour of California orange groves.

All of Ventura County is invited to a community fete at Berylwood farm, Huenceme, July 14.

The First National Walnut Exposition will be held at Santa Ana the first week in December.

The Colorado broke through the Raab's Bend levee on June 12, flooding several thousand acres.

Some 50 Florida citrus growers inspected groves and packing houses of the Riverside district June 16.

Agricultural courses for teachers will be given at the southern branch of the state university at Los Angeles.

A mass meeting of Escondido citizens was held June 20 to lay plans for celebration of Grape Day, September 9.

A poultry culling demonstration was held yesterday at the Hagar Ranch, Escondido, by W. E. Newlon of the state university.

A demonstration of orchard heaters was given at Riverside the evening of June 14 under the direction of the Stewart Fruit Company.

June 15 was a big Poultry Day at Ontario, Riverside County. A picnic supper was served on the Chaffey Union high school lawn.

Six carloads of feeder cattle were brought to Escondido last week from Arizona. They were taken to the Joe Crouch ranch at Witch Creek.

The California Walnut Growers Association is making careful census of all walnut districts in the state. The undertaking will probably be completed by September or October.

At a meeting held in Colton June 13, general endorsement was given to the plan of securing waters of Arrowhead Lake for the cities of Riverside, Colton, Redlands, San Bernardino and Rialto.

Palo Verde Valley has been suffering from raids of chicken and turkey thieves. The Blythe Herald says the raids ceased coincidentally with the capture of "Red" Cain who has been returned to the Hemet jail.

Francis Cuttle of Riverside, who has for many years been at the head of the Tri-Counties Reforestation Committee and Water Conservation Association, has left Riverside to make his home in Oakland.

Orchard heater demonstrations were given June 15 at the Santiago packing house at Orange and the Tustin Lemon Association packing house, Tustin. Demonstrations were under management of the Fruit Growers Supply.

Lynwood is one of the newest of the thriving centers of Los Angeles County. It is in a rich dairy and alfalfa country, owns its own water system, has an enthusiastic chamber of commerce of 100 members and a woman's club of 50 members.

The Coast and General

First blossoms have appeared in Arizona cotton fields; thinning is about completed.

The total production of milk in the United States in 1921 was almost 99 billion pounds.

First canning of raspberries in Bellingham district of Washington will start about July 4.

Douglas section of Arizona is feeding stock because of short pasture. Some stock is being lost.

California shipped during May 1263 carloads of lettuce out of the total for all states of 1816 carloads.

Salt River Valley of Arizona is harvesting second cutting alfalfa. Most of it is being baled.

The city council of Winnipeg is instituting action to prevent importation of frozen citrus fruits.

Arizona cantaloupe growers report vines have made luxuriant growth but fruit is fully three weeks late.

Two million pounds of dried and frozen eggs were brought into the United States from China in April.

The Oregon Prune Growers' Association reports sales already made of 7,000,000 pounds of Mistland prunes.

Shortage of citrus stock in Arizona is influencing orchardists to ask that quarantine against California trees be lifted.

Cold storage capacity of Yakima Valley, Washington, will be increased by this fall to 11,485 cars of fruit according to Union Pacific agent.

The Western Washington Fair Association has set October 2-8 as dates for the fall fair. For the first time it has put its officers on yearly salary.

A pure bred livestock tour has been arranged by the Washington state college. It will start at Vancouver, July 24 and end at Bellingham, August 4.

It now appears that the north central Washington apple crop will be smaller than last year's. Cold weather at blossoming time is considered responsible.

Oregon Agricultural College has established a fruit by-products laboratory at its Corvallis station. Effort is being directed particularly to standardizing prune drying.

Oregon Prune Growers' Association has named opening prices on Mistland prunes, 6 to 11 cents f. o. b. plants in 25 pound boxes. 70's, 80's and 90's run a quarter cent better than last year's prices; other grades about the same.

Five thousand acres of cut-over lands have been given to the state of Washington by the Weyerhaeuser Timber Company to be devoted to the first comprehensive scheme of reforestation in the state. The work will be under direction of the state college of forestry.

The 12 car special Shiner train from Cincinnati to San Francisco over the Southern Pacific was equipped with wireless. A long distance receiving record of 2000 miles for radiophone was established, as well as a 3000 mile record for telegraph reception while in motion. Aerials were constructed eight inches above the roof of one of the forward cars.

Feeding Dairy Cows--No. 1

GROWING CALVES



CONTRARY to the belief held by many people that "a dairy cow is a cow" and should be treated as such, a real dairy cow is a finely balanced machine capable of converting grains, roots and grasses, which in their natural state supply but little food for mankind, into milk and butter fat, two of the most important items on the human menu. Milk is the only food known which supplies all of the essentials required to sustain life and its value in the feeding of growing children is universally recognized.

Build Your Own Herd

As in all kinds of factories it is necessary that the machinery be of the right kind and properly made. In the dairy business this means that the parent stock should be the best obtainable and that the young should be developed in the most scientific manner. There is one glaring fault to be found with many dairymen: they make it a habit to sell their calves and when a larger volume of milk is needed go out and buy fresh cows. The usual excuse is that they have no milk to feed the calves, no time to care for them and oftentimes no place to keep them. With these men dairying can be nothing but a hand to mouth existence. The real dairyman who is in the business because he likes it and wants to make it his life work will have the best herd he can afford. It will be free from abortion and tuberculosis. Having assembled such a herd there is but one way to keep it clean, and that is to

refrain as much as possible from introducing new stock. By using the best pure bred sire he can get and carefully raising the heifer calves he can increase the value of his herd many hundred per cent in a few years. There are plenty of instances where the records show an almost unbelievable increase in type and production in three or four generations by following this method.

So it is the dairyman's duty to obtain the best foundation females he can and to use the right kind of a bull. Then he should build his future milk machinery by raising the heifer calves so that they will be in condition to do good work when they freshen.

Calves Need Whole Milk

Calves should not remain with their mothers longer than one or two days and it is the common practice of many dairymen to remove them as soon as they have nursed once. They should be fed whole milk for at least six weeks, preferably three times a day. There is less danger of scours from feeding one-third of the allowance three times a day than in a larger quantity twice a day. The total amount of milk should not be over eight pints a day at the start with a gradual increase as the calf grows, until at the end of the six week period it should be getting 16 pints a day. For the first two weeks the calf should have nothing but milk as food and drink as water is liable to induce scours. After that it can be given

water and a small pan of equal parts of bran and ground oats should be before it all the time. If more than one calf is kept in a pen there should be small stanchions in which to fasten them or they should be tied apart during the feeding. If they are given some of the grain mixture immediately after they have finished the milk there will be less chance of any danger of their sucking. If the milk-wet nose is dipped into grain for the first few times it is surprising how quickly they will learn to eat grain. A handful of good, bright oat hay morning and night should also be fed after the second week. Oat hay is a bone and muscle builder and provides a very necessary part of the ration.

Changing to Skim Milk

At the end of the sixth week the change to skim milk is begun. In order that the calf should go on growing without a set back it is best to do this gradually. Replace a portion of the whole milk with skim, increasing the proportion of skim each day until at the end of seven days the whole milk is entirely replaced. At the same time change the grain ration to the following mixture: 100 pounds ground oats, 100 pounds bran, 100 pounds dry beet pulp, 50 pounds linseed oil meal, 1 1/4 pounds salt. Begin with one pint twice a day and increase as the calf grows. Feed plenty of oat hay in small quantities and a handful of alfalfa can be added after a time. When the calf is two or three months old

five pounds of silage fed once a day is a good thing.

Calf Meals Satisfactory

Calves should be fed skim milk for a year if it is available. If the supply is short, calf meal of some one of the well known brands should be substituted for a part of the skim. The meal can be fed according to directions, always remembering not to feed too much and being sure to mix it with warm water. Should the calf scour decrease the amount of meal until the proper proportion is determined. Calf meal can also be substituted for a portion of the whole milk fed the first six weeks if it is absolutely necessary to do so.

Feed for Yearlings

After the calf is six months old alfalfa hay may be substituted for a considerable part of the oat hay if the breeder desires. At the end of a year the calf—if Holstein or Holstein grade—should weigh from 750 to 800 pounds, if a Jersey or Guernsey, somewhat less. From this time until she is bred, which is generally at 15 to 18 months according to her growth, she can be carried on silage and alfalfa alone. It is not good to have heifers in too high condition before breeding as they are often hard to settle if fat. After they are safe in calf it is a good idea, but not absolutely necessary, to add a small feed of grain once a day to the alfalfa and silage. If they run in pasture or in a large corral this helps to keep them from being easily frightened, keeps them in the habit of eating grain and gives the owner a chance to watch them more closely than he might otherwise.

Citrus Growing in South Africa

By R. E. Nebelung, Citrus Specialist, Union of South Africa



WHILE the growing of citrus fruits has been a practice in South Africa for about 100 years the industry is still in its infancy as a commercial proposition. It is only during the last decade that any attention has been paid to export, and during the war practically no fruit was sent out, giving the industry a setback, but one from which it has rapidly recovered. During 1922 it is believed that about 400,000 boxes will be sent out, principally to England.

The first trees set out were of course seedlings, and some of these in the Clan William section near Capetown are still alive and bearing good crops at 100 years. Seedlings 75 years old are not uncommon in Cape Colony and parts of the Transvaal. The original Dutch settlers or "voor-trekkers" set out trees which will stand as a monument to their enterprise. These early plantings have been invaluable in determining for the growers today the localities in which citrus will thrive. The principal districts in which citrus is being grown and planted extensively are Rustenburg, Marico and Waterberg in the Transvaal, the Eastern Transvaal or "lowveldt," Fort Beaufort, Uitenhage and Clan William in the Cape, and Pietermaritzburg and Greytown in Natal. Rhodesia also grows considerable citrus but is not a part of the Union, so will not be considered in this article.

The varieties which are being planted most extensively today are Washington Navel and Valencia, with

budded seedlings, Du Rois, St. Michaels and other miscellaneous varieties receiving some attention. Naartjies or tangerines are also produced quite extensively, but are not being planted to any extent now. Lemons, Eureka and Genoa (Lisbon, I believe) are grown but not for export. The Marsh Seedless and Triumph pomelo are grown in small quantities, but for some reason, probably inferior budstock, the Marsh Seedless has been a disappointment. The root stock that is used is principally the rough lemon, which is more resistant to collar rot than other varieties. The Seville orange, which appears to be similar to Florida sour stock, has not been successful. That fact alone would deter growers from importing California nursery stock commercially, were there not other insurmountable obstacles, such as long shipment, quarantine regulations, etc. As it stands today it is the rough lemon stock with Washington Navel and Valencia buds and an increasing interest in good budded seedlings.

The Navel has been somewhat of a disappointment to many growers. The reasons for this are, I believe, quite obvious. There has been a large demand for nursery trees and a small knowledge of bud selection, and many nurserymen and growers propagating their own trees have taken buds with little regard to type. This could only result in one thing—off type trees

bearing poor crops of inferior fruit. It is just the California experience over again, but thanks to the work done by the California growers the South Africans have learned how good trees can be produced and are coming more and more to bud selection. Thousands of trees should be topworked as they are very "Australian" in type and bearing, and some growers have started along this line.

Another fault of the Navel is its relatively large size, with often a tendency toward a thick skin. As the trees grow older, however, the fruit will no doubt improve in quality. London is the principal market, and the London consumer is used to and likes a medium sized orange such as the Spanish and Jamaican varieties. There is no particular objection to seeds, and for this reason the 200 size, thin skinned seedling is being planted by many growers. They are being encouraged in this, as the writer, during three weeks in London in October, 1921, found this type of orange in favor at Covent Garden and among the retailers. It is of a size and price that appeals to the masses. The Navel, if of good quality, will always command a good price however. It ripens in May, the beginning of the South African winter, and is sold during the northern hemisphere summer. The only probable competition is the California Valencia. The seedling is a little later, and the Valencia ripens in

October, which is liable to bring it in competition with the Spanish and Jamaican fruit.

While London is the principal market some fruit is sent to the continent, principally Holland. As conditions in Central Europe improve a large market will be developed there, but in the present state of affairs no attempt is made to export. New York is being considered, and possibly when quarantine regulations will permit some shipments will be made there. Many South African growers believe, or did believe until recently, that no oranges were produced except in South Africa during May to November. It was rather a surprise to them to learn that California now produces over half of the crop during those months.

Before South Africa can become a serious competitor to California the quality of fruit exported will have to be improved. Until this season there has been no attempt to grade fruit for quality, the size determining the grade. This meant that fancy, choice, standard and cull all went in the same case, and if of a certain size, were known as "Fancy," "Choice," etc. At a meeting called in Johannesburg in February and at which the writer was present and took an active part, the following new regulations were drawn up and will be enforced this year.

"Maturity—No oranges which have not attained 70 per cent yellow or orange color shall be exported.

"Grades—There shall be two grades of oranges, to be known as 'Fancy'

and 'Choice' 'Fancy' fruit shall be that which is practically free from all but slight blemish and from injury by insect, disease, or hail, and shall have a reasonably thin skin, this depending somewhat upon the variety. 'Choice' fruit shall be in all respects similar to 'Fancy' but not of such good quality or as free from blemish, injury by insects, disease, or hail, and shall have a reasonably thin skin, this depending somewhat upon the variety.

"Inferior fruit in any respect, usually known as 'culls' such as any injured or punctured by insects, e. g., by moths, wasps, flies, etc., damaged by caterpillars (rispers) curculio, thrips, scale or any other insects; diseased owing to the presence of anthracnose, melanose, stem-end rot, or any diseases that attack oranges: having hail marks, leaf-brush, thorn pricks, sand and earth marks, or being deformed and longitudinally or latitudinally split; any rendered uninvit-

ing or of an unappetizing appearance from any cause whatsoever, shall not be exported.

"Size—The size shall not determine the grade.

"Marking of Boxes—All boxes shall bear the grade of their respective contents on the left hand top corner of the box, beneath the variety name.

"Minimum Weight—The minimum weight shall not be less than 75 lbs. (per packed box) at railway station."

This is the first step in standardization, and while it will result in some confusion at first, will eventually bring about desired results. When one realizes that practically all of the fruit is packed on the individual farms the difficulties in the way of obtaining a uniform pack may be appreciated. Add to this the fact that unskilled labor must be used, and the situation seems more hopeless. Strict inspection will be given all fruit at the various docks, and if a grower has a consignment

refused he is going to find a method of preparing a better pack. Only by such methods can the South African fruit establish itself as a permanent competitor in the citrus markets of the world.

CONTROL OF GRAPE MILDEW

(Continued from Page 671.)

be found that the cost of application is very low and the quantity of sulphur used almost nil. A second sulphuring following the first should be made about blooming time. Whether or not it should be made during the bloom is still a question upon which authorities are not in entire agreement. It is probable that except for certain varieties it is better to stay out of the vineyard with the sulphur machine during the blooming period. However, application should be made either just before or just after blooming. If the weather conditions are favorable to the development of mildew, that is, if there are continued stretches of hot, humid weather, then a third application should be made about two weeks after the second one. From then on the vineyard should be carefully watched for the first indication of the disease and an application of sulphur be made as soon as its appearance is noted.

How To Apply Sulphur

There are many methods of getting sulphur on grape vines for the control of mildew, but there is only one way of really properly applying it. In the past some of the common ways were the use of burlap or "gunne" sacks used as shakers, then too, there were shaker cans. In some cases the sulphur is simply thrown on the vines by hand. None of these methods can really be called a proper "application" because it does not distribute the sulphur over every leaf of every vine in the vineyard. Such methods of application will not control mildew, particularly in years when this disease is serious. These methods are also costly because more sulphur is used than is really needed and in the long run, the only method that should be used is that of the hand blower or the power sulphuring machine. With such machines the sulphur can be directed by the operator at the center of the vine and sufficient air pressure put behind it that it is very thoroughly distributed throughout the entire vine. We will not here discuss the relative value of the knapsack hand machines and the power machines. That is something which every one must decide for himself. The power blowers, of course, are particularly applicable to conditions found on large vineyards, and the investment is usually too great for the small grower.

INSECTARY FOR ORANGE COUNTY

The talked of insectary for Orange County is assured, according to citrus men who are backing the plan. In discussing the matter C. C. Chapman of Fullerton said:

"I understand that plans have almost been completed and that the committee having the matter in charge probably will be in a position to make a definite announcement within the near future.

"Although I am not prepared to say just what site the building will occupy, I think it is pretty generally understood that it will be in Anaheim and that the structure will be completed by midsummer.

"The insectary will be financed, I am told, by the citrus industry, rather than by the county, although, of course, Horticultural Commissioner A. A. Brock will have active charge of the plant and the county no doubt will contribute its full share toward its upkeep.

"I think it has virtually been decided to finance the insectary by levying a nominal assessment, probably a quarter of a cent per packed box, on citrus shipments made by the various exchanges, the packing houses and private shippers.

"There was, I believe, some talk of leasing a desirable building from one of the exchanges in Anaheim and establishing the insectary in this building. I am not sure whether this will be done, or whether a lot will be secured and a new building will be erected. However, a decision may be expected soon, and the work will then go forward very rapidly.

"The insectary will be a great thing for Orange County, and will aid very materially in eliminating our pests, including the mealy bug, which is making inroads in our citrus groves. There has been developed an enemy of the mealy bug which is very effective. This will be used in profusion."

ARIZONA NEEDS CITRUS TREES

From the Yuma Sun: "A shortage of young citrus fruit trees in Arizona, especially in the Yuma district, induced Don C. Mote, state entomologist, to go to California to see what could be done, if anything, in lifting the quarantine against such stock. He will investigate reported eradication of citrus fruit diseases by means of the vacuum fumigation, a method said to have solved the problem and which leaves the trees free from scale and other disorders which led to the Arizona quarantine against outside trees.

"The horticultural commission held a meeting to determine if it will be wise to raise the quarantine on citrus fruit trees from California. A request that this be done came from Yuma people, Senator A. J. Eddy coming to Phoenix to represent them. Yuma people wish to plant citrus fruit trees on the Yuma mesa, said to be one of the best citrus growing regions of the world.

There is a scarcity of good young trees suitable for planting on the mesa. It was reported, that the California stock has been fumigated and placed in condition, should the quarantine be lifted."

MARKET FOR AMERICAN FRUIT IN EUROPE

A shortage of dried fruits in the United Kingdom, together with the rise in exchange and the drop in freight rates, should stiffen prices until the new crop reaches the English market in October, according to a report to the department of commerce from Vice Consul Howard Donovan at London. Sales of California raisins would be larger if they arrived in time for the Christmas trade and if they were packed, like the Spanish product, in seven pound tins, faced and scalded, giving them the golden brown color which attracts buyers. Smyrna Sultanias, offered at lower prices than California seedless raisins, are furnishing competition difficult to meet. The amount of dried currants and raisins entered for consumption was appreciably larger in 1921 than in the previous year. Stocks of California and Oregon plums and prunes, and of dried apricots, pears and peaches in London bonded warehouses at the end of the year considerably exceeded those of 1919 and 1920.

The oranges, mandarins and bananas seen in the best shops of France are not of a quality to attract the notice of an American tourist, writes Vice Consul J. Lee Murphy from Nantes. Grapefruit is practically unknown. If American shippers can meet the market with the adverse exchange rate and the long haul freight charges they may be able to do some business on a consignment basis with regular buyers.

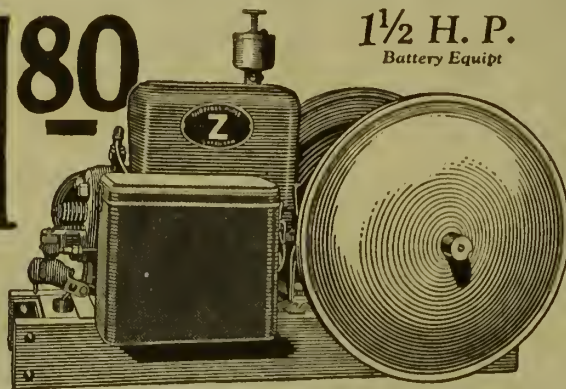
During 1921 the United States furnished practically all the imports of dried apples and pears into The Netherlands, the department of commerce is informed by Consul General George E. Anderson, Rotterdam, who says there is a steady demand for these products. American exporters also sold 53 per cent of the canned fruit and 25 per cent of the preserved fruit purchased by The Netherlands last year. The fall in value of the German mark in 1921 enabled Hamburg jobbers to sell American dried prunes and apricots in the Dutch market at prices lower than those obtaining in the United States.

PRUNE AND APRICOT GROWERS CONFERENCE

A conference of prune and apricot growers is suggested for the week of the annual fruit show at the state university at Berkeley the coming fall, the association and university people to cooperate in planning for the meet.

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Is the straw stiff enough to stand?
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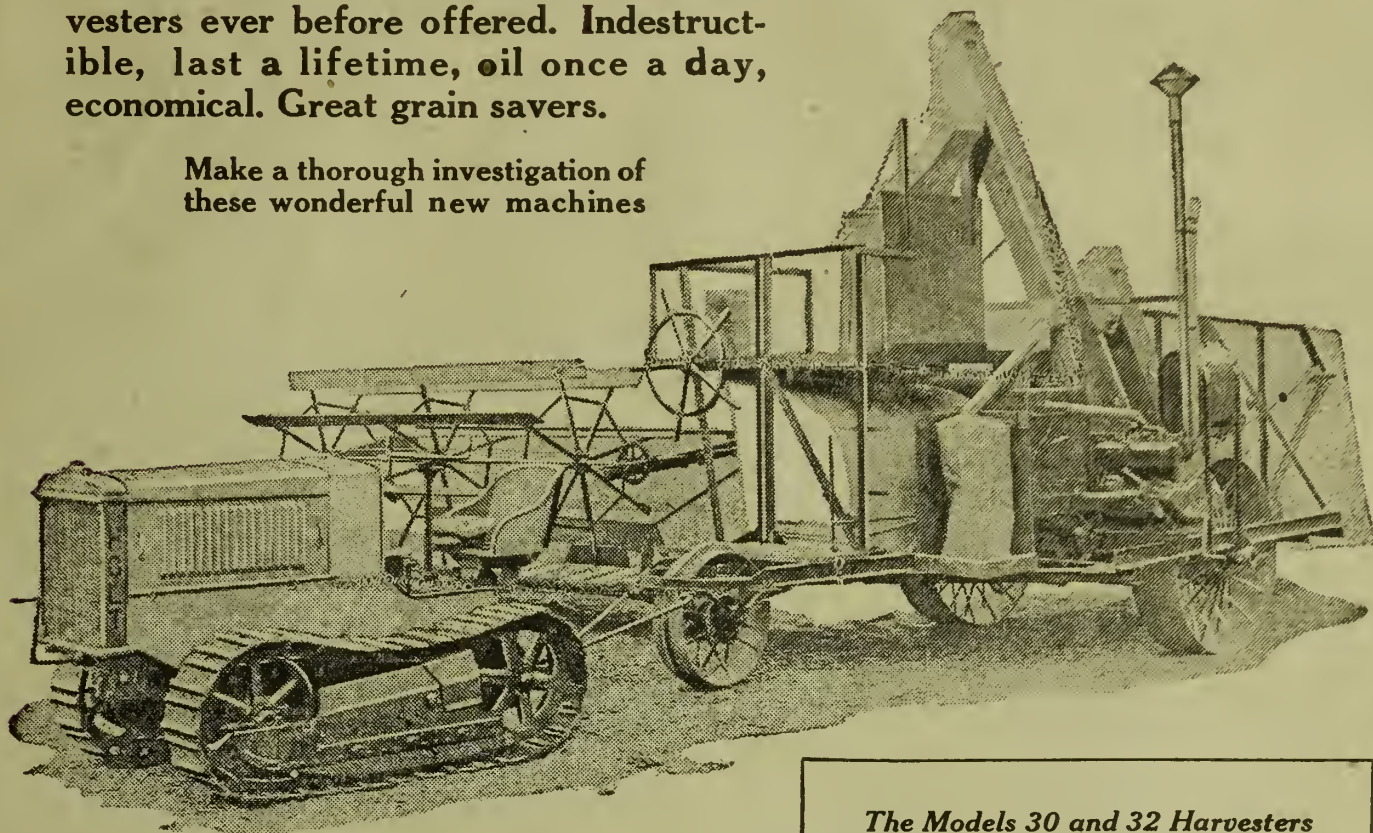


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See the NEW Holt Steel Harvesters— Models 30 and 32—in operation this season

Entirely new and unlike any other harvesters ever before offered. Indestructible, last a lifetime, oil once a day, economical. Great grain savers.

Make a thorough investigation of these wonderful new machines



You can't buy a Model 30 or 32 "Caterpillar" Harvester for 1922 delivery—the entire production was sold out within a few weeks after these models were first announced. But you *can*—and by all means *should*—make an early and careful investigation of these newest achievements in grain harvesting equipment, and place your order without delay for next year's delivery.

See these harvesters in actual field service. Note the indestructibility of the all-steel body. Note how the roller bearings and light weight insure minimum draft. Observe the ease of operating and oiling. See how perfectly the harvesters handle the most adverse conditions of grain. Above all, notice how perfectly all the grain is saved and how well it is cleaned. Observe what a remarkable saving of time and money is effected.

We urge you to see for yourself. We ask you to be the judge. Learn *now* how you can reduce your harvesting expense and increase your grain profits in 1923. Fill out and mail the coupon without delay.

The Models 30 and 32 Harvesters

The Model 30 and the Model 32 are alike in their features of light weight, light draft, long life, all steel body and minimum power and labor requirements. Both maintain the Holt standard of saving all the grain and cleaning it exceptionally well. The chief point of difference between the two machines is in size, the Model 32 handling a 12-foot cut, having 20-inch cylinder and 31-inch separator and requiring 6 to 10 horses or equivalent tractor power to pull it, while the Model 30 cuts 16 or 20 feet, has 26-inch cylinder and 36-inch separator and requires 14 to 16 horsepower to pull it. Both machines are offered in level land and sidehill models; with equipment for sacking grain or delivering to wagons and with horse or tractor hitch.

Mail the Coupon Below

There will probably be a Model 30 or 32 at work near you this season. Fill out the coupon and mail it at once, checking the information you desire.

The Holt Mfg. Co.
Stockton, Calif.

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Where can I see a Model 30 at work? ☐
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Highest Efficiency Must Go With the Right Soil and Climatic Conditions



THE peach growers, especially canning growers of California, asked all of California to unite in celebrating the worth of the peach and giving a recognition of its importance in California horticulture. The state accepted the invitation and the visitors gathered from all points. True cooperative spirit was manifested, especially by adjoining counties, and they entered fully into the celebration. Across the Feather lies Yuba, and Yuba, not to be outdone, called attention to its rich acres and to their prosperity. Commissioner Harney gave out through the columns of the Marysville Appeal a report of peach growing conditions in the county and referred to the fact that there were still 10,000 acres of land perfectly adapted to peach growing yet to be planted. He made the suggestion that in 1925 that county should be producing 120,000 tons of peaches which he figures out would aggregate six millions of dollars. Then came Harry Stabler, commissioner of Sutter County, with a bit of old Sutter's peach planting history. He carried peach planting history back to the days of General Sutter. Mr. Stabler said:

"General John A. Sutter, soon after the discovery of gold, left Sutter Fort at Sacramento and built a home on Hock Farm on the Feather River, five miles south of Yuba City. Here he planted a peach orchard, the first peach orchard in Sutter County.

"About 1860 John Briggs, P. L. Bunce, Dr. Chandler and Dr. Teagarden planted peach orchards in Sutter County. A. F. Abbott and Joseph Phillips planted 55 acres of cling peaches in 1883 about nine miles south of Yuba City. This orchard was extended in a few years to 425 acres, and in this orchard the famous Phillips cling, a chance seedling, was found in 1888.

"B. F. Walton, one of Sutter County's most progressive citizens, organized a cooperative association in 1883 and built a fruit canning factory in Yuba City. The building of this plant, the Sutter Canning and Packing Company, stimulated the planting of cling peaches so that now we have 10,500 acres of bearing and young trees with a crop estimated this year at 50,000 tons. There is one cannery in Yuba City and one now building in Marysville. These two plants will can approximately 10,000 tons, leaving 40,000 tons to be shipped to canneries in other parts of the state. Last year 21 canneries drew supplies of cling peaches from Sutter County.

"Joseph Philips imported some trees of a cling peach from Augusta, Georgia, about 1885. This was known as the Tuskeana; the name being gradually changed to Tuscan. This cling, now grown in cling peach districts all over the state, was first grown in California, in Sutter County. The Walton, the Johnson and the Hauss clings, popular mid-summer varieties, ripening after the Tuscan and before the Phillips, originated in the orchards of L. A. Walton, J. Sander Johnson and Ferdinand Hauss.

"A promising new mid summer variety, the Paloro, originating at Gridley, Butte County, was first grown here by M. J. Newkom who has eight acres in full bearing. This peach is highly valued as it carries exceptionally well to distant canneries and its production record is notable. At two years of age Mr. Newkom's trees produced three tons per acre, nine tons per acre at eight years, and 15 tons per acre at four years of age.

"Sutter County orchards are noted not only for the quality of the fruit but for the extremely heavy tonnage per acre. Miss Elaine Wilbur's orchard of cling peaches is now famous throughout the country. For two years she has won the first prize in the annual peach contests for quality, ton-

nage and condition of orchard on Tuscan and Phillips peaches. Her orchard when five years old had a record of 20 tons, 242 pounds per acre on a 13 1/2-acre plot, which stands unchallenged. In F. S. Walton's orchard of Phillips clings there is one acre of particularly fine trees which has produced 26 tons. L. A. Walton has trees of Phillips clings which regularly produce, 1,000 pounds per tree.

"Sutter County fruit growers have faith in cling peaches. This season 2,486 acres of clings were planted. A full crop four years hence will mean a production of 100,000 tons of cling peaches for Sutter County."

The neighborliness and cooperative spirit of the Yuba County people was also shown by the editor of the Marysville Appeal who asked for expressions from other Californians as to California grown peaches. One of these came to the editor of the Cultivator and the response was used by the Appeal:

"Fine words of praise for the achievements of Sutter County peach growers are contained in a congratulatory message from C. B. Messenger, editor of the California Cultivator. Messenger has written the following to The Appeal:

"Editor Marysville Appeal: I appreciate the opportunity of sending greetings and congratulations to peach growers of Sutter County through your columns. Congratulations are certainly due because of the magnificent work already done in competing with each other in the effort to secure greater efficiency—individual and community efficiency.

"In all worth while community building men and women must function as individuals before they can function effectively with their neighbors in general upbuilding. From reports I have received regarding some of you peach growers it appears they are growing larger and better peaches and greater tonnage. Without knowing the circumstances I am going to assume that this greater quantity of finer quality is not secured through a series of happy accidents but because of serious and hard work—hard work with the hands, harder with the head.

"O, of course I know you are boasting—and with reason—of your soil, your water and your climate. But don't forget: toil goes with soil in peach production.

"Many years ago I heard music—the most wonderful in all my life. The violinist was totally blind. He played a rare old violin said to have cost \$25,000. That bit of wood and string became a part of his very soul, and perfect harmonies inspired unnumbered thousands. The matchless quality of the instrument would have availed nothing in my hands. Had I made the utmost effort I could have produced only horrible discord.

"Should I come to Sutter or Yuba and assume that your natural conditions are so perfect that they would pour wealth into my lap whether I functioned or not, I would probably have another 'assume' coming. I could perhaps produce only discord amongst the peach trees.

"The wonderful quality and beauty of a perfect peach has little in common with soil. It does have much in common with human beings who have functioned effectively.

"Folks of Sutter: Your peaches are not so much the result of nature's laboratory making your soil over into a luscious fruit, as they are—you."

SOUTHERN CALIFORNIA CITRUS INSTITUTE

The Southern California citrus institute will be held at Pomona on Friday, July 14, followed by the fifth annual pest control school on Saturday, July 15. The institute will consider frost protection. Among the speakers will be Howard F. Pressey, manager of Rancho Sespe; J. E. Adamson, manager Pomona Valley Protective Association, on "Ten Years of Frost Protection in the Pomona Valley"; W. R. Schoonover, citrus extension specialist, University of California, on "New Ideas in Orchard Heating Technique". The orchard heater committee of the Fruit Growers' Supply Company will make report.



LOOK AHEAD TO THRESHING TIME



Four farmers, all good friends, Henry Becker, Joe Sedlacek, and Peter and Arthur Anderson, of Springfield, Nebraska, went in together to buy a Goodyear Klingtite Belt in July of 1920. They threshed all their wheat that season, the crop of several other farms—more than 350 acres of wheat and oats—repeated the performance last year, and used the belt in corn-shredding and silo-filling after threshing.

Goodyear Klingtite Belts are all-weather belts. They are not

affected by heat, cold or damp. Their Goodyear ply construction gives them long life. They need no breaking in.

Your local dealer has Goodyear Klingtite Belts. They are made in endless type for threshing, silo-filling, feed-grinding, wood-cutting, and other heavy duty, and in suitable lengths for lighter drives, such as cream-separating, electric light generating, water-pumping, etc. For further information about them, write to Goodyear, Akron, Ohio, or Los Angeles, Cal.

GOODYEAR

KLINGTITE BELTS

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Sell Your Potatoes for SPOT CASH F.O.B. Shipping Point



Don't wait for your money. Distant buyers readily pay the highest market prices, f.o.b. shipping point, for guaranteed Boggs machine-graded potatoes. For they know, without seeing the potatoes, that they will receive absolutely uniform Government sizes.

Boggs Potato Grader

The Standard Grader

also saves labor. It will equal the manual labor of from three to five men. And it will not bruise or injure the potatoes.

Can be installed in field, warehouse, car or cellar. Operated by hand, motor or gasoline engine.

Made in sizes to handle 75 to 700 bushels per hour. Six models, \$40.00 and up.

Let us send you our interesting booklet. What's your address?

BOGGS MANUFACTURING CORPORATION

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THE BOGGS POTATO GRADER

is the Standard Grader adopted by all middle western and eastern potato growing sections. Write or call for prices, booklet or other information.

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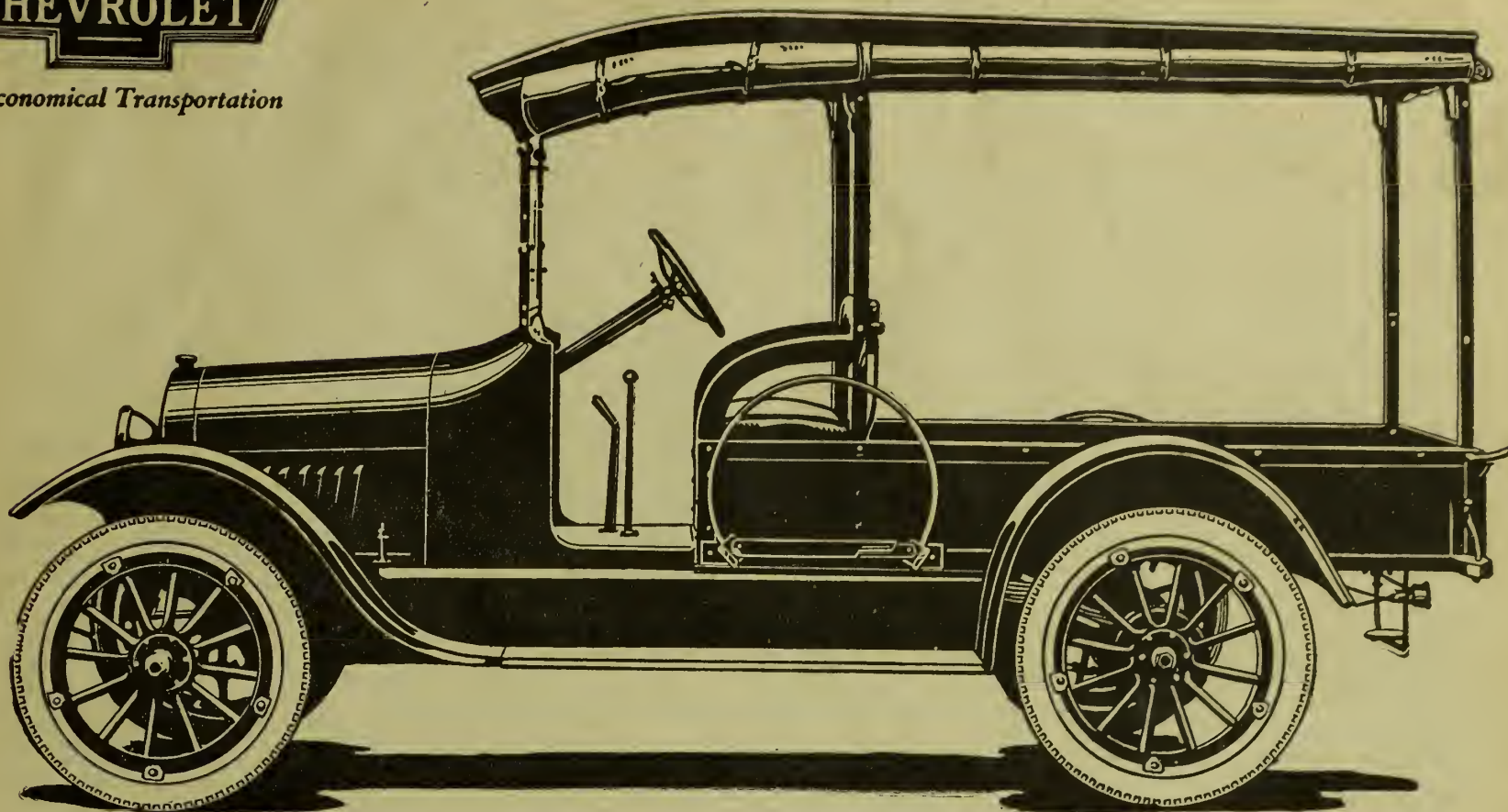
For orchard and nursery planting. Grown from selected seed from hardy Mexican stock, in open beds and untouched by frost. All first-class stocky plants, 12 to 24 inches in height. Can be taken out with small balls of earth or open root as preferred.

Price \$25 per hundred while they last. Address THE R. M. TEAGUE NURSERIES, SAN DIMAS, CALIFORNIA, or Mr. James Stewart, La Habra, California.

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The World's Lowest Priced Light Delivery and Farm Car

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Complete with Body, as illustrated

The Greatest Dollar Value in the Commercial Car Market

Every farm needs this car to carry milk, garden truck, feed and all moderate loads.

Every country merchant needs it to enlarge his trading territory and give better service to customers.

Costs no more to buy and keep than a team but does the work of two teams and saves one driver.

With two extra seats makes a fine bus or jitney for livery, hotel or school uses.

Can be had with special paneled body at very reasonable cost.

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Consider What Chevrolet Equipment Means:

Standard Rear Axle Construction. The new Superior Chevrolet has the strong, quiet Spiral Bevel Gear Axle that "stands the gaff" without breaking

Standard Transmission—three speeds forward and one reverse.

Standard Braking System—foot service brake, hand emergency brake.

Standard Electrical System: Starter, storage battery, Remy ignition, electric lights front and rear, on battery circuit.

Standard Cooling System—pump circulation, large, honeycomb radiator and fan. This means a cool, efficient engine, saving gasoline and oil and ensuring driving comfort.

Standard Instrument Board, containing speedometer, ammeter, oil pressure gauge, lighting and starting switch, and choke pull.

Standard Type of Carburetor, with exhaust heater—one reason why you get most miles per gallon of gasoline with a Chevrolet.

Powerful, Valve-in-Head Motor. The same type as used in successful cars selling at much higher prices.

Demountable Rims—extra rim on side. No trouble to change tires on a Chevrolet.

Full Weather Protection—Waterproof curtains let down on sides and rear, fully protecting driver and load against rain or snow. Flexible windows in curtains.

Many Other Advantages which will be noticed on inspection, comparison and demonstration.

Investigate the Difference Before You Buy

Chevrolet Motor Company, Detroit, Michigan
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World's Largest Manufacturer
of Low Priced Fully Equipped
Automobiles

5,000 Dealers and Service
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Applications will be considered
from High Grade Dealers in Ter-
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Dealer inquiries should be addressed: Chevrolet Motor Company of California, Oakland, Cal.

Enforcing Mediterranean Fruit Fly and Melon Fly Quarantine in the Hawaiian Islands

By H. F. Willard before Quarantine Conference at Sacramento



HE five quarantine regulations now in effect between the Hawaiian Islands and other parts of the United States are:

Quarantine No. 13. Prohibits or regulates the importation of fruits or vegetables in the natural or raw state, on account of the Mediterranean fruit and melon fly.

Quarantine No. 16. Prohibits the importation of living canes, cuttings or parts of sugar cane, on account of certain insects and fungus diseases.

Quarantine No. 30. Prohibits the importation of all varieties of sweet potatoes and yams, on account of the sweet potato weevil, *Cylas formicarius*, and the sweet potato scarabee, *Euclyptus batatae*.

Quarantine No. 32. Prohibits the importation of any species or variety of banana plants, on account of two injurious weevils, *Rhabdocnemus obscurus* and *Metamasius hemipterus*.

Quarantine No. 47. Regulates the importation of cotton, cotton seed and cotton seed products, on account of the pink boll worm *Platyedra gossypiella*.

The Mediterranean fruit fly was discovered in Hawaii in 1910. Finding itself in an almost ideal climate for reproduction at all times of the year, and in a place where there were no natural enemies, its increase and spread was extremely rapid. In Honolulu alone there are between 70 and 75 varieties of host fruits in which it breeds, over half of which are considered preferred hosts that are usually heavily infested. There is no edible fruit known to the writer, that is grown in Hawaii, excepting the pineapple, that does not serve as a host for this pest. It was soon realized

by the Hawaiian and federal governments that the Mediterranean fruit fly was a pest of prime importance and that all efforts possible should be made to prevent its spread to other parts of the United States. To date this has been successfully accomplished by efforts along two lines, i.e. the enforcement of Quarantine No. 13, and by decreasing the numbers of the fly in Hawaii by control measures.

It will be of interest to know what is being done in Hawaii to enforce Quarantine No. 13 to protect the mainland United States from the introduction of the Mediterranean fruit fly and melon fly. This quarantine requires that all fruits or vegetables, moving from Hawaii to other parts of the United States shall be under the strict supervision of representatives of the federal horticultural board. It requires that fruits or vegetables to be shipped must be grown under conditions which are approved by these agents, that the packing material be likewise approved, and that the packing houses meet certain requirements. Fields where such fruits or vegetables are grown, as well as sources of packing material, are inspected often enough to insure their freedom from contamination by fruit fly or melon fly larvae when they are leaving host fruits which might be growing too near. Growers are required to destroy all host fruits growing near their fields before they become ripe enough to become infested and to immediately remove from their packing houses all overripe or damaged fruits that are removed during the process of packing.

The only fruits or vegetables allowed to be shipped at present are: Bananas, pineapples, coconuts, taro, lotus root, and ginger root. Extensive

investigations by the federal bureau of entomology have proven that non-cooking varieties of bananas, when packed green and shipped as required by the regulations of the federal horticultural board, are not a menace as carriers of the Mediterranean fruit fly. Prematurely ripened fruits are removed from bunches by inspectors in the course of their duties. Several thousands of these fruits which have been removed from bunches growing in fields where adult fruit flies were present in large numbers have been brought to the laboratory and placed in breeding jars; and no fruit flies were bred out. After the bunches have been selected in the field, harvested and cleaned, they are inspected and an inspection tag issued for each bunch to be shipped. They must be thoroughly cleaned of all dirt and debris which might be lodged between the hands, and the bunches must be free from fruits with breaks in the skin or that have begun to ripen.

The Mediterranean fruit fly or the melon fly cannot breed or survive in a green or ripe pineapple. Many unsuccessful attempts have been made to breed these flies from pineapples under both field and laboratory conditions. Hundreds of larvae of all stages have been placed within both ripe and green pineapples, and within three days they were all killed. Consequently the inspection of this fruit consists of supervision over the packing material used, the fields where the fruit is grown, and the packing sheds.

Coconuts, taro, lotus root, and ginger root, are inspected to see that they are free from soil and that proper packing material and clean containers are used.

Several methods of control have been tried in Hawaii. The unusual abundance and variety of fruits producing flies made an extensive campaign in the destruction of host fruits a failure. The use of poison bait or spray, proved impracticable for the same reason. The only control measure, that has met with any degree

of success, has been the use of natural enemies.

In 1913 and 1914 the Hawaiian board of agriculture successfully established three parasites from Africa and one from Australia, all of which attack the fly in the larval state. Since their introduction the federal bureau of entomology has made almost daily records of the amount of control exerted over the fruit fly by each of these four species. These records, excepting those for the last three years, have been published, and they show the following results: In 1915, 37.9 per cent of the fruit flies developing in and about Honolulu were parasitized and destroyed; in 1916, 33.2; 1917, 47.5; 1918, 58.8; 1919, 38.2; 1920, 51.9 and 1921, 56.4 per cent. These percentages were obtained from a total of 438,719 larvae, or an average of 62,647 larvae per year. An average of the parasitism records for the past four years, 1918 to 1921, inclusive, shows that the parasite destroyed an average of 51.3 per cent of the flies developing in all host fruits. While these beneficial insects have probably reached their maximum ability to control the fruit fly in Hawaii, the fact that they decrease the number of adults by over one-half makes them of considerable value as a control measure and decreases to some extent the danger of spreading the fly to other parts of the country.

It is the opinion of those familiar with fruit fly conditions in Hawaii that there is no danger of introducing the fruit fly from there into the mainland United States through commercial shipments as they are now handled. The danger is with the scrupulous person who deliberately tries to smuggle in quarantined fruits or the tourist who, not realizing the damage that might result, endeavors to bring in some odd or rare fruit to show his friends. Under present quarantine regulations all fruits or vegetables can be taken aboard ship in Hawaii, as ship's stores, or by passengers or crew, provided they are consumed or destroyed before the ship reaches the three mile limit of the coast of the mainland. This condition increases the chance of contraband fruits being aboard ship at the time of docking and adds to the duties of the inspectors in preventing such fruits being landed. The only way this problem can be met, is by the maintenance of a force of inspectors large enough to thoroughly examine all persons, baggage or freight leaving the ship at any time during its stay at the port of entry. Violators of the quarantine should be vigorously prosecuted, and when convicted receive a penalty large enough to serve as a warning to others in the future.

CITRUS CANCER AGAIN APPEARS

Right on the heels of the splendid fight and Herculean efforts on the part of the Florida Plant Board to clean up the statewide infestation of citrus canker, comes the report that after a lapse of several months, a new outbreak of the dreaded citrus disease, involving 75 acres has been found at Fort Lauderdale, Florida.

It is not altogether speculative to assume what would result in California should this dread plant leprosy be accidentally introduced.

What a lesson for California to study! In 1921 the value of California produced citrus fruits easily exceeded \$80,000,000. Safe to say, a large part of the citrus industry would pay the toll of negligence. As in Florida, the industry might be retarded for years. The actual control work in Florida, added to the value of orchards and nurseries burned to the ground in an effort to exterminate this disease, cost Florida over \$13,000,000, and the havoc wrought will be reflected for years to come.

California should not wait for an invasion of citrus canker or fruit flies or any other costly plant pest, for the Florida lesson has taught the penalty to be expected, and California's previous well-being, the value of immunity.

Now is the time to aid the bureau of plant quarantine inspection, by reinforcing our guards at every inland and maritime port of entry.

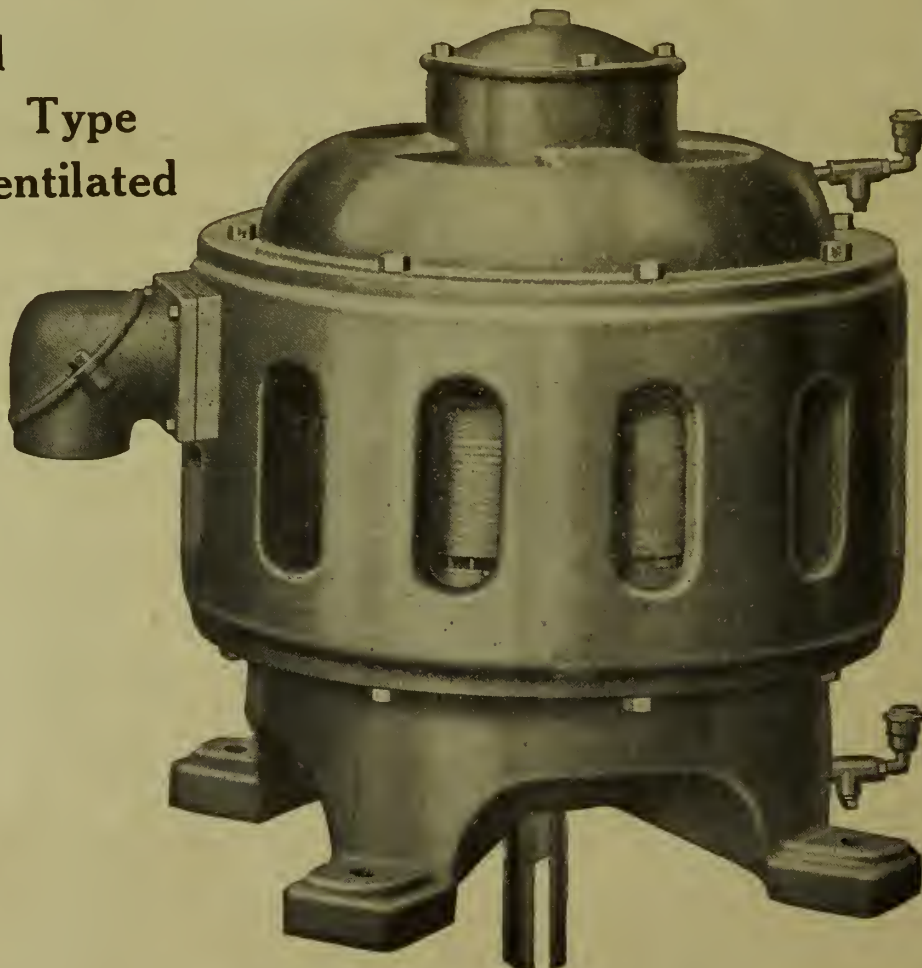
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BANNER STRAWBERRY

A mysterious ailment, not known to be a disease, is killing Banner strawberries in the San Fernando Valley; no other varieties being affected. L. C. Holmes, field crop specialist of the Los Angeles farm advisor's office is investigating the trouble, but thus far can find nothing wrong. In some spots there is some alkali present but as the strawberry is quite tolerant of alkali it would not seem likely to destroy the plants. It may be that this Banner stock came from generations of plants grown in a non-alkaline soil. All strawberries came in whole or part from *Fragaria Chiloensis*, a wild species. This will grow in slightly acid soils and thrives best where no trace of alkali is shown by analysis. Mr. Holmes has sent samples of the soils to the state university for examination and the Banner growers

in the state of California to co-operate with the general public and take from these violators their liberty. Fines do no good whatever; they just go on from day to day and year to year and continually and intentionally violate."

POTATO GROWERS FIELD DAY

The nematode as it affects potatoes will be discussed by Prof. E. O. Essig, entomologist of the college of agriculture, at the Potato Growers Field Day at Van Nuys high school, Los Angeles County, the morning of June 27.

In the afternoon potato grading will be demonstrated in the field by H. H. Warner, standardization expert of the state department of agriculture.

Vucaipa reports hordes of visitors during Cherry Week, June 12-18.

Berry growers of Whatcom County Washington, have organized a receiving station at Bellingham.

GENERAL ADVICE AS TO FUMIGATION

At the close of an exhaustive paper read at a citrus institute at Pomona, Mr. Woglum offered the following 12 significant pointers:

Trees should be taped, not guessed, and dosed according to schedule.

Black scale should be in the immature condition when fumigated.

Use heavy dosages. Certainly not less than 88 per cent schedule; 100 per cent as soon as the trees will stand this strength.

Fumigate as early in the season as the scale is in condition.

Where "off hatch" is present double fumigation is advocated. The first treatment should be early in the season; the second probably two or three months later, or as soon as eggs are all hatched.

Avoid having a heavy cover crop about trees while being fumigated.

Avoid winter fumigation, particularly at cold temperatures, if possible.

Where winter treatment is necessary practice daylight work.

Caution operator to avoid nozzle of pump coming close to tree trunk.

Results at temperatures below 50 degrees Fahrenheit average poorer than at higher temperatures.

Fruit injury increases with high dosages. A slight loss from pits is less expensive than a heavy loss from scale infested trees.

Do not fumigate trees that have been sprayed with Bordeaux mixture within a year; painting high up on trunks and branches is also conducive to injury from fumigation with hydrocyanic acid gas.

Each grower to keep records of individual tree dosages, also of temperature.

"Barley crops are now being harvested," writes Secretary J. F. Fouch, of the Williams chamber of commerce, "and we are getting the largest yield that has been harvested in many years in Colusa County, some yields being as high as 40 bags.

COMING EVENTS

(Corrections and Additions Requested.)

Coachella Valley Grape Day, Narbonne Ranch, July 11.
Citrus Institute, Pomona, July 14-15.
California Rodeo, Salinas, July 24-29.
California Rodeo, Salinas, July 26-30.
Yuba County Fair, Arboga, August 18-20.
Sonoma County Fair, Santa Rosa, August 23-27.
San Joaquin Valley Fair, Stockton, August 24-30.
California's Pageant of Progress and Industrial Exposition, Los Angeles, August 26-September 9.
Walnut Growers Field Day, Santa Paula, September, 1-2.
State Fair, Sacramento, September 2-10.
Grape Day, Escondido, September 9.
Tehama County Fair, Red Bluff, September 11-17.
Tulare County Fair, Visalia, September 12-19.
Colusa County Fair, Colusa, September 14-17.
Glenn County Fair, Orland, September 18-23.
Kings County Fair, Hanford, September 19-23.
Fresno County Fair, Fresno, September 25-30.
Shasta County Fair, Anderson, September 28-30.
Ventura County Fair, Ventura, October 4-8.
Kern County Fair, Bakersfield, October 2-7.
Butte County Fair, Oroville, October 2-7.
Pork Day, Turlock, October 4.
Los Angeles County Fair, Pomona, October, 4-8.
Southern California Fair, Riverside, October 10-15.
San Francisco Livestock Show, October 18-22.
California Horsebreeders Association, Los Angeles, October 18-22.
International Festival of Dates, Indio, October 18-22.
Imperial Valley Fair, October 23-28.
Orange and Olive Festival, Oroville, November 28-December 2.
First National Walnut Exposition, Santa Ana, December 4-9.
COAST AND GENERAL
Southwest Washington Fair, Chehalis-Centralia, August 28-September 2.
Interstate Fair, Spokane, Washington, September 4-9.
Washington State Fair, Yakima, September 18-23.
Oregon State Fair, Salem, September 25-30.
Arizona State Fair, Phoenix, October 30-November 3.
Pacific International Livestock Show, Portland, November 5-12.

Never before could you get so much tire worth for \$10.90



CAR-OWNERS who bought a 30 x 3 1/2 "Usco" for \$10.90 last Fall have discovered this by now—

Nobody before ever got so much tire value in the neighborhood of ten dollars.

They never had to question the quality—with the makers of U.S. Royal Cords behind it.

They couldn't help admiring the price—spontaneously made to meet the new economy times.

Today a number of other 30 x 3 1/2 tires have come into the popular \$10.90 price range originally established by "Usco."

So it might be well to remem-

ber just what the "Usco" Tire is in case you are in the habit of comparing.

In "Usco" you get responsible quality.

\$10.90 is today's price. But the quality was fixed long ago—the same "Usco" performance tire users have been buying and using and buying again for years. A tire that would be high value at more than \$10.90.

At \$10.90 it is unapproached.

United States Tires are Good Tires

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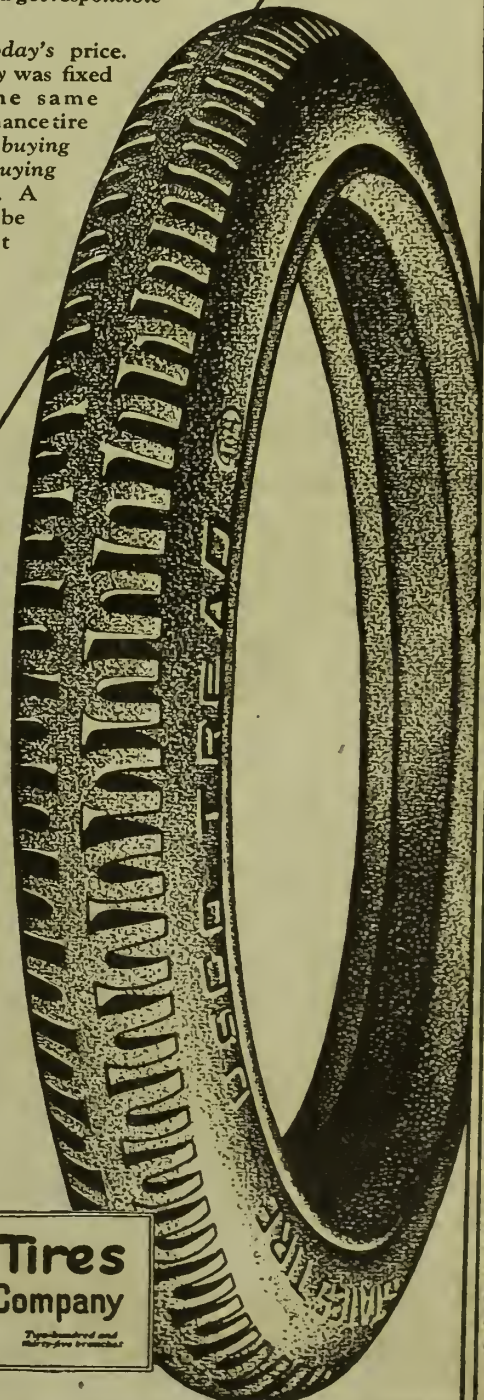
First to establish the new popular price \$10.90

United States Tires
United States Rubber Company

Fifty-three factories

The Oldest and Largest Rubber Organization in the World

Two-hundred and thirty-five branches



anxiously await the outcome, for no other berry known quite fills in the market niche of the Banner.

STAND BY STANDARDIZATION

A daily war is being waged by the state department of agriculture to secure due observance of the state laws and secure for the consumer an honest exchange for his investment.

At this time of the year the strawberry occupies the limelight. In one of the southern counties an officer of the division of weights and measures on May 24 confiscated 1737 boxes of strawberries that averaged only 10 instead of 12 ounces as prescribed by law. In a large bay city during the past ten days officials have secured evidence of violation from 39 different parties, the cases to be tried at a later date.

Commenting on these flagrant violations, Chas. F. Hayden, assistant chief of the division of weights and measures says: "I only wish it would be possible for some judge some place



For a cool, clean kitchen burn PEARL OIL

Pearl Oil, burned in a good oil cook-stove, is an economical as well as a clean and convenient fuel.

You are rid of the drudgery of feeding and cleaning out a range and your kitchen is cool and comfortable. You work with a clean, intense cooking heat concentrated directly under the burner where it is needed.

To be sure of best results in your stove, use Pearl Oil. It burns cleanly—no smoke or odor

Dealers everywhere. Buy it by name—Pearl Oil.

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FOR THE
RATTLE CAP

Makes Ants
Disappear

NEVER
FAILS

AT ALL
DRUGGISTS



When Writing Advertisers Please Mention the Cultivator.

Household Department

WHAT WE BROUGHT

We brought nothing into the world, they declare.

But I hold that that statement's untrue. We brought nothing with us to spend or to wear

And hunger was all that we knew, But somehow or other it oft seems to me That all of us brought, when we came, The men and the women that some day we'd be

And the seeds of our worth and our fame.

We brought what God gave us—two hands and two eyes

And a mind that could learn right and wrong,

The power to be kindly and gentle and wise;

Some brought here the glad gift of song.

Some brought with them smiles that should light up the way

For the weary and sad and distressed, Some came here with courage to serve day by day,

Some came here with love for the best.

Some came to the world bringing laughter and mirth,

Some brought with them patience and skill,

No one empty-handed came down to the earth

And I'm sure that none ever will.

Some brought with them kindness and courage and cheer,

Some came with good deeds to be wrought;

No babe ever came from the Infinite here But something of splendor he brought.

—Edgar A. Guest

THE SCOOP THAT FAILED

By H. Irving Hancock, in Forward



REPORTERS are usually pictured as carrying notebooks and writing in them. What the real news hunter really carries is a tightly folded "wad" of copy paper on which he scribbles the fewest notes possible, relying on his memory for the rest.

John Preston shoved such a wad of paper into a hip pocket, thrust his short pencil into an upper vest pocket, took a look around at the dingy, untidy room in the five-room flat out in the Inwood district of the city, nodded twice at two policemen who stood guard at the door, then started for the door.

The new quarters of the Marks gang had been discovered and raided, its members being charged with a series of low, annoying crimes in the great city. A detective had at last located the headquarters of the gang out in Inwood and had hurried to the nearest station house for a squad of policemen to aid him in the raid. Four of the gang were under close guard in an inner room. Tim Marks, leader of the captured ruffians, was in this outer room near the door that opened into the ground-floor flat. Preston had been questioning him, but with poor results.

"Say, how did you ever come to find this place, anyway?" glared Marks, addressing the policemen in the doorway.

"Maybe this reporter lad tipped us off," grinned one of the officers.

"Then he ought to have his neck broke," declared Marks hotly.

"Got everything, Preston?" inquired the other policeman.

"Yes, I think so, thank you. Let me see."

Out came the wad of paper again, and the young reporter glanced through his notes.

"All the members of the gang caught except Chuck Adams?" Preston half queried.

"That's right," nodded the officer.

"Can you describe Chuck to me?"

About five feet five in height," answered the officer. "Broad shouldered, rather squat-looking, very dark, large mouth, and a curved scar under his left eye. He is almost always scowling."

"Say, Reporter," bellowed Tim Marks as Preston stepped through the doorway, "if it was you who tipped off the police about this nest, then I wish I had my hands to myself for about a minute. You'd always mind your business after that."

Out in the hallway young Preston had to step through a thin crowd of fellow tenants in this dilapidated flat. They stared dully at the reporter as he made his way through the groups.

Outside Jack turned to the left, intending to board a trolley car that should take him to the Journal office. To do so he had to pass a little alleyway. Out of the darkness of this al-

ley there darted at him a man who did not look very prepossessing.

"I heard it!" cried the other, in a thick, low voice. "So you led the cops here and helped nab the gang, did you? I'll!"

Whatever the threat intended, the other did not finish it, but instead made a swift rush at the young reporter. Preston, however, was not easily flurried, nor had he wasted his time in college gym or in the boxing class. Like a flash he dodged, then his left fist shot out, catching the stranger on the point of the jaw and sending him to the ground. The fellow lay still, and Preston bent over him curiously, studying his general appearance. Then, suddenly, the reporter bent lower, gathered up the form in his arms, and started back into the house.

"Anyone you know?" he inquired of the two policemen.

"Chuck Adams!" gasped both of the blue-coated ones. "How?"

Hastily Preston related what had passed. Marks looking on in glowering silence.

"And now I must hurry back to the office," wound up the reporter, starting once more for the door. This time there was no interruption. He reached the main thoroughfare through which the street car ran, and within twenty minutes entered the editorial rooms of the Journal.

Preston, with one year of college finished, was putting in his summer vacation as a substitute reporter. At first he had found the work dull, but ever since a memorable night on which the town had practically broken loose, in a news sense, he had liked the life better and had won respect for his talents. Telford, an older and more experienced reporter, and Mr. Momford, the night assistant city editor, had done much to advance the young man in newspaper work.

When Preston returned, however, on this summer evening, to report, it was not Momford whom he found in the city editor's room. Momford was away on a fortnight's vacation. Ellis, one of the older reporters, was taking the absent man's place.

News of the raid had been telephoned to Ellis by a friend in the department, and he had hurried Preston out on the story.

"Much of a story, Preston?" inquired Ellis.

"As big as anything in that line," replied Preston, and hastily narrated what had happened.

"So a Journal man captured Chuck Adams?" exclaimed Ellis delightedly. "Play that up for all it's worth, lad, and get the story in as fast as you can. By the way, were there any other reporters there?"

"Not a single one."

"Good! Then, as I had hoped, the Journal is to have a scoop on that story. We need a few scoops. Be sure you don't breathe a word of this story to Parker of the News when you meet him. Understand?"

Preston gazed curiously for a few moments at his temporary chief. He wasn't quite sure whether the order was just or despicable.

A newspaper "scoop" or "beat" is a news story that a newspaper enjoys to the exclusion of the other newspapers in the same city. It is every newspaper man's ambition to obtain a "scoop" if he can do so honorably. There are, however, a good many "ifs" and "buts" to be considered. There were three morning papers in this city. One of them, the Herald, preferred to go it alone in all local news matters. The Journal and the News, while going it alone in most matters, had "combinations" on police news, information from City Hall, and in court news. A "combination" meant that they shared the news with each other. Thus Preston, who was at present assigned to cover night police news, met Parker of the Morning News, at midnight every night to exchange information. In the city proper Preston covered half the police stations, Parker taking the rest. This enabled each paper to obtain its police news with half the expense otherwise involved.

Strictly speaking, this combination covered only the city proper. Inwood was an outlying district, not strictly

included in the terms of the agreement. Few items of interest came from Inwood, and as a rule the News and the Journal men passed to each other the occasional news stories that Inwood produced. It will be understood that there are many problems and delicate shadings of the obligations of honor in the conduct of such combinations. When a reporter is in doubt, it is held that the orders of his own office binding, that the newspaper employing him, and not the reporter himself, is judge of what does or does not belong to the combination. "You understand the orders?" insisted Ellis, looking up from his desk to survey the young reporter from under his eye shade.

"Yes, sir," replied Preston a bit stiffly. Then he went out into the city room, seated himself at his desk, opened up the top to bring the typewriter into use, and began to write his story.

This finished, he turned the copy over to Ellis, remarking:

"It's growing late. I'll have to hustle to finish my rounds before midnight."

Ellis, already deep in the reading of the manuscript story, did not answer. Jack Preston hurried out, going quickly from police station to police station, collecting the usual small items dealing with accidents, fires, and the like. At just two minutes before midnight he entered the reporters' room at police headquarters, to find Parker awaiting him. Parker was a man of about thirty, a dependable fellow, a hard worker, a man with a wife and three children.

"I have only two little items," was Parker's greeting. He proceeded to give them, while Preston made hasty notes. Then he gave out his own garnered news.

"It makes me feel like a thief not to tell Parker about the Inwood business," Preston thought bitterly to himself. "His city editor will tell him he was scooped on that story. As short a time as I've been in the business, I know that it's no joke for a reporter to find himself scooped. Reporters have lost their jobs for that little thing. I wish Ellis hadn't given me such an order."

(Continued Next Week.)

HOUSEHOLD QUERIES

Devonshire Cream

Could you kindly tell me what is "Devonshire or clotted cream," where it gets its name and how it is made?—Subscriber, Palms.

This is made by letting milk stand 24 hours, setting pans on back of stove, letting milk bubble but not break through cream. Skim and let chill. This will keep for some time as it is in effect pasteurized. It is named from Devonshire, England, a noted dairying section.

Candying Fruits

I have received many helpful suggestions from the different departments of your valuable paper and have enjoyed trying some of the recipes in the household department. Some very delicious candied figs, much enjoyed by Eastern friends as well as by ourselves were made after a recipe published in your department. This year we would like to glaze or candy the various fruits as they ripen if we can get the necessary directions. Can you give in the Cultivator the recipes for loquats, blackberries, cherries, apricots, peaches, plums, prunes, quinces, oranges and apples? It certainly would be appreciated by myself and many others.—Subscribers, Wilmar Station.

Following are directions for candying all fruits mentioned except oranges, given by W. V. Cruess in charge fruit products laboratory of the state university. We have asked Mr. Cruess to tell us how to handle the oranges, and his instructions will be given later in this department:

Small crab apples, apricots, plums, cherries and ripe but firm figs are used whole after puncturing in numerous places with a wooden toothpick. Peaches and pears are peeled and cut in half. The peels of citrus fruits are

used without the pulp. Peeled and cut fruits do not require puncturing.

After preparing as above, the fruit is cooked gently. This requires from three to five minutes for most fruits. Hard fruits require longer. Citrus peels may require 30 minutes or longer. Too much cooking will spoil the shape and texture. Too little will result in slow penetration of the sugar, dark color and toughness.

Make a syrup of 25 degrees Balling, about one part sugar to three of water. A little more sugar for very sweet fruits. Heat the syrup to boiling and pour over the cooked fruit placed in an earthenware pot while still hot.

A Balling saccharometer is convenient when working on a large scale, but is not necessary for small quantities. Half the sugar in the first syrup may be replaced with Karo or other liquid glucose. This prevents the

hardening of the finished fruit by crystallization and makes it more translucent.

Keep submerged in syrup. Remove the syrup every 24 hours, increase five degrees Balling by the addition of about one-quarter the amount of sugar used originally, boil, and pour back on the fruit. When the syrup reads 68 degrees Balling (as thick as honey) it is dense enough.

Leave in the last thick syrup until it has penetrated the fruit (three to four days) and then place on a wire screen to drain a few days until the outside of the fruit ceases to be sticky. The fruit will drain more quickly if placed in the sun or other warm place.

The finished fruit may be packed in candy or cardboard boxes lined with paraffine paper, or in open jars. In air-tight containers they may mold; some ventilation is necessary.

RECIPES AND SUGGESTIONS

By Ramona Cordero

Hamburger Patties with Tomato Sauce

One pound round meat, 1 small onion, 1 spray parsley. Grind together in meat grinder. $\frac{1}{2}$ cup bread crumbs, 1 egg, dash of pepper and salt. Mix well and form in round patties. Fry in butter. Sauce: 2 cups cooked tomatoes, 1 tablespoon green pepper, 2 tablespoons butter. Cook 20 minutes and pour over patties. Serve at once.

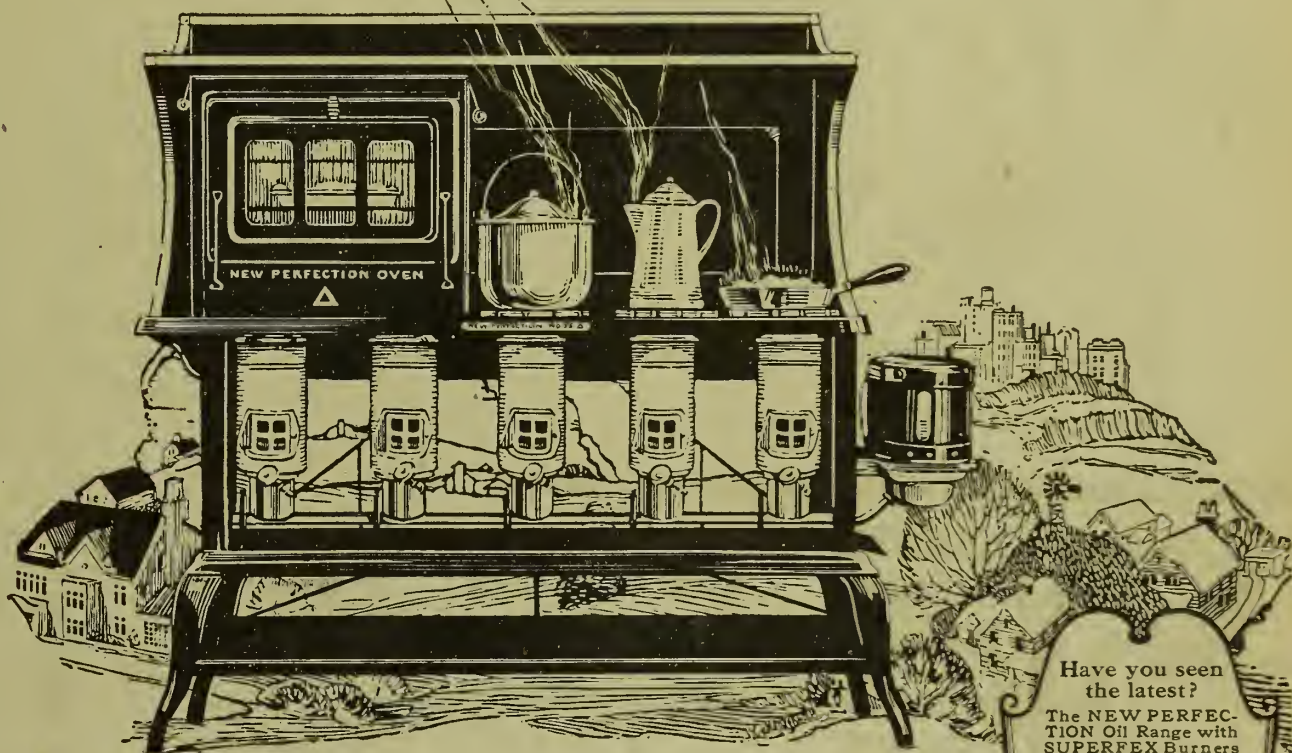
Spring Salad

One cup cooked peas, 1 cup cooked string beans, $\frac{1}{2}$ cup cooked carrots, (sliced), $\frac{1}{2}$ cup mayonnaise, 1 teaspoon chopped onion. Mix with mayonnaise and let stand two hours. Serve on lettuce leaves and garnish with pimento cheese rolled into small carrots, putting a small leaf of parsley in for top.

Cherry Salad

Stone 1 quart ripe cherries, arrange

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“Watch me,”
said the strong swimmer,
“I’m not afraid.”



So he matched his strength against the swirl of the rapids, and laughed at the danger, and kept repeating the stunt, until—

It was the day the life-savers had been waiting for—that day the call for help came.

It’s an easy matter to smile at coffee warnings when you’re going strong.

But a good many strong swimmers won’t risk the rapids, and a good many coffee drinkers are beginning to think of the caffeine in coffee.

Coffee can disturb nerves and digestion, and often it does.

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on bed of lettuce leaves and serve with the following dressing: Squeeze the juice of 2 oranges into a bowl, add ½ cup powdered sugar, egg well beaten, ½ teaspoon salt, 2 tablespoons lemon juice, 2 tablespoons cream. Cook mixture in a double boiler, stirring until thick. Cool and serve with salad.

Cherry Tapioca

One cup tapioca, 2 egg whites, 1½ cups sugar, 3 cups water, 1 teaspoon butter, 1 cup stoned cherries. Cook tapioca till clear in water. (Soak tapioca in cold water over night and add more water if needed. Cook cherries in one cup sugar till tender. There should be one cup juice boiled from fruit: Add cherries and juice to tapioca. Stir together and add whites of eggs beaten stiff.

Banana Pie

Two large bananas, 2 egg yolks, 2 lemons, ¾ cup sugar, 1 pint hot water, 3 tablespoons corn starch dissolved in a little cold water. Cook till thick. Slice bananas, squeeze juice of lemons over sliced bananas and stir lightly. Line a pie pan with pastry. Put a layer of custard, a layer of bananas and cover with the rest of custard. Bake till crust is brown. Beat egg whites stiff, add 3 tablespoons sugar. Stir and cover top of pie. Brown in quick oven.

Jem Cakes

Two eggs, ½ cup sugar, ¼ cup but-

ter, ½ cup New Orleans molasses, ½ cup milk, 1¾ cup flour, 1 teaspoon cinnamon, ½ teaspoon cloves, ½ teaspoon nutmeg, ½ teaspoon soda, 1½ teaspoon baking powder, ½ cup walnuts, ¼ cup raisins. Cream butter and sugar, then add beaten egg yolks. Dissolve soda in 1 tablespoon of hot water and pour in molasses, beat till it raises in cup. Stir into mixture then add milk, flour and spices. Beat ten minutes. Add raisins and walnuts, stir well. Add lastly the baking powder. Bake in jem pans.

Chocolate Cake

One cup butter, 2 cups sugar, yolks five eggs, 1 cup milk, 3½ cups flour, 2 heaping teaspoons baking powder. Cream butter and sugar together till white and creamy looking. Beat egg yolks, add to butter and sugar, stir well, add milk, then flour, beat altogether till free from lumps. Add baking powder and the whites of two eggs beaten stiff. Bake in three layers.

Filling.—5 tablespoons grated chocolate with enough milk to moisten, 1 cup sugar, 1 egg well beaten. Cook till thick, take from fire, add vanilla and beat till mixture looks thick enough to spread well on cake.

Cake Hints

Cake always shrinks from sides of pan when done.

When making cake with fruit always stir baking powder in last, as this keeps the fruit from going to

Time Table for Blanching and Sterilizing Vegetables, Soups, Fruits and Meats in the Jar

The Time Given Is In Minutes and Is Time of Actual Boiling

PRODUCTS	Scald or Blanch	Glass Jar Boiling in Wash Boiler	Water-Seal Outfits at 214 Degrees	Steam Pressure 5 to 10 Pounds	Pressure Cooker 10 to 15 Pounds
VEGETABLES—					
Asparagus	15	180	90	60	40
Beans, wax	5 to 10	180	90	60	40
Beans, stringless	5 to 10	180	90	60	40
Beans, Lima	5 to 10	180	120	60	40
Beets	5	90	80	60	40
Brussels sprouts	5 to 10	120	90	60	40
Cabbage	5 to 10	120	90	60	40
Carrots	5	120	80	60	40
Cauliflower	3	180	40	30	20
Corn, sweet	5	240	120	90	60
Dandelion	15	120	90	60	40
Egg Plant	5 to 10	120	90	60	40
Endive	15	120	90	60	40
Hominy	3	120	90	60	40
Mushrooms	5	90	80	50	30
Okra	5 to 10	120	90	60	40
Onions	5 to 10	180	120	60	40
Parsnips	5	90	80	60	40
Peas	5 to 10	180	120	60	40
Peppers	5 to 10	180	90	60	40
Pumpkin	3	120	90	60	40
Sauerkraut	3	120	90	60	40
Spinach	15	120	90	60	40
Squash	3	120	90	60	40
Sweet Potatoes	5	90	80	60	40
Tomatoes	1½	45	18	15	10
Turnips	5	90	80	60	40
Turnip Tops (young, tender)	15	120	90	60	40
Vegetable Combination	5 to 10	180	120	60	45
FRUITS—					
Apples	1½	20	12	8	6
Apricots	1 to 2	16	12	10	5
Blackberries		16	12	10	5
Blueberries		16	12	10	5
Cherries		16	12	10	5
Currants		16	12	10	5
Dewberries		16	12	10	5
Figs	1 to 2	16	12	10	5
Gooseberries	1 to 2	16	12	10	5
Grapes		16	12	10	5
Huckleberries		16	12	10	5
Peaches	1 to 2	16	12	10	5
Pears	1½	20	12	8	6
Plums		16	12	10	5
Quinces	1½	20	12	8	6
Preserves, after preparation and filling		20	15	10	
Raspberries		16	12	10	5
PREPARED MEATS—					
Baked Meats		180	60	40	30
Fish	5	180	160	120	90
Fowls		180	60	40	30
Fried Meats		180	60	40	30
Roast Meats		180	60	40	30
Shellfish	5	180	160	120	90
Spring Frys		180	60	40	30
Stewed Meats		180	60	40	30
SOUPS—					
Cream of Tomato Soup		30	20	18	10
Vegetable Soup and all Soup Combination		180	75	60	45

the bottom. Raisins need never be rolled in flour when this is done.

To make thick frosting pin a thick piece of paper around cake, letting paper extend about an inch above top of cake. Do not remove paper till icing is set.

To keep icing soft, add a pinch of baking soda to the whites before beating them.

The longer you beat your cake or ginger bread the lighter it will be.

SUGAR DOUGHNUT CANNING

Could you supply me with a recipe for sugar doughnuts. Not the solid doughnut but the spongy kind. In bakeries they call them sugar doughnuts.—Subscriber, Marysville.

Here is a recipe sent to the Cultivator household department by Mrs. F. A. Paugh of Glendale:

One cake of Fleischman's yeast, 1½ cups milk scalded and cooled, 1 tablespoon sugar, 4½ cups sifted flour, ½ cup sugar, 3 tablespoons butter, ¼ teaspoon mace, 1 egg, ¼ teaspoon salt.

Dissolve yeast and sugar in lukewarm liquid, add 1½ cups flour and beat well. Cover and let rise in warm place till bubbles burst on top. Add butter and sugar creamed, mace, egg well beaten, remainder flour to make moderately soft dough, and salt. Knead lightly. Place in well greased bowl. Cover and allow to rise again in warm place about 1½ hours. When light turn on floured board, roll to about one-third inch thickness. Cut with small doughnut cutter, cover and let rise again on floured board or paper in warm place until light—about 45 minutes. Drop in deep fat with side uppermost which has been next to board. While still hot roll in powdered or granulated sugar.

Canning in Pressure Cooker

I wish you would ask someone to write on canning fruit more in detail in Pressure Cooker. The articles I have read are too indefinite. I would like to know just how to do it with full directions?—Reader, Morganhill.

The Cultivator has asked W. V. Cruess of the state university, author of "Home and Farm Food Preservation," for an article on this subject, which will appear in an early issue. Meanwhile we give in this department table showing time for blanching and sterilizing various vegetables, fruits, soups and meats, not only in pressure cooker (last column) but in steam pressure canner, water seal canner and wash boiler canner. This is a valuable time card to paste in the back of your best recipe book.

SPREADING THE GOSPEL OF CALIFORNIA FRUIT FOODS

The California Prune and Apricot Growers Association maintains a complete domestic science laboratory at 74 New Montgomery Street, San Francisco, in charge of Mrs. Belle De Graf whose name is familiar to Cultivator readers. "Jams, Jellies and Preserves," in our household department of June 3, was written by her. Mrs. De Graf is always ready to give demonstration in use and preparation of prunes and apricots to women's clubs and domestic science classes.

The Cultivator will soon give in this department a number of recipes for hot weather desserts, written by Mrs. De Graf and appearing in the June Sunsweet Standard, the Prune and Apricot Growers journal.

DANGER AHEAD

Speaking of white mule, two rustic sports were uncertainly flivvering their way home from the county seat. "Bill," said Henry, "I wancha to be very careful. Fir' hing y' know you'll have us in a ditch."

"Me?" said Bill in astonishment, "why, I thought you was drivin'."

"ESSAY ON ANATOMY"

"Anatomy is a human body. It is divided into three parts, the haid, the ches and the stummick. The haid holdes the skull and the brains if they is any, the ches holdes the liver and lites, and the stummick holdes the vowels, which is a e l o u and sometimes w and y."

You Can Make Maraschino Cherries at Home

By W. V. Cruess, University of California

1. Place the cherries in barrels that are paraffined on the inside. Do not stem the cherries.

2. Prepare a sulphurous acid solution containing two tenths of one per cent of free sulphur dioxide, using six per cent sulphur from your druggist for the purpose. This would be roughly, a dilution of one gallon of the six per cent solution to 25 gallons of water.

3. The barrels are then filled and sealed tightly. Use enough of the diluted solution to cover the cherries and fill the barrels completely. They are stored for at least three weeks in a cool place.

4. The cherries may then be removed, stemmed and pitted. In pitting the cherries use a pitter which does not lacerate the flesh badly.

5. Boil the cherries in many

changes of water until they are free from sulphur taste and odor and are tender. Use at least six or seven changes of water.

6. Prepare a syrup of about 25 per cent sugar, colored with equal proportions of the permissible food colors Ponceau-3R and Amaranth. These can be obtained from any wholesale confectioner supply company or chemical supply company in San Francisco or Los Angeles. Do not use too much color. Heat the cherries in this solution to boiling and set aside 24 hours to cool.

7. Use a hydrometer to test syrup. Heat sugar and dissolve in the syrup and bring the Balling degree to 35. Again heat to boiling and set aside 24 hours.

8. On the two succeeding days bring the Balling degree to 45 and 50 respectively. If the cherries have stood in the 50 degree syrup for 24

hours, add a small amount of bitter almond oil to give the desired flavor. Do not use too much of the oil. Pack the cherries into glass jars and pasteurize in water at 185 degrees for 40 minutes. Or heat them to boiling and pack them boiling hot in the jars and seal at once without further heating. Cans have also been used as containers for Maraschino cherries. I would not advise their use until you have experimented with them.

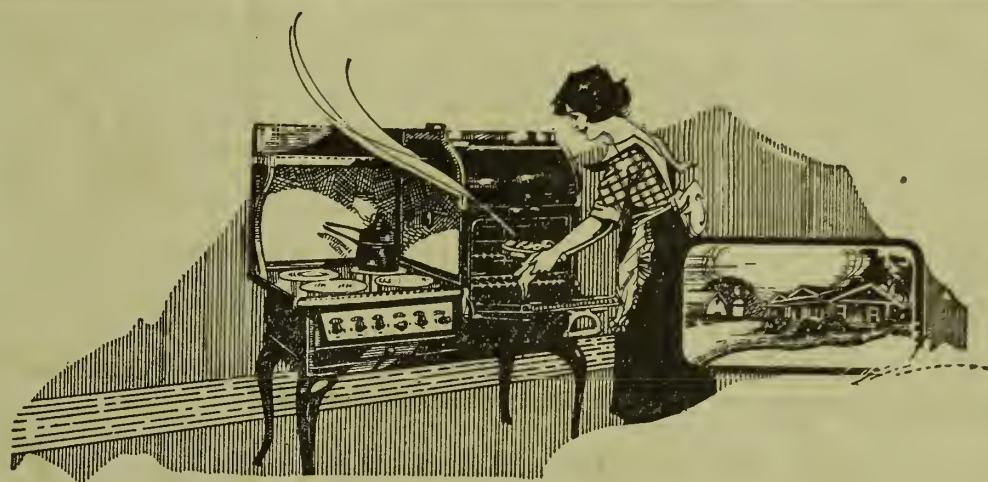
WILD GROWTH

I do not want my mind to be
An even hedge, clipped orderly,
But rather may it gaily grow
Just anywhere it wants to go.

*And if the wind has kissed the sky
And vagrant breezes flutter by,
Why then, my gypsy thoughts must sing,
And ever go a-wandering.

I do not want my mind to show
Prim blossoms planted in a row.
The dream of all my nomad hours
Would 'prisoned be in beds of flowers.

So let my mind a garden be
Whose every path is wild and free,
That golden fancies may arise
Like clouds of yellow butterflies.
—Sunset Magazine.



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The cost of electric power used by electric ranges in P G and E territory averages only \$60 per year per stove. Look over the nearest dealer's supply of electric ranges, and ask the P G and E man for more information.

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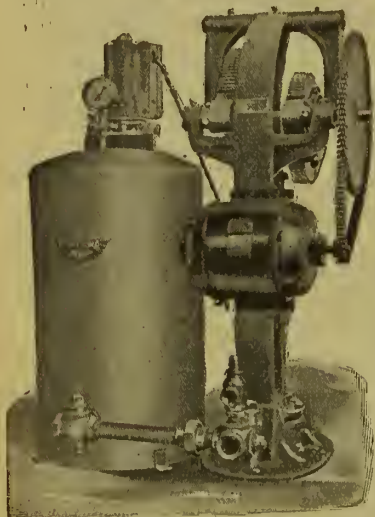
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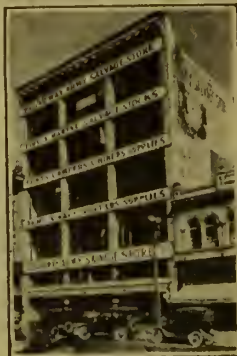
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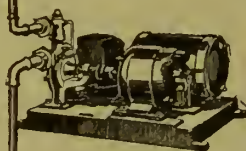
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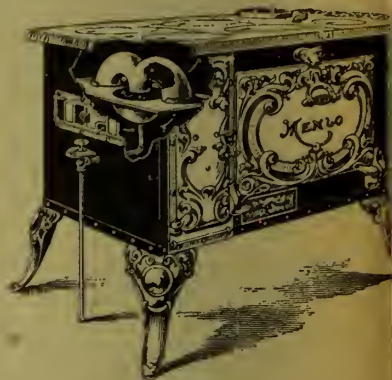
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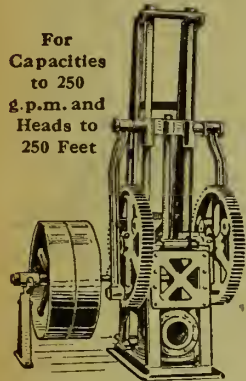
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They make their gas from motor gasoline contained in an air tight tank.

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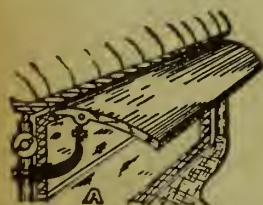
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A complete system for lighting and cooking with large outside tank can be installed at low cost.

Ask your Hardware Dealer about them, or write us for Circular No. 85 giving particulars and prices.

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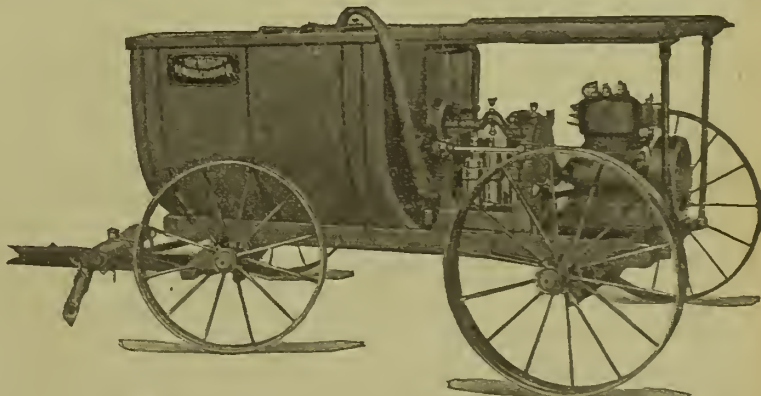
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Gray Sediment in Babcock Test

Answering questions as to grayish sediment appearing in process of making Babcock test C. L. Roadhouse, professor of dairy industry at the state university writes:

"The gray substance appearing below the fat column or in the fat column is probably particles of curd which have not been completely dissolved by the acid. This is caused by either using weak acid, insufficient

mixing, or using milk or acid that is too cold; and white foam appearing on the surface of the butter fat column may be caused by using hard water."

Dodder on Alfalfa

I enclose specimen of plants which are proving pests in my alfalfa field. I cannot find any roots; they appear to live directly off the alfalfa, and kill it. Last year I had but few patches but this year it is causing a heavy loss of alfalfa. I thought of letting it dry and burning it. What is it and what should I do?—Subscriber, Paso Robles.

The plant sent is dodder, or love vine. It starts from a seed in the soil and if no support were found would behave itself. When it finds a suitable host plant it fastens on to it, the lower stem withers and dies and the plant is thereafter a parasite. The treatment you propose is good since you must burn the seeds or your field will be infested next year. Where very bad there is no alternative but to plow and begin anew.

Tomatoes Not Setting

I have some fine tomato plants that appear perfectly healthy and vigorous but fail to set fruit. They bloom profusely but blossoms drop off. Can you tell me what is wrong?—Subscriber, Charter Oak.

This condition is generally due to unfavorable weather—heavy or cold fogs—such as have been common of late. Too much water when blossoms are forming frequently produces drop. Too much nitrogen in soil, especially the liberal application of stable manure the present season, is likewise a cause. Warm sunny weather, not too hot, as at present prevails, should overcome the trouble.

Golden Beetle

Last week I saw what at first I took to be a lady bird, but it was of a golden hue, the color and luster of the brightest gold. As it moved about its coat changed to all the colors of brilliant pearl and fire opal.—W. B. P., Los Angeles.

This is doubtless the Golden Tortoise Beetle, *Coptocycla bicolor*, sometimes a pest on sweet potato plants. Though not abundant anywhere it is distributed throughout California, being more common in the southern part. It also infests other morning glory species beside the sweet potato. The metallic luster fades at death of insect.

Horticultural Statistics

Where can I get information, statistical or otherwise, regarding seeds, plants, herbs, roots etc., imported from France and Belgium and exported from the United States to these countries? How can I secure a list of nurserymen seedmen and florists in the Western states? With thanks in advance.—Subscriber, Newcastle.

The Federal Horticultural Board, Washington D. C., can no doubt give you the statistics. A list of California nurserymen etc., is obtainable from the secretary of the California Association of Nurserymen, C. K. Grady, care of Mc Rorie-Mac Laren, San Francisco. He can also give you name and address of secretary of Pacific Coast Nurserymen's Association. The larger trade papers issue directories, which are for sale, containing the full list for this country and Canada. Write Florists Exchange, New York.

Sulphuring Grapes

We have several vines of Thompson Seedless Grapes, one year old and

very thrifty. Please inform me when and how often we must sulphur them and oblige.—Subscriber, Anaheim.

This question is treated fully by Mr. Howard on another page of this issue. See "Control of Grape Mildew."

Growing Smilax

Please tell how to grow smilax successfully. Should the cluster of bulbs be separated and if so at what time of the year?—Subscriber, Corning.

Smilax in California is grown by professionals in lath houses; by amateurs on the shady side of a house or other building, but always in the shade. A deep rich friable soil and plenty of water is needed. A soil one-fourth well rotted stable manure is not too rich. Rows a foot apart and plants six inches apart in the row. Wires are strung near the ground and also overhead usually at eight feet high. Common twine is stretched between top and bottom wires, one for each plant of smilax. Some use green string. Buy mature dormant roots or young plants in pot unless you prefer to grow from seeds. Old bulbs are generally separated every year, in early spring.

Ornamentals for Hot Dry Climate

Please give the names of some deciduous hardy vines, climbers suitable for a hot dry climate. Name some shrubs suitable for hot and dry climate. I would like shrubs that bloom, either evergreen or deciduous.—Subscriber, Corning.

Grapes are best deciduous climbers for hot climate, but wistaria does well from coast to desert, and the finest of all is *Tecoma grandiflora*, from China, largest of all trumpet flowers. Japan ivy, or *ampelopsis*, is fine for summer foliage. For blue shrub or half climber nothing surpasses plumbago. In shrubs use Spanish broom (*Spartium junceum*) *leptospermum*, any *genista* or any bottle brush. Shrubs for hot regions are many.

Climbing Roses

I would like names of climbing roses that are everblooming in white, yellow and bright pink?—Subscriber, Corning.

In roses all thrive best in damp climates but any variety will do for Corning as all best known varieties, with very few exceptions, do well in the Sacramento and San Joaquin valleys. Climbing Kaiserin Augusta Victoria is a good white; there is no good yellow, but Climbing Caroline Testout is a strong bright pink. You cannot have "everblooming" roses during hot summers. Allow plants to rest until August or September then feed and water heavily for fall blooms. You will also get a good spring crop.

Oleanders Die

I am trying to train two young oleanders to form trees by keeping off suckers, but each year the main stem dies to the ground. In the spring they come up in clusters and bloom profusely but die down again in the winter.—Subscriber, Visalia.

We believe this is a clear case of freezing in winter. Young oleanders are tender. Old plants will endure without harm several degrees more of cold. We would advise winter protection of the young trees for at least two or three years.

Driving Rabbits from Vineyard

If your correspondent who asks for means of controlling rabbit damage to young vineyard, will get a sack of fishmeal fertilizer and put a tablespoonful at each vine on the ground,

and preferably on the windward side so that the scent will blow over the vine, the rabbits will avoid that vineyard. The cost will be 50 cents per acre for meal and about the same for labor. The meal will be effective until cultivated under when it must be replaced with fresh meal. Protect clothes and auto from the meal as it is as offensive to man's nostrils as to the rabbit's. This remedy has proven the most effective of many that I have tried.—W. H. Shafer, Selma.

Old Plaster on Land

Would like to know if lime mortar taken from brick walls would injure or benefit soil. How thick should it be spread? On what kind of soil is it best—sandy or 'dobe'?—Subscriber.

If the old plaster is pulverized it might make an excellent addition to heavy 'dobe' or sour soil, while on light sandy soil it might be objectionable. Of course, we are assuming that the plaster was made of lime and sand. If of the ordinary modern plaster or cement it would be worse than useless on any soil. The quantity would vary greatly according to soil conditions, anywhere from a ton to several tons per acre.

Purchasing Homestead

I have lived on a homestead about two years and am unable to stay longer. Can I buy same from state and get patent?—Subscriber, Barstow.

Provided you are a citizen of the United States you may commute the entry after having lived continuously on same for 14 months, and have at least one-sixteenth of the area under cultivation by paying \$1.25 or \$2.50 per acre to the U. S. government. You will have to write to the U. S. Land Office, 508-16 Federal Building, Los Angeles, regarding the payment necessary to your particular case.

Frogs and Mosquitoes

I wish to have a pond in my garden but am up against it for the following reasons: If I put black bass in the pond I get rid of the frogs which make a terrible noise during the night, but the bass eat the gold fish and do not eat the mosquitoes; If I put in only gold fish I get rid of mosquitoes but not frogs. Can I have a pond without frogs or mosquitoes?—Subscriber, Santa Barbara.

Large bass will not bother with mosquito nymphs except they are very hungry, but little ones will. If bass are bred in pond there will be no mosquitoes or frogs, but some natural conditions, such as soil, rocks and plants in water would be needed to induce bass to breed.

Rose Rust

Am sending portion of a rose bush which please examine and suggest some remedy. Trouble seems to be spreading to all my roses.—Subscriber San Jose.

This is a bad case of rose rust, a fungus (*Phragmidium*) hard to control. To protect this and other roses from an extension of the disease, spray with one ounce of potassium sulphide to three gallons of water and stir into this two or three ounces of atomic sulphur. Do not let fallen leaves escape, but burn them; also any parts of bushes you prune off.

Russian Thistle Law

Is there not a law against allowing Russian thistle to grow? It is becoming a great pest in my neighborhood. Please let me know through Cultivator who to write to about it.—Subscriber, Torrance.

There is a law against allowing

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High efficiency and slow speed keep power and repair bills down. Viking pumps operate at 60% to 65% efficiency and maintain a constant high efficiency under varying heads (impossible with the ordinary centrifugal type).

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Viking catalog mailed upon request.

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March, 1922.

"I am confident you will be interested and pleased to learn the benefits I have derived in using Victory Tree Spray in my grove during the past two seasons.

"The following is a summary of the results:
"Dates of application—First weeks in July, 1920 and 1921.
"Maximum kill in Black Scale and other parasites that feed on trees.
"Complete destruction of Red Spider. Elimination of Black Smut.
"Cleaning of tree trunks and limbs of green moss.
"Stimulation of tree growth. No burned or broken trees.
"No injury to all beneficial parasites. Firm lasting condition of fruit.
"Results obtained for less than half the cost of fumigation."

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CONWELL SMITH,

(Copy) Azusa, California.

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For Pleasure and Profit. This Book tells about How to Select, Breed and Manage Rabbits and Belgian Hare for pleasure or profit; When to Feed; Diseases and their Remedies; Breeding of rabbits is profitable. Illustrated. Price 10c prepaid.

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BROWN & SON

4346 Normal Avenue, Los Angeles, California

Russian thistle to grow but as it is not a noxious weed in all parts of the state the law is enforced only when the weed becomes a menace to agriculture. Write to H. J. Ryan, Horticultural Commissioner, Hall of Records, Los Angeles. We have reported the presence of the weed in your neighborhood and the commissioner states a field inspector will visit that section.

Largest Loquats

What variety of loquat has the largest fruit? Is it possible to graft other varieties on to a tree of the Japanese variety with smaller fruit?—Subscriber, Orangevale.

The largest fruits we have seen were from the Thales ranch at Placentia, Orange County. They were called "Gold Nugget." Nearly as large are the Champagne and the Tanaka. Other named varieties of large size are Advance, Thales, Early Red, and Victor. Loquats are budded in practically the same way as citrus trees, though a few growers whip-graft them. Seedling loquats or cuttings are best stock, though some use the quince.

Sulphuring Grapes

Why are grapes sulphured and when is the proper time to sulphur them?—Subscriber, Gilroy.

See complete treatment of this subject on another page of this issue.

Moss on Citrus Trees

What should I do for moss on citrus trees?—Subscriber, Escondido.

Orchardists seldom do anything for it, but a spraying of the tree with a light Bordeaux mixture, such as is used for red spider, will no doubt eliminate the mossy growth.

Brown Rot or Bacteriosis

Would like to know what to do for canker on apricot trees.—Subscriber, Lindsay.

The "canker" is no doubt brown rot, or bacteriosis. As the treatment for the two is much the same we refer our correspondent to the last paragraph of "Deciduous Fruit Troubles," page 595, issue of June 3, which we are sending by mail.

Probably Alkali

Can you tell me what is wrong with my black walnut trees. They came out as usual and now seem to be turning black and new growth is coming out between the other limbs.—Subscriber, Manteca.

The symptoms described point to the presence of alkali in the soil. The die-back may have been caused by alkaline water and as the water lowers or dries away the new growth comes out. Are the trees not in low land, possibly in a beet growing district? If not we would be pleased to hear from you again.

Red Spider?

Am sending leaf from Wickson plum set out two years ago. On the old wood the leaves curl up each year. They do not dry up or fall off but simply curl up. The tree is very vigorous, apparently healthy, and fruits heavily.—Subscriber, Pasadena.

The two leaves sent show no evidence of a leaf curling insect. The grayish color suggests red spider may have been present though none were found. If present a daily spraying of the young tree with water would, in a few days get rid of all red spider. However, the trouble with leaves sent is not a serious stage of anything injurious.

Tonic for Dairy Cows

What do you think of feeding tonic

to heavy milking stock?—Subscriber, Sacramento.

If the cows are getting pasture or alfalfa hay or silage or green feed of any kind they do not need a tonic. If none of these are available soaked beet pulp will provide all that is required. Medicine and tonics should be avoided unless the animal is sick and then they should be given only under direction of a veterinarian.

Sore Udder

My goat has sores on her udder, little scab like patches. I put salve on them but they never quite disappear. Would burning with caustic be good for them?—Subscriber, Redlands.

Caustic is too severe for such a tender place. If you bathe the sores before and after milking with a warm boric acid solution, (½ teaspoon boric acid to one cup warm water) and then anoint with castor oil or white vaseline I believe you can soon cure the sores. Do not hurry the bathing. Hold the cloth or cotton wet with the

boric solution on the sores till each is thoroughly soaked, then, after milking, massage well with the oil or vaseline.

Peaches on One Year Trees

Is it best to pull all peaches off one year trees, or will a few left on hurt the tree? Trees are eight or nine feet high and quite thrifty.—Subscriber.

It will be best for the trees to pull all fruit off but would do no particular harm to leave just a few, say not more than a half dozen, if you want to test their quality.

Etching on Milk Bottles

What is the proper method of etching by acid on milk bottles? By answering this query you will greatly oblige.—An "Old Subscriber, Madera."

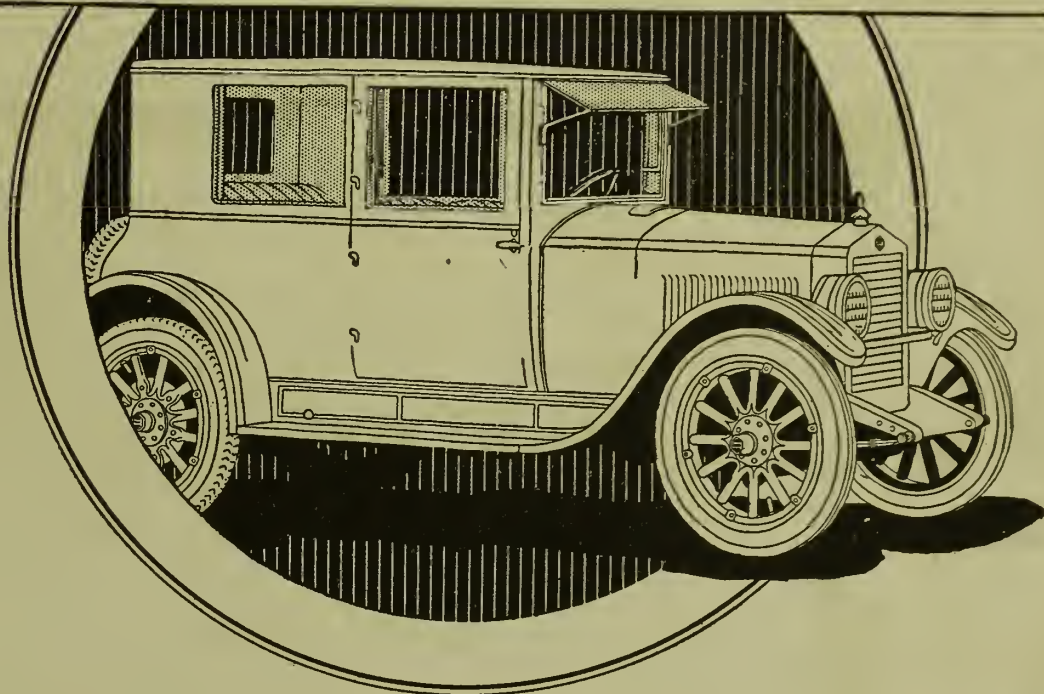
Etching on milk bottles is done with a sand blast. A stencil is made which protects all the bottle except the lettering desired. This can be done only in a properly equipped plant and the charge is about \$2.50 a gross.

TRIBUTE TO POWELL

At the close of the great "South African Citrus Congress," at Johannesburg, April 19, Sir Percy Fitzpatrick, said: "I have been asked, and I am sure it will meet with the approval of everybody, to propose a vote of condolence with the family and friends, and the citrus growers of California, on the death of a man who has done more for our industry than any other man, and that is the late Harold Powell. You have spoken of him as the author of the Bible of citrus. Well it is not an exaggeration. I had the great privilege of meeting him many times personally, and I have never been more impressed by any man at all, as a statesman in business with a broad human outlook, with sympathy for everything and everybody, unswerving in his purpose, and high in principle. I have never seen a better leader in my life of industrial affairs than Harold Powell."

The meeting then rose and stood in silence for a few moments.

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Its owners like it—the best test of all

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"This little Coach is a revelation. Handles easier, runs smoother than any car I ever owned. I don't think I will ever want to drive a big car again."

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"We are highly pleased with the Essex Coach. We like, especially, its simplicity; ease in operation, gas mileage, and price. I do not know of a car where you get as much for the money invested."

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And so reliable that thousands go out from the salesroom and serve for thousands of miles without returning for even a minor adjustment. That, too, is an experience not common to motor car owners.

Drive the Essex. It is altogether different from any car you have ever driven. It will delight—and tempt you. Any dealer will be glad to arrange such a ride.

Touring Car, \$1095

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ESSEX MOTORS—DETROIT, MICHIGAN

TYPE IS AN IMPORTANT FACTOR IN PORK PRODUCTION

By Prof. E. H. Hughes, University of California

TYPE in swine means that thing which makes one breed different from another. The things that make a Poland China hog different from a Duroc-Jersey are the color and markings, distinctive characters about the head and certain other minor differences. Generally speaking the present day conformations of our lard type of swine are not far different. In the major breeds the producers are developing hogs with strong backs, deep, smooth sides, standing on straight, strong legs. They have found that a hog carrying plenty of length, depth and constitution, with quality, is an economical one from the productive standpoint and in addition meets the demand of the packer. The packer, of course, tries to meet the demands of the consuming public. The Market Hog

The ideal market hog is one weighing from 160 to 200 pounds, with a medium amount of fat, deep, smooth side and sizable ham. It is desirable that such a hog shall dress out a high per cent and when hung in the cooler the meat shall be firm. To produce such hogs economically it is necessary to save sows with plenty of scale, length, quality and refinement. These sows should not only farrow large litters, but should be able to raise these litters well. A sow that produces two litters of pigs a year regularly is the kind of a sow that makes money for the producer.

A few years ago the type was dif-

ferent from the present day hog. The finished hog was short and thick and carried a surplus of fat. In the past the consuming public demanded such a hog, because the demand for lard was large and it was thought such a hog was more economical to produce. At the present time, with the longer, deeper bodied animals, and with the use of alfalfa forage and the feeds at hand, it is no doubt more economical to produce the present day hog. It is significant to note in our present day livestock shows the similarity in the conformation of our various lard breeds. We find the Hampshire, the Berkshire, the Poland China, the Duroc and Chester White breeders developing hogs whose bodies and general conformation are very similar.

There are, of course, minor differences, such as color, head characters, etc., but they are all producing hogs that meet the requirements of a good market hog.

INJECTING HOGS IN FLANK TO SAVE MEAT

Complaints from packers indicate that there are still many veterinarians and farmers who persist in immunizing hogs against cholera by making injections in the ham or shoulder, a practice that often results in infection and the formation of deep abscesses in the hams and shoulders where the serum and virus were injected. The United States department of agriculture has long advised against using these parts as points of injection, and the department veterinarians are instructed to avoid the possibility of such injury by selecting some other place.

The ham has been favored as a place

for making the injections because they can be made more rapidly and easily at this point, but they can be made with equal success in less valuable parts, such as the flank or axillary space, where there is loose connective tissue that readily absorbs the serum. In making an axillary injection the front legs should be spread apart so as to stretch the superficial muscles between the legs, and the needle should be directed so as to avoid the muscles of the shoulder.

It is desirable to make the injections at a point that will make drainage easy should an abscess form. Serum should never be injected into a mass of fatty tissue as it is not sufficiently absorptive. Although the serous membrane lining in the abdominal cavity takes up serum rapidly, abdominal injections are not recommended because of the danger of puncturing the internal organs with the needle or of carrying infection into the cavity.

Small pigs and shoters up to 80 pounds in weight may be held up by the hind legs, with the forefeet resting on the ground, and the injection made into the loose tissue of the flank. A pig so held is in a good position for the taking of temperature, cleansing the area of operation, and making the injection.

INCREASED MILK PRODUCTION THROUGH BETTER SIRE

A gain of 17 per cent in milk production and 20 per cent in butterfat production in daughters over their dams because of the use of a pure bred bull is the striking result obtained in the New Windsor, Maryland, cow testing association which has a bull association as a subsidiary. The

records of 21 cows were compared with the records of their 21 daughters after the latter had become mature cows. The average production of the dams for one year was 5,560 pounds milk and 219 pounds butterfat. The daughters averaged 6,523 pounds milk and 263 pounds butterfat, a gain over the mothers of 963 pounds milk and 44 pounds fat. In the association every one of the daughters sired by one of the three association bulls was better than her dam. One of the bulls produced an average improvement in his daughters of 1,414 pounds milk and 62 pounds butterfat.

The worth of the pure bred sire as an improver of the productive capacity of dairy cows has been measured in a number of localities where there are both cow testing and bull associations. The United States department of agriculture has collected figures from a number of the communities, but in the past it has been difficult to keep tab on the improvement that bulls have made in herds. The plan of the dairy division now is to get such figures, as far as possible, on cows owned by members in all of the 158 bull associations in the United States.

CALVES OR TWO YEAR OLDS?

At the Western Stock Show at Denver, Colorado, in January a load of calves won the grand championship in the feeder division. They were last spring's calves, weighing 590 pounds, and sold for ten cents per pound, \$59 per head, a little above the average price paid for two year olds on that market. These were Shorthorn calves bred and exhibited by Weiss Bros., Elizabeth, Colorado, who have attracted the attention of cattle feeders for several years by the quality of the calves and yearlings which they have been sending to the Denver market and exhibiting at the Western Stock Show.

The important point is that these under year calves, possessing the quality, the result of good breeding, should command a price comparable with cattle of indifferent breeding maintained at the growers' expense for one or two years longer period. These calves made money because they were well bred and of the type that appeals to buyers. Many an older load selling for the same amount per head would lose plenty of money for the grower.

This load of calves sold to the western feeding firm in Iowa, Peter Hopley & Son. The cut backs from the same lot, 32 head, sold for \$8 per hundredweight, which is also considerably above the prevailing range of prices for feeders on the several markets. Here is an evidence of the actual value of good breeding. Hundreds of such evidences are passed unnoticed at the market places yearly, yet in every one there is a lesson that should be learned by the cattle grower.

FEEDING OF DAIRY CATTLE

"The Feeding of Dairy Cattle" by Andrew C. McCandlish, M. S. A., professor of dairy husbandry, Iowa state college of agriculture, published by John Wiley and Sons, Inc., New York, at \$2.50 postpaid.

There have been many other books on feeds, but so far as we know this is the first to give the entire book to the discussion of feeding of dairy cattle. It is a book of nearly 300 pages of fine paper with 30 chapters and an appendix. The book touches upon fundamental principles of dairying, dealing first with the individual cow, breeding, selection, and then with the importance of feeding, beginning with the young stock and discussing the necessity of individual feeding. Then comes the chemistry of feeding, constituents of feeds, digestion and absorption, utilization of nutrients, influence of nutrition on production, feeding standards, balance, a good ration, silage, soiling crops and other feeds, feeding practice, preparation of cow for production, feeding for records, calf raising, and in fact, discussion of practically every problem which will ever confront the dairyman who is in search of information as to feeds. The author says in the preface:

"The art and science of feeding dairy cattle has ever been changing, and during the last two decades greater improvements have been brought about in this branch of agriculture by practical feeders and investigators



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For Poultry House



For Hog Pen

than ever before. The importance of the dairy cow as an economic factor is now recognized. This is primarily due to the fact that with little waste of energy she converts the roughages and other feeds grown on the farm into products suitable for human consumption.

"In making this presentation of the feeding problem the aim has been to render the work broad enough to be of aid to the student. For this purpose the earlier sections contain a brief resume of material which belongs to the field of nutrition rather than to that of feeding. It is hoped that this will render it possible for the student to link up his work on feeding dairy cattle with the training he has previously received in nutrition. At the same time it is hoped that the man interested in feeding, but with little foundation in nutrition, may obtain some information of value from the earlier part of the work. To put it briefly, the main object in view has been to review in a non-technical manner the main principles on which the feeding of dairy cattle is founded and then discuss the problems of practical feeding."

CARE IN HANDLING LIVESTOCK

An appeal made some months ago for greater care on the part of shippers and transportation companies in the handling of livestock in transit has resulted in a material saving. For example, a report from the Indianapolis Union Railway on the dead hogs received at the Indianapolis market shows that, although receipts increased 39,600 head, or three per cent, the number of dead hogs received decreased 532 head, or 25.7 per cent, as compared with the corresponding period in 1920. If we wish to reduce still further the loss from improper handling of livestock, or even to hold the loss down to its present proportions, new material must be developed and new plans made, and the interest which has been aroused among various organizations and individuals must not be allowed to lag. To that end a call is issued for a meeting to be held in the Saddle and Sirloin Club Rooms, Union Stock Yards, Chicago, December 14.

MILK PRICES

Are dairymen in general justified in their complaint against the low prices being paid for milk? A study of the report contained in the Market Reporter of September 24, 1921, issued by the United States department of agriculture, showing September prices from a representative group of cities in each state, tends to raise a question regarding this matter. It requires approximately eight pounds of grain, ten pounds of hay, and 30 pounds of silage to produce 25 pounds of milk from a thousand pound cow. In other words, 32 pounds of grain, 40 pounds of hay, and 120 pounds of silage are required to produce 100 pounds of milk. Figuring grain at \$40 per ton, hay at \$20 and silage at \$5 this amount of grain will cost near 64 cents, the hay 40, and the silage 30, a total of \$1.34 representing feed cost for 100 pounds of milk.

The old formula in figuring dairy profits states that one-half the market value of milk is represented by feed, one-fourth by labor and one-fourth by general overhead costs. On this basis milk should now be selling for at least \$2.68 per 100 pounds, in order to encourage its production. Government reports show that the price received throughout the United States during September, 1921, by specified zones is: New England states, \$3.44; North Atlantic states, \$3.23; South Atlantic states, \$3.54; Southern states, \$2.68; East Central states, \$2.33; Central states, \$2.36; Western states, \$2.54.

From this it may be concluded that for an early fall month milk is bringing a very fair return considering its cost. Although not highly profitable it certainly is not so seriously out of line as to cause dairymen to become discouraged and forsake the business.

Such facts should stimulate the forward looking dairyman to renewed action, to begin the rebuilding of his herd, the growing of his calves, and the establishing of his cropping system in accordance with the needs of a well balanced dairy farm.

VALUE OF PUREBRED BULL

The advantage of using purebred bulls is well illustrated in the herd of Dan Casement, Manhattan, Kansas. Mr. Casement has used registered Hereford bulls for many years. In 1920 his grade cow herd consisted of 100 head of that year's calf crop. 44 were bulls which were steered and two carloads selected and fed as yearlings for exhibit at the 1921 International. One load was fed for the short fed specials, in which class quality and condition count 50 per cent gains 25 per cent and economy of gains 25 per cent. Mr. Casement's load gained 3.27 pounds daily at the cost of \$10.79 per hundredweight, which was the cheapest gain of the show, and when the premiums were awarded they won championship over all breeds. The other carload stood fifth in the corn belt section for yearlings and second in the best bred carload of Herefords in the show. This is a new feature of the awards in which special prizes are offered by the Institute of American Meat Packers. The load averaged 1175 pounds and sold for 15½ cents.

This notable achievement was due to the fact that nothing but good type purebred Hereford bulls were used in the grading up of the herd and demonstrates most clearly the value of registered sires.

GROWING DEMAND FOR LIGHT CATTLE

For the past several years there has been a decided change in the market demands for cattle. This change has developed from the point where heavy steers were selling at a premium on our main markets to a decided preference today for light cattle. During the past year yearling steers have as a rule outsold older and heavier cattle with the latter often being a drug on the market.

A write-up in a late issue of one of the market papers is also significant in this connection. The article was featuring the sale of some choice heavy steers which sold for \$9.25 per hundredweight. In commenting on this sale the writer said, "Had they weighed 300 pounds less they probably would have realized \$10 per hundred-

weight. Some of the buyers would not look at them on account of their great weight."

These market reports reflect the increasing demand of the consumer for small cuts of beef. For this reason and the fact that land values are gradually increasing the tendency will be more and more toward the production of high quality cattle that will finish out easily and economically at an age that will show a profit to the breeder and feeder.

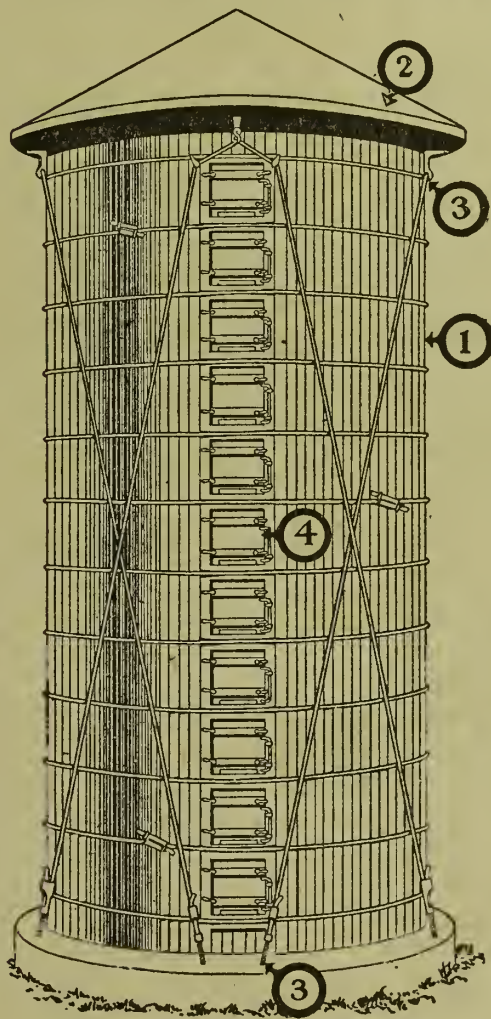
The Oregon Grower says that an easy way to clean up the prune juice on the drier floor is to sprinkle lye over the floor and cover it with wet sawdust. Let this lie a few days and then sweep it up.

As a rule it does not pay to operate a large gas engine on a small job. Besides the wear and tear on engine and machinery, the fuel cost is too great.

When you install a kerosene engine, follow the instructions of the maker as to starting and operating.

SIMPLEX

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Some Simplex Features

1. Continuous, one-piece staves
2. Crisell tangent top insures true circle
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GOVERNMENT and State agricultural authorities agree that a silo is the most economical way of preserving feed. They also state that the properly constructed silo must be air-tight; the walls strong, rigid, and in a true circle, with the inner surface smooth and perpendicular.

The Simplex Silo is air-tight, because it is made of one-piece staves. There are no end joints to admit air.

The clear Oregon Pine (Douglas Fir), from which the staves are cut, gives the inner walls of the Simplex Silo a permanent smoothness. The Crisell Tangent Top keeps the walls perpendicular and in a true circle.

The patent Interlocking Anchorage System binds the Simplex Silo to its base in a rigid, inseparable unit that defies inside pressure or high winds.

Because of these qualifications, agricultural experts have pronounced the Simplex Silo "scientifically correct." With a Papec Ensilage Cutter to prepare the ensilage to fill a Simplex, you will be completely equipped to economically preserve feed.

Tear out the coupon and mail it. We will send you full information regarding Simplex Silos and Papec Cutters.

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Infection

would have been prevented if B-K had been used shortly after this cow dropped that beautiful calf. When cows do not clean properly after calving, it indicates a germ infection which is likely to run through the entire herd and result in abortion and failure to "get with calf." The afterbirth should be removed at once, without force, and the cow flushed out with a powerful antiseptic.
B-K is scientifically correct for this work. It quickly dissolves the adhesions and allmy matter and brings the afterbirth, kills the germs and foul odors, stops the discharge and straining. B-K is non-poisonous, healing and soothing.
If your dealer does not have B-K send us his name. Get a gallon—the standard farm package.
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A yearling Holstein bull, almost solid white in color, whose Five Nearest Dams Average 952 lbs. of Butter in 1 Year.
Five Nearest Dams and Three Nearest Sires Almost Solid White.
Two crosses to De Kol of Valley Mead and four to Juliana King of Riverside.
We saved this youngster for use in our own herd, but now find that we can spare him.
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State Champion Cows of California

CALIFORNIA is a state where development takes place rapidly, but in no other line is the progress so noticeable, as in the dairy cow. We are publishing herewith a list of the state leaders in the different divisions of the various breeds. In the Holsteins the list is almost entirely different from one compiled a year ago, showing that there has been very great activity within that breed. Several of these state records are also world's records, and it is hoped that within a few years most of the world's records will be held in this state. With its plentiful supply of good feed, green alfalfa and pasture available most of the year, and a much more even climate than elsewhere, there is every reason to think that they will. California cattle are equal to those of any other state in quality and are rapidly taking first place in performance. Breeding is on the highest possible plane and the results are very gratifying. They will be even more so within the next year or two.

AYRSHIRES—365 DAY SEMI OFFICIAL

Name	Age	Milk Lbs.	Butter Fat Lbs.	80% Butter
Polly Puss 3d.—J. Henry Meyer, Watsonville	Over 5	16,684	701.92	
Willowmoor Cherry—University of California, Davis	Sr. 4	10,465	445.01	
Willowmoor Vesta 4th.—E. B. McFarland	Jr. 4	17,755	753.18	
Robin Lucy at Elkhorn	Jr. 2	12,025	544.48	

GUERNSEYS—365 DAY SEMI OFFICIAL

Belladia—W. H. Dupee	Over 5	19,631.9	934.05	
Sylvia of Frankland—Brant Rancho	Sr. 4	16,976.7	776.66	
Imp. Dawn of Sarnia—W. H. Dupee	Jr. 4	13,977.8	759.33	
Calla Grove Ithen May—A. B. Humphrey	Sr. 3	13,060.9	688.25	
Imp. Donnington Goldie—W. H. Dupee	Jr. 3	17,861.7	796.52	
Jesebel of Edgemoor—W. H. Dupee	Sr. 2	12,434.9	748.32	
Imp. Miss Violet of St. Andrews—W. H. Dupee	Jr. 2	9,104.3	604.18	

JERSEYS—365 DAY SEMI OFFICIAL

Interested Jap's Santa—University of California	Over 5	15,169.4	940.72	
Gertie of Willowood—Grant A. Brown	Sr. 4	8,957.0	568.17	
Interested Jap's Santa—University of California	Jr. 4	13,308.5	805.72	
Jewel of Venadera—Guy H. Miller	Sr. 3	10,262.6	609.54	
Verde of Willowood—J. E. Wherrell	Jr. 3	10,845.1	591.39	
Bonnie's Financial Loretta—Bonnicksen Bros.	Sr. 2	9,980.0	655.18	
Golden Dukes Pet—O. S. Ziegler	Jr. 2	9,380.0	573.11	
Olds Golden Eminent—H. G. Gross	Under 2	9,195.0	529.35	

HOLSTEINS—365 DAY SEMI OFFICIAL

Adirondac Wietske Dairymaid—Bridgford Co.	Over 5	34,401.9	1136.15	1420.2
De Kol of Valley Mead 2d.—A. W. Morris & Sons	Sr. 4	20,326.4	809.37	1011.7
Whittier Pontiac Netherland 4th—L. A. County Farm	Jr. 4	22,399.5	911.4	1139.2
Lady Aaggie Echo Hengerveld—Toyon Farms	Sr. 3	28,008	960.6	1200.7
Johanna Princess Mooie 2d.—Palo Alto Stock Farm	Sr. 3	25,596.5	937.7	1172.1
Bessie Veeman Alcartra Prilly—Bridgford Co.	Sr. 2	27,253.4	844.9	1056.1
Miss Aaggie Acme Burke—A. W. Morris & Sons	Jr. 2	24,338.9	827.7	1034.6

HOLSTEINS—SEVEN DAY OFFICIAL

Norma Korndyke Cornucopia—Fred Hartsook	Over 5	886	34.245	42.8
Ruby Pietertje of Forest Hill—W. J. Higdon	Sr. 4	667.9	31.797	39.74
Fairmont Pauline De Kol 2d.—Bridgford Co.	Jr. 4	711.9	31.302	39.1
Miss Aaggie Ormsby Segis—Fred Hartsook	Sr. 3	644	32.75	40.938
Louise Alcartra Prilly—Bridgford Company	Jr. 3	589.9	32.158	40.19
Miss Ormsby Alcartra Prilly—Bridgford Company	Sr. 2	573.5	23.503	29.38
Maid Pontiac Prilly	Jr. 2	540	21.3	26.6

HOLSTEINS—30 DAY OFFICIAL

Adirondac Wietske Dairymaid—Bridgford Co.	Over 5	3603.1	126.44	158.31
Ruby Pietertje of Forest Hill—W. J. Higdon	Sr. 4	3144.5	129.57	161.97
Fairmont Pauline De Kol 2d.—Bridgford Co.	Jr. 4	2787.7	112.49	140.61
Miss Aaggie Ormsby Segis—Fred Hartsook	Sr. 3	3008.5	125.69	157.11
Louise Alcartra Prilly—Bridgford Co.	Jr. 3	2614.8	121.05	151.3
Miss Ormsby Alcartra Prilly—Bridgford Co.	Sr. 2	2455.2	94.18	117.7
Miss Aaggie Acme Burke—A. W. Morris & Sons	Jr. 2	2331.1	85.24	106.55

HOLSTEINS—305 DAY SEMI OFFICIAL

Mabel De Kol Niko 2d.—Santa Anita Rancho	Over 5	25,368.2	784.5	980.65
Miss Aaggie Acme Burke—A. W. Morris & Sons	Jr. 4	23,187.8	798.02	997.5
Fay Tritomia Hengerveld Walker—Berlywood Stock Farm	Sr. 3	17,452.1	635.62	794.5
Miss Aaggie Ormsby Segis—Fred Hartsook	Sr. 2	22,083.3	643.07	803.8
Rosamaines Korndyke Beauty—Fred Hartsook	Jr. 2	22,604.3	510.7	638.4

National Holstein Convention Accomplishes Much
By R. A. Condee, Delegate from California

THE 37th Annual Convention of the Holstein-Friesian Association of America which was held in Kansas City, June 5 to 10, will go down in history as one of the most peaceful and constructive conventions ever held by the association. It demonstrated very forcibly the efficacy of the delegate system over the proxy system which was formerly in vogue, in eliminating politics and in getting things done.
By re-electing Frank O. Lowden of Illinois as president, it placed the stamp of approval on the conduct of the business during the past year and it ended the old fight over the constitution which has been before the association for the past decade. The Hackney amendment to the constitution brought this matter before the convention, and the vote was entirely in favor of its adoption. The Hackney amendment changed the constitution so that the secretary, treasurer and the superintendent of Advanced Registry are elected by the board of directors and are responsible to the board for their actions, thus placing them under control of the board.
Increased Transfer Fees
The matter of transfer fees was also a very live question and a compromise was finally effected which provides for a fee of \$1.50 to members and \$3 to non-members, providing transfers are made within 90 days after date of sale. If the transfer is not applied for within the 90 days the fee shall be doubled in both cases. The money provided by the increase in fees is to be used for extension work in ways and places designated by the board of directors. This will provide a considerable fund to be used in boosting Holsteins.
New Features in Judging
Another interesting feature of the convention was the meeting of the National Committee on Judging and Classifications which is made up of such men as W. S. Moscrip, R. E. Hager, Ward Stevens, T. E. Elder, Axel Hansen, H. H. Kildee, W. H. Standish and A. C. Oosterhuis. It is the duty of this committee to supervise Holstein judging and it is working on the best manner in which to place the ideal Holstein type before students of animal husbandry and prospective judges. The following recommendations were also adopted by the committee:—
That the discredits on the present score card be disregarded until a more satisfactory score card can be developed.
That all A. R. O. records be filed with the secretary of the fair and that the secretaries of the fairs use greater care in checking the records and ages of the various classes.
That 305 day cows are eligible to compete against 365 day cows.
That the classifications for calves under six months of age be eliminated.
That no prizes be awarded unless merited.
New Board of Directors
The officers elected for the coming

year were Frank O. Lowden of Illinois, president; John M. Kelly, Wisconsin, vice-president; W. S. Moscrip Minnesota; W. G. Davidson and John A. Bell of Pennsylvania; H. W. Norton Jr. of Michigan; E. B. Armstrong of New York; G. E. Fox of Illinois and T. E. Elder of Massachusetts as board of directors.

This new board elected F. L. Houghton of Vermont, secretary; Wing R. Smith of New York, treasurer, and Malcolm H. Gardner of Wisconsin, superintendent of advanced registry.

National Sale

Buyers from the surrounding states of Kansas, Missouri and Oklahoma took most of the 175 head of Holsteins which were assembled from nearly all the states of the Union. The average was \$470 and the top was \$3,200 which was paid for a 40 pound cow.

Excellent Exhibits

Educational exhibits by the universities of the near by states combined with the entire exhibit of the department of agriculture at the last National Dairy Show gave the delegates and the interested Holstein men who were there a great variety and fund of information in regard to breeding and dairying.

Livestock News Notes

F. S. Barron & Son of Tipton are making some nice A. R. O. records with their Holstein's. Dorothy Netherland Rowena 2d made 29.54 pounds butter from 655 pounds milk in seven days and a junior two year old daughter of King Korndyke Pontiac 20th made 16.51 pounds butter from 510.6 pounds milk in the same time after dropping twin heifers sired by Sir Aaggie Mead. Five of the seven nearest dams of these calves average over 1100 pounds butter for a year.

Forty cows in the Tulare County testing association averaged over 50 pounds butter fat for the month of May. Fourteen of these belong to Sargent Bros. who recently purchased the great bull, King Korndyke Pontiac 20th, for \$8,000. The high cow of the association made 2595 pounds milk and 98.3 pounds fat. She is in the herd of F. S. Borrer and Son at Tipton.

The report of the cow testing association in Stanislaus County for May shows that 1224 cows produced an average of 822 pounds milk and 30.7 pounds butter fat for the month. The high cow was a registered Holstein, Pleasant View Johanna Aaggie, owned by E. W. Lodney of Salida. Although 11½ years old she produced 2917 pounds milk and 105.3 pounds fat for the month. The high herd was that of Z. H. Richards of Denair whose Jerseys averaged 912 pounds milk and 55.1 pounds butter fat.

Report of the Southern L. A. County cow testing association for May shows that Earl Graham's cows averaged 79.9 pounds butter fat for the herd of 12 pure bred Holsteins. S. W. Bockerna's herd of grades averaged 51.4 pounds per cow. A number of other members herds averaged over 40 pounds fat per cow.

The members of the Southwestern Ayrshire Breeders Association recently voted to change the name to "The California Ayrshire Club" and make residence in California a requirement for membership. The old officers will govern the new club until the next general meeting which will be held at one of the fall shows.

Vic Bello, the veteran Ayrshire showman who gained his early experience at Willowmoor Farm and was later with Bailey McFarland's Steybrae herd, is now with R. H. Trumbull at Novato.

The Le Baron Estate Co. at Valley Ford is very much pleased with the new Ayrshire bull Royal Champion just received from Middlesex Farms in the East. He is a flashy, outstanding animal and will make a record on the fair circuit wherever he competes. With this bull as a starter Herdsman Jack A. Glass will have no difficulty in making up a prize winning herd as the Le Baron farm owns many cows of merit.

The senior member of the firm of Agee Brothers, the well known Holstein men of Rivera, is the lucky owner of a farm at Santa Fe Springs on which the General Petroleum Company has brought in an oil well which is flowing 4,000 barrels a day.

TUBERCULOSIS FREE ACCREDITING

That progressive California cattle breeders recognize the opportunities and benefits to be derived from the federal and state tuberculosis free accredited herd movement is evidenced by the rapidity with which such owners are forwarding applications to join this movement. In fact, application to have herds placed on the accredited herd list are being received so rapidly that it is difficult for the federal and state departments to keep pace with the demand, due to lack of available help to make the required tuberculin tests. The work, however, is being inaugurated as rapidly as possible.

It is interesting to know that less than 90 days have elapsed since Dr. John R. Mohler, chief of the United States bureau of animal industry, returned the signed agreement from Washington, D. C., wherein the state and federal governments formally accepted the conditions agreed upon.

Accredited herd work will be conducted jointly by the state and the officials of the United States bureau of animal industry. Dr. W. M. MacKellar, inspector in charge of the bureau of animal industry of the federal



Three of a Kind

department of agriculture, and the division of animal industry, California department of agriculture, will have charge of the work.

Twenty-six applications for accreditation of herds are already on file. Approximately 3700 purebred or high grade cattle are included and the names of many of California's most prominent breeders appear on the application. Of these herds already enrolled the majority are of the dairy type although several prominent Hereford and Shorthorn herds are included.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit \$1.00. In writing questions give full symptoms or particulars of injury of animal.

Cow in Heat

I have a six year old cow that comes in heat every week or two and is in heat half the time. I have bred her four times but she fails to get with calf. Please tell me through the Cultivator what to do for her.—Subscriber, Riverside.

The symptoms indicate that something is wrong with some part of the genital organs. Usually it turns out to be something in connection with one of the ovaries. Probably there is a tumor or cyst on one of the ovaries or somewhere along the line of the genital organs. To operate and remove the cause might remedy the whole trouble but the result might be bad and you might lose the cow. It is not worth the effort. Fatten her for the butcher and get another cow.

Scab on Udder

Our cow has been fresh a little over six weeks and when we began milking her we noticed a small scabby place high up on the udder. We began dressing it with carbolated vaseline and later washed it with strong dip, dried it and greased it, but it seems to be spreading. It is not a raw sore and does not seem to be painful but a sort of scab which spreads. It does not affect the flow of milk as that is increasing and the cow is sleek and fat. Please tell us the cause and cure?—Subscriber, Ceres.

It is due to a mite in the skin. Get your druggist to prepare this ointment: One ounce tincture of iodine, 20 grains iodine crystals and one ounce lard oil. Mix. Scrape scales off and apply ointment with a small swab once a day. It is not serious but will not heal without some attention.

CHANGES IN 1921 YEAR BOOK

Are we growing too much corn? What is the outlook for price of wheat?

What is relation of cotton to other Southern crops?

What changes should be made in beef production to meet demands?

Farmers will be helped to answer these and other questions for themselves by a series of economic discussions in the 1921 Yearbook of the department of agriculture which will be sent to the printer shortly. The

costs.

The report of the secretary will show the progress of agriculture during 1921 with particular emphasis on the economic phases. It will contain a brief statement of the work of the department and a discussion of the agricultural crisis through which we passed last year.

The free distribution of the Yearbook is made chiefly by members of congress. The department of agriculture has a limited number for members of its staff and principal cooperators.

Three hundred million acres of strictly forest land, unsuitable for agricultural purposes, in the United States are productive of brush alone today because fires have killed all young trees and tree seed left after the former forests were logged.

Wipe Out Every Rat and Mouse

Amazing New Discovery Quickly Kills Them All. Not a Poison

Rats, Mice, Gophers—in fact, all Rodents can now be wiped out easily and quickly. Imperial Virus will do it. This new discovery is a fluid, true Virus. Entirely harmless to humans, poultry, stock, pets, etc.

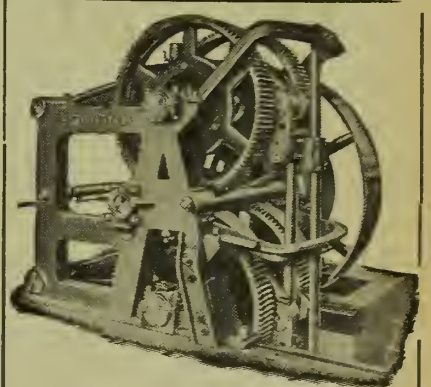


Infects Rodents only. Greedily eaten on bait. Sets up burning fever. The pests die outside hunting air and water. Imperial Virus is put up in sealed bottles, thus insuring full strength and potency. Only safe, sanitary method to overcome these pests. Protect your Poultry, especially Baby Chicks and Egg Hatches.

You Can Get Yours Free

Here's how! Send \$1.00 today (currency, M. O. Checks, etc.) and we will send you by return mail, postpaid, two regular, full sized (double strength) \$1.00 bottles of Imperial Virus. Use one to rid your place of these pests, and sell the other to a neighbor, thus getting yours free. Special inducements to represent us.

If more convenient, send no money, just your name and address to Imperial Laboratories, Dept. 470, 2110 Grand Ave., Kansas City, Mo. Pay postman \$1.00 and few cents postage when two bottles arrive. Guaranteed to do the work to your entire satisfaction within 30 days or your \$1.00 will be cheerfully refunded.



THE POMONA Duplex Plunger Deep Well Pumps

are solving the pumping problems for many users during the period of low water levels. They will lift the water to the surface, and, if desired, deliver it to high elevations above ground and at lower power cost than any other system of pumping water.

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book will be different from those of preceding years. The reason for the change in the material is that people in the department feel that the great problems confronting farmers today and for the years to come are economic in character and should be treated as such.

In the past about one-half of the Yearbook has been devoted to magazine articles on numerous agricultural subjects. The other half has included, in general, statistical material presented in rather a formal manner.

In the 1921 book the space heretofore given to magazine articles will contain worked out studies on the economic situation with respect to four of our major crops; corn, beef cattle, wheat, and cotton. The articles deal with these crops from the standpoint of production, marketing, and distribution and show their relative importance, both as separate industries and to agriculture in general. They have been prepared in concise and understandable form and are well illustrated with charts, graphs, and photos. Much of the statistical material will appear in digest form and supplemented by the inclusion of production data and new statistics on marketing and production. Another special feature of the book will be a graphic summary of American agriculture as interpreted from the census figures of 1920. In other respects the 1921 book will contain material of former years.

In making these changes in the presentation of material in the Yearbook department people point out that farmers must give continued attention to production problems but that more thought must be directed towards cheaper production and more improved methods of marketing and distribution so that the prices the farmer receives for his products shall be more fairly related to production

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When queries are wished in Cultivator address query to 317 Central Ave., Los Angeles.

Trespassing Cow

A cow trespasses in my orchard and damages trees. The owner refuses to pay for the damage. What can be done?—Subscriber, Santa Cruz.

If the place is entirely enclosed by a substantial fence or other enclosure action may be brought against the owner of the cow and attachment issued against the cow or other property of the owner, to secure the payment of any judgment which may thereafter be rendered in the case. The complaint must be filed, setting forth the facts in the case thereafter brought on for trial, when the evidence will be produced and judgment rendered. If the property is not fenced then it would probably be impossible to recover any damages, but that would depend entirely upon the particular county in which you are located.

Employee Injured

An employee in a vineyard was injured by lifting a plow. Is the employer under obligation to pay the doctor's bill and wages for the time the employee was injured?—Subscriber, Lodi.

Employees engaged in household, domestic service, farm, dairy, agricultural, viticultural or horticultural labor, or in stock or poultry raising, are excluded from the operation of the workman's compensation act, and there consequently would be no liability

under that act. Under the fact stated there would be no liability for negligence upon the part of the owner and consequently the employee would doubtless be obliged to pay his own doctor bill and stand for his own loss of time.

Misunderstanding as to Wages

When a farmer requests an employment agency to secure help at certain wages and the employment agency secures the help but misinforms the employee as to the amount of wages and when the employee comes to work nothing is said between him and the farmer as to the amount of wages, can the employee collect the amount stated by the employment agency?—Subscriber, Lodi.

The farmer when he appointed the employment agency to secure his help, thereby appointed such employment agency as his agent, and the employment agency as such agent made the contract with the employee. In the absence of any contrary agreement between the employer and the employee, the employer undoubtedly could be held for the amount of wages represented by the employment agency, his agent. His only remedy would be to bring action against the agency for breach of its contract with him and recover the difference between the amount he informed them that he would pay and the amount that he was required to pay, by reason of their contract.

Power Company Damages Trees

County supervisors by ordinance allowed use of certain number of feet on each side of public roads to the adjacent farmers in planting fruit trees. The owners stand in three different positions, those who deeded

land for the road and received payment therefor, those who donated land, those who still own land and are paying taxes on it. The county has improved the road. The road after being improved by the county is taken over by the state highway commission. Has this commission the right to allow the power companies to cut and disfigure these trees to give clearance to their wires?—Subscriber, Lodi.

As to the first two classes there is no difference. Their land has actually passed to the county. The third class owns the land. The real difference is as follows: The first two classes use the land of the county by sufferance, the third is using his own land, and he owns not only the land but all which is growing thereon. To determine whether a contract has been made concerning these trees between the county by the passage of its ordinance and the adjacent farmers by their acceptance of the terms of the ordinance it would be necessary to examine the ordinance itself. This undoubtedly would cover the terms of the contract. As to the third class, however, it would seem that there could be no question but that they would be entitled to receive compensation for any damage which has been caused by reason of the cutting of the trees or taking of any of the property for the use of the power company. That constitutes an act of eminent domain and the constitution provides that no property can be taken or damaged by the state or any of its agencies invested with the power of eminent domain, unless compensation be first paid. If under the ordinance the farmers of the first two classes have any title to the trees they would likewise be en-

titled to compensation; otherwise, not. The highway commission has undoubtedly right and authority over all state highways and can acquire whatsoever property and grant whatsoever rights it may deem best concerning such highways which is consistent with other provisions of law. If the property and these trees have been taken by the power company the owners of the trees whoever they may be, either the farmers or the county, would undoubtedly have the right to require payment of the power company for any damage caused.

Claim of Wife to Property

Prior to marriage the husband owned property. The wife deserts him. Can she get any of this property?—Subscriber, Inglewood.

The wife has no right to this separate property other than as the court may award to her maintenance. The court may require payment of the amount ordered for the support of the wife as well as her costs and attorney's fees out of the separate property of the husband, that is, in case there is no community property.

Homestead

Land is homesteaded, the husband dies and leaves widow and children. Are the children entitled to a share of the income? Can the widow deal with the property as she wishes and would a second husband of the widow have any share in the property?—Subscriber, Fresno.

On the death of the husband the property becomes the sole property of the widow and she is entitled to transfer it in the same manner as any other separate property. The children have no interest in it. Upon her death in case she leaves no will and has subsequently married leaving children, this property would be separate property and one-third would go to the surviving husband and the other two-thirds be divided among the children.

Division of Estate

A man dies and leaves no will. There is a widow but no children, and there are several brothers and sisters. To how much of the estate is the wife entitled?—Subscriber, Covina.

As to all portions of the estate which were community property the wife would be entitled to receive first her one-half of the community property. As to the remaining one-half that is considered separate property she would be entitled to one-half thereof, and the other one-half would go to the brothers and sisters and to the children of any deceased brothers and sisters. If it is all separate property the division would be the same except the wife would not have the one-half of the community property.

Charge For Irrigation Water

A man runs his ditch through my land. I keep the ditch clear but he demands \$20 a year for the irrigation water which I use. Is he entitled to do this?—Subscriber, Weaverville.

If the man is entitled to run the ditch through your land he is of course entitled to all of the water which the ditch carries unless there is some agreement to the contrary. If he chooses to let you have any of the water he can do so at such price as he sees fit, except, of course, that he thereby renders himself liable to the jurisdiction of the public utilities commission of the state to fix a just rate, as he has constituted himself a public utility.

Forced Payment of Note

Can a debtor require the owner of a

The Sign of Water Service

Ask the farmer who has bought a pump and he will tell you that even more important than the pump is the correctness of its installation and the field service rendered during its life.

The Byron Jackson Iron Works, the oldest established and largest pump manufacturer in the West, has attained its dominating position not only through the dependable type or pumps built, but also through this highly important field service.

Through its three factories, devoted exclusively to the production of pumps, its branch offices and service car organization you are assured attention that can only be rendered by such an institution.



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note to accept payment of it before maturity date of the note by refusing to pay interest?—Subscriber, Brawley.

Many notes are so drawn that the owner of the note may at his option declare the whole due and payable, upon the failure of payment of any instalment of interest, but that provision is almost universally at the option of the holder. The debtor is by no means entitled to advance the maturity date as in that way he would be entitled to advance the date upon which the statute of limitations is run and thus avoid payment entirely.

Contract to Sell Water

A neighbor wishes to put turnout in pipe line which crosses his land and buy water from me at the customary price. Would it be well to have a contract, and if so should it be in writing?—Subscriber, Pomona.

By thus making a sale of water the owner subjects himself to the jurisdiction of the water commission and may render himself liable to continue the performance of the contract. However, this is rather a legal liability than a present practical proposition. If a proper contract is drawn—and it should by all means be in writing and carefully prepared—any liability might easily be taken care of. If care is not taken this use of water might constitute an easement on the land and be very troublesome, even to the point of binding the land for all further time, in the hands of future owners.

Validity of Deed

If a deed is acknowledged before a notary and placed in safekeeping, but not recorded, is that deed legal in case of death of the maker?—Subscriber, Olive Hill.

The essential thing as to legality of a deed is not the acknowledgment before the notary and not the recording, but is the delivery of the deed. If the deed is delivered to the grantee during the lifetime of the party or is delivered to an agent of the grantee to deliver to the grantee upon death, and entire dominion of the property passes from grantor during his lifetime, then the deed is valid. But if the grantor places the deed in his own safe deposit box, even though properly acknowledged, in the absence of any delivery the deed is void.

Deed to Subdivision

Several years ago I purchased a lot of which I now hold the title deed. I wish to subdivide this into two lots and wish to know how I can execute a separate deed for each division?—Subscriber, Los Angeles.

There is no new deed necessary. If you wish to sell some portion of the lot you merely make a deed to the described portion. If you wish to deliver a certificate of title to that you may have a continuation certificate for that portion.

Deed by Insane Person

Several years ago a party was declared insane. While he was being held for appearance before the lunacy commission, at the request of a party he signed a blank deed before various witnesses, agreeing that the deed could be later filled out with the description of the property. It was the understanding that the deed would not be put on record as long as he lived and would be returned to him in case he became cured. The deed was filled out, acknowledged before a notary and thereafter recorded and the grantee of the deed has received and used all income from property and held its possession. The insane person has a wife and other relatives. Is this deed void and if so what could be done? Who owns the property?

The deed is undoubtedly invalid: First, by reason of the mental condition of the party; second, by reason of the fact that the deed was filled

out after he signed the blank, third, by reason of the fact that there was never any delivery made. The notary public who acknowledged the deed would certainly be liable on his bond for his act, for all damage caused. The best method to take would be to have a guardian of the estate of the insane party appointed, and this guardian would then be entitled to bring suit to recover the property, together with an accounting for all receipts therefrom. The disposition of the property would then be under the jurisdiction of the probate court, and the monies would either be turned over for the care of the insane person or his wife, or other proper disposition made.

Brakeman Injured

A brakeman employed on a railroad, while climbing off a boxcar, fell and broke his leg. Is he entitled to anything under the compensation act? Would this likewise apply to a rancher employing help?—Subscriber, San Bernardino.

If the brakeman was employed upon interstate traffic the matter would fall under the federal employers liability act. Under such act it is provided that an action shall be brought against the railroad to recover damages, which shall be tried before a jury. The defense of contributory negligence and assumption of risk of employment is excluded under this act. If the injury occurred upon intra state traffic or railroad it would fall under the state workman's compensation act and the party undoubtedly would be awarded compensation for the time during which he was injured, together with necessary medical assistance. The state compensation insurance act expressly excludes farm labor from its operation.

FARMERS PROFIT BY POTATO GRADING LAW

The Wisconsin law regarding the grading of potatoes has fully demonstrated its value. L. D. Foster, assistant director of the department of markets, recently outlined the Wisconsin grading system to New Jersey marketing officials and stated that Wisconsin machine graded potatoes brought from 15 to 20 cents more per 100 weight than the ungraded "spuds" of other states.

The Wisconsin compulsory grading system started in September 1921, since which time 16,000 cars of potatoes were shipped from which it was estimated that the farmers of the state received \$112,000 more than they would have received if they had not been subject to grading enforced by the state of Wisconsin.

The Wisconsin farmers have adopted as a standard the Boggs grader.

UNIVERSAL COTTON STANDARDS URGED

Adoption of a single set of cotton standards for American cotton in international commerce was urged by Nat C. Murray of the United States department of agriculture, at the congress of the International Federation of Master Cotton Spinners and Manufacturers Associations at Stockholm, Sweden, June 14.

The department has fostered this idea for a number of years, and it is thought that a new and powerful influence can be brought to bear by presenting the matter to spinners rather than to cotton merchants.

DODDER IN ALFALFA

Dodder, or love vine, is a serious menace to the growth of alfalfa in South Africa and government officials have given much time to experiments for control of this pest. A leading authority recommends the following:

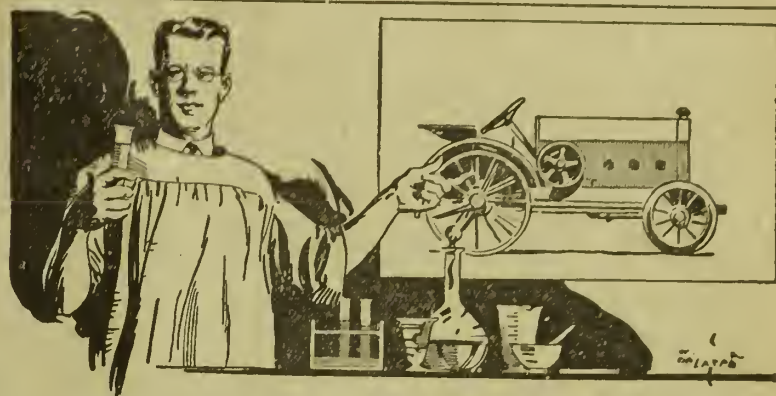
Spraying with a saturated solution of salt.

This will destroy the dodder plant but not the seed if already mature; therefore a second spraying will be necessary either later in the season or next season.

For permanent and absolute destruction the use of a five per cent solution of arsenite of soda has in every case proved absolutely effective but spraying with this solution will also destroy the alfalfa unless the area sprayed is well irrigated within 24 hours after spraying, in which case,

most if not all the alfalfa will be saved.

The cost of spraying with a five per cent solution of arsenite of soda is small, especially if one is able to save the alfalfa in addition to killing this weed.



A pure lubricating oil

"Zerolene oils are pure. The Standard Oil Company has always considered the removal of all detrimental properties and compounds as essential in making Zerolene."

— Board of Lubrication Engineers.

Zerolene in a good truck or tractor keeps your working equipment on the job—hour by hour—day after day—without a stop for the breakdowns of incorrect lubrication.

Because of its purity, Zerolene eliminates engine trouble. It gives perfect lubrication, and when it works into the combustion chamber, as any oil will do, it burns clean. Zerolene deposits a minimum of carbon, of a soft and flaky nature, most of which is blown out harmlessly with the exhaust.

Stability — Oiliness

The ideal motor oil, besides having purity, must be stable to resist engine heat. It must cling evenly to bearing surfaces, and must also flow freely and permit the development of maximum engine power and speed.

Zerolene is refined from crudes carefully selected for stability and oiliness, and our exclusive high vacuum refining process retains these qualities in their highest form.

Consult the Zerolene Correct Lubrication Chart for the correct grade for your tractor, truck or automobile.

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Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

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Profitable Poultry News—Capacity 200,000 Chicks, hence prices surprisingly low for quality. After years trials, County Farm Advisors, Ranchers, City people are buying exclusively our 180-290 egg Leghorn, Reds, Rocks, Minorcas, Anconas, Wyandottes, Ducks, Turkeys, Great winter-laying, vigor, beauty. Chicks every week of year. Buy now quick growing chicks, Turks, ducklings; pullets, breeders reduced. Write Profitable Poultry, 13 North Fair Oaks, Pasadena.

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Every Day—Ducklings, turkeys, hatching eggs—dogs, cats, birds, rabbits, pullets.

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Santa Ana, California

White Leghorn Trapnest Stock, our own famous Yesterday Egg Ranch strain. Cockerels from hens, records 200-301 eggs, mated to males whose mothers laid 250 and up to 316 and 333. Buy your stock now. We have cockerels 8 weeks old and up. Also offer for sale several thousand pullets, yearling hens and good breeding hens and cock birds. Write for circular. Yesterday Egg Ranch, Kent, Washington, "Home of the 300 egg hen."

White Leghorn Baby Chix for May and June delivery at \$12.00 per 100; \$115.00 per 1,000, from flocks inspected and accredited by the Sonoma County Farm Bureau. Safe arrival of full count, live, strong chicks guaranteed. The Pioneer Hatchery, 409 Sixth St., Petaluma, California.

Baby Chicks from my pure-bred, heavy laying strain of S. C. White Leghorns, June and July delivery \$12.00 per 100; \$33.00 per 300; orders taken now for August and September delivery. Write for particulars. J. R. HEINRICH POULTRY YARDS, Arroyo Grande, California.

Finest Hatchery in the World at Pebbleside Poultry Farm. Baby chicks and hatching eggs from our own selected heavy layers. Visit our farm and have a look. Pebbleside Poultry Farm, Sunnyvale, California.

Baby Chicks Every Week—White Leghorns, S. C. R. I. Reds, Barred Rocks. Order now for immediate or fall delivery. Safe arrival guaranteed. Write for circular. Stubbs Poultry Ranch & Hatchery, Box 67-E, Palo Alto, Calif.

Barred Plymouth Rocks, Wonderful layers, champion prize winners. Nothing better in poultry: Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Pearl Guineas—Wonderful layers, \$5.00 per pair. Eggs, \$2.00 per 15. A. E. Nelson, El Monte, California.

Silver Campines—Wanted breeding males. Roy Ward, Lindsay, California.

Pit Games—Old and young trios. R. H. Crane, Santa Rosa.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I am ex an 800 lb. Pathfinder sow) for \$10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA

GEESSE

Owing to More Room Needed for young stock will dispose of some of our yearling geese at \$7.50 each, and Wyandotte hens at \$5 and \$10, and cocks at \$10 and \$25 each. Pearl Guineas \$5 a pair. Paradise Valley Poultry Ranch, National City, California.

POLAND CHINAS

POLAND-CHINAS STRALOCH FARM
Two and one-half miles west of Davis, Calif. on Highway. C. Harold Hopkins, Woodland, California.

BERKSHIRES

For Sale—Registered Berkshire Sow about 450 lbs. Also one fresh Jersey cow giving better than 5 gallons. Prices right. Address owner—Mrs. P. C. Rineking, 121 West Hazel Street, Inglewood.

CATTLE

Holsteins—For Sale—Jane Garden Nero Abbeekirk, a son of Sir Aggie de Kol Acme out of a 34 pound cow. Also two of his sons, and several high class females, registered and grade. Derryfield Farm, Capital National Bank Bldg., Sacramento.

Ridgewood Ranch—Registered Herefords. Choice bred, big rugged registered bulls of serviceable age for sale in carload lots or singly at attractive prices. Correspondence solicited. Visitors welcome. C. S. Howard, prop.; Otis Cordell, herdsman. Willits, Mendocino County, California.

Guernseys—Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor. Shorthorns bred for range purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome; information cheerfully given. T. T. Miller, Hollister, California.

SHORTHORNS STRALOCH FARM
Two and one-half miles west of Davis, Calif., on Highway. C. Harold Hopkins, Woodland, Calif.

Yearly Record Holsteins—Bulls from 500 to 1000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Herefords—"Veramont Stock Farm," H. M. Barngrover, Prop., Stockton, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

For Sale—Herd of 11 good dairy cows by owner. No dealer. H. A. Mattox, 616 South Crawford, Downey.

24 Head of Good Grade Holstein Heifers and cows for sale. Apply to A. J. Sanford, Box 217, Live Oak, California.

Registered Herefords—Anxiety IV strain. Breeding stock for sale. Chas. Rule, Duncans Mills, California.

TREES

Navel, Valencia and Eureka Lemon Trees—buds furnished by Supply Company. Also few Marsh seedless grapefruit trees that were budded from trees of high fruiting quality. Pink tips of lemon were not touched by last winter's freeze. Address, O. C. Wilhite, El Cajon, California. Phone El Cajon 451-2 bells.

For Sale—25,000 Sour Orange Seed Bed Trees. 1,000 1 year old Valencia buds. Not touched by the freeze. In one of our nurseries near Garden Grove. Southland Nurseries, 1941 East Colorado Street, Pasadena, California. Phone Colorado 6352.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale—Grafted Walnut Trees for season of 1923. Placencia, Eureka, Chase and Payne. Early buyers get the best. C. W. Story Nurseries, Rivera, California.

For Sale: Orange Trees—Navels, Valencias, Lemons. Located San Fernando Valley. W. W. Burns, 630 Security Bldg., 63110, Los Angeles.

Nursery Stock for Sale—Navel and Valencia orange trees, also Eureka lemon. Y. Yamaguchi Co., Upland, California. phone 75-W-1.

For Sale—Navel and Valencia Nursery stock—not frosted. W. B. Ames, 9th floor, Merritt Bldg., 8th and Broadway. Phone Pico 1156, Los Angeles.

Beeman Tractor Cheap—Young man learn trade. Cash Nursery, Sebastopol.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half-tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

PRINTED STATIONERY

Printed Stationery—200 Sheets Note Paper 6x7 inches; 100 envelopes 3½x6½ inches, with your name and address neatly printed in blue ink. Sent postpaid for \$1.25. Regal Stationery Co., Box 1342 Station C, Los Angeles.

GUINEA PIGS

Guinea Pigs—Selected Stock, good breeders. Both sexes. Big demand at laboratories and pet stores. No loss from disease. Will not scratch or bite. Pets for children. Alexanders Caviary, 580 Hedding Street, San Jose, California.

TURKEYS

Mammoth Bronze Day Old Turks—We will have some for delivery June 22nd, 75 cents each. Also still have eggs. Keys Ranch, El Monte.

Mammoth Bronze Turkey Eggs 25 cents each, \$20 per hundred. W. L. Duvall, Pomona, Calif.

DUCKS

Mammoth White Pekin Duck Eggs for hatching \$1.00 per dozen; \$8.00 per hundred. A. Surtman, Petaluma, California.

FARM LAND FOR SALE

82 ACRE MISSOURI FARM \$2400
WITH HORSES, 14 COWS AND 11 calves, bull, equipment included if taken now; splendid location for dairying and profitable general farming; close village, creamery, handy R.R. town, city markets; 50 acres rich lime soil tillage, spring-watered pasture; plenty wood, timber; variety fruit; pleasantly situated dwelling, nearly new barn. Busy owner writes "sell for \$2400," part cash. Details page 105 illus. Catalog 1200 Bargains FREE. STROUT FARM AGENCY, 831 HK New York Life Bldg., Kansas City, Mo.

IRRIGATED LAND ON GOOD TERMS
You can't beat the terms we offer to farmers who know how to farm rich, irrigated bottom land. This land will grow heavy crops of alfalfa, fruits and vegetables. It is ideal for intensive farming. Transportation and irrigation, the best. It is in the heart of the Sacramento Valley. A real opportunity for you. Write now.

SUTTER BASIN COMPANY
Calif. Fruit Building
Sacramento, California

For Sale Dairy Ranch near San Jacinto, California. 38 acres all tillable, all in grass and grain. 10 shares of water stock, well, 3,000 gallon tank. Strictly modern home of 8 rooms, furnace, hardwood floors, 20 head of cattle, fine bull (cost \$300 when a calf) milking machine, separator, all farm tools, team horses, chickens. Price \$20,000. Terms. See this—H. S. Parker, 1801 South Brand Blvd., Glendale, California.

For Sale—15 Acre Improved Ranch two and one-half miles south of Coachella on paved highway. Dates, grapes, alfalfa and a variety of other trees and plants growing on place. Price \$7,500. Nels P. Rasmussen, owner. R.F.D. Box 33, Coachella, California.

For Sale: A Whole or Part of well improved 400 acre stock, fruit and grain ranch, near highway, town and railroad. Terms. Address owner, S. J. Gummow, Box 274, Soledad, Monterey County, Cal. Buy a Home—Fifteen years to pay. Low rate of interest. Alfalfa, Raisin, Grape, Prune, Figs. Everything grows here. Ask—Williams Chambers of Commerce, Williams, California.

Ten Acre Income Berry and Vegetable Ranch located in Mendocino County, a nice home. Write Owner, care Cultivator, Los Angeles.

For Sale—Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

MACHINERY

FOR SALE—HOW DOES HE DO IT?
WHAT?

Rebuild, sell Windmills, Tanks, Pumps, Towers, Cylinders at such LOW prices and live on such small margins.

HERE'S HOW
Work like the devil, know where to buy and sell for cash only. GET IT?
MILE SURFACE IRRIGATION PIPE
LISTEN, CUSTOMERS!

We are not entertainers.
Haven't much time to visit, but make up the difference

BY SAVING YOU MONEY
Which seems to be more popular nowadays. Honey Tanks for less. 1 Ton \$14.25, 1½ Ton, \$21.25, 3 Ton \$28.25. WHY PAY MORE? Surface Irrigating Pipe, New 3-in. \$12.90 per 100, 4-in. \$16.75, new 6-in. 27½c. 15 H. P. engine, fine shape, \$250. Deep well double acting Ames pump \$225. \$300 Ranch Tools swap for Ford car. Many other bargains. DEM-MITT CO., Upstairs 120 N. Main, Yds. 816 Yale, L. A.

FOR SALE

1—No. 5 American Centrifugal Pump
1—Check Valve
34 feet 7 inch pipe
1—7 inch flange
1—1x4 Ell
1—7 inch Ell
1—Hand primer Pump
1—Vacuum Gauge
All in good condition. Can be seen at Acme Pump Works, 52nd and Santa Fe Ave., Los Angeles. Make offer. Owner—RFD 6, Box 3, Santa Ana, California.

For Sale—Luitweiler Pump No. 1510, 200 ft. casing 7 inch and double rods 7 inch cylinder and valves, all new. Write for prices and description. Geo. E. Small, Terra Bella, California.

I Want Farms for cash buyers. Will deal with owners only. R. A. McNow, 370 Wilkinson Bldg., Omaha, Nebr.

Want to hear from owner having farm for sale; give particulars and lowest price. JOHN J. BLACK, 116th Street, Chippewa Falls, Wisconsin.

MISCELLANEOUS

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Hemstitching and Plotting Attachment; fits all sewing machines. Price \$2.00. Checks 10c extra. Light's Mail Order House, Box 127, Birmingham, Ala.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Smoked Salmon—5 pound box, \$1.25; salt salmon bellies, 5 pounds \$1.25, delivered by mail. Coffin Fish Co., Seattle, Washington.

ROOFING MATERIAL

Roofing Paper—Firsts, complete with nails and cement. 1-Ply \$1.25; 2-Ply \$1.60; 3-Ply \$2.20. Lead and Oil Paint \$2.20 a gal. Roof Paint Special \$35c a gal. Prompt Deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdway. 5401. Los Angeles, Calif.

SEEDS AND PLANTS

A Few Thousand New Stone Tomato Plants. (No others.) Large sweet peppers soon. Outdoor grown. Home Nursery & Seed House, Maywood, Los Angeles. Route 1, Box 1335, Slauson and Cudahy.

300,000 Stone Tomato Plants—300,000 Sweet Potato Plants; Nancy Hall, Yellow Jerseys, Large White and Red. Ocean View Nursery. Jordan and Casey, Box 40, Manhattan Beach. Phone 4951 Redondo.

D. Lotus Seed—Manchurian stock for Japanese persimmons. Let me include your needs in my 1923 importation from Manchuria. Fred W. Kelsey, Nurseryman & Orchardist, El Monte, California.

For Sale: Guaranteed Banana Squash Seed, Two Dollars Pound. Prompt delivery. Mrs. Wilkerson, 7050 Kester Avenue, Van Nuys, California.

California Wonder Corn—Tested yield over twice that of common corn. 10 pounds \$1.50. James McKee, Riverside, California.

Sweet Potato Plants—Yellow Jersey. V. Imbert, Norwalk, California. Telephone Downey 1186.

WANTED

Wanted: Men With Spare Time to represent established California companies selling standard material to ranchers in ten southern counties. Good pay. Address W. S. H., care California Cultivator, Los Angeles.

Wanted Throughout California, men with autos to represent established farm publication selling and collecting subscriptions. Flat salary. Write or call. J. H. Yetter, 317 Central Ave. Los Angeles.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

SHEEP

HAMPSHIRE DOWNS

STRALOCH FARM
Two and one-half miles west of Davis, Calif. on Highway. C. Harold Hopkins, Woodland, California.

MAY REPORT SOUTHERN CALIFORNIA EGG LAYING CONTEST

Egg production for the whole flock held up well, surpassing April by a small fraction. The birds consumed on an average 3.38 pounds grain, 3.66 pounds mash and 2.39 pounds green feed and gave an egg production of 70.8 per cent for the month. The ration to be used in next year's contest has been decided upon by the directors that entrants for the next contest may accustom their birds to it before bringing them in if they care to do so. The grain mixture will consist of 40 per cent cleaned barley, 20 per cent wheat, 20 per cent cracked corn and 20 per cent milo maize. The mash mixture will be made up of 35 per cent bran, 20 per cent "Red Dog" flour, 20 per cent corn meal, 5 per cent soy bean meal, 5 per cent linseed meal, 10 per cent meat scrap, 5 per cent dehydrated skim milk and in addition 2½ per cent fine charcoal and ½ per cent fine salt.

Highest Pens

M. L. Frick, 21; M. & M. Ranch, Gainsley, 251½; H. M. Stone, 249¼; Geo. B. Wilken, 249¼; E. E. Rogers, 247¼; Blackmar & Mumford, 247¼; Fontana Farms Co., 245¼; Chas. Hudson & Son, 244¼.

Highest Birds

Geo. C. England, 267¼; S. H. Park, 256¼; C. G. Weaver, 253¼; W. E. R. I. R., 29; England, 29; M. L. Stahl, 29; Blackman & Mumford, 29; Flinian & Furstenfeld, 29; Mrs. V. Crow, 29; Geo. B. Wilken, 29.

Highest Birds to Date

E. E. Eisenberg, 180; Geo. C. England, 179; B. S. Smallwood, 178; Rogers, 177; M. A. Schofield, 175; Frick, 172; Ferd Heying, R.I.R., 164; M. A. Schofield, 163; Wilken, 162; R. C. Gibson, 161; Flinian & Furstenfeld, 161.

WEATHER REPORT

Stations	San Francisco, June 17, 1922.		Temp.
	Week	Season Norm.	
Eureka	.03	34.74	62
Red Bluff	0	16.67	24.91
Sacramento	T	15.05	20.09
San Francisco	02	19.91	22.27
San Jose	T	14.77	16.79
Fresno	.12	10.83	9.68
San Luis Obispo		23.29	20.51
Los Angeles		19.66	15.64
San Diego	0	18.65	10.01

CONCRETE ON THE FARM

The Portland Cement Association of Chicago has issued a number of booklets or bulletins touching details in the work with cement on the farm. There are bulletins on "Concrete Basements and Foundations," "In the Dairy Barn," "On the Hog Farm," "Fence Posts," "Silos" and others along various lines. These books will be mailed for the asking by writing the association at 111 West Washington Street, Chicago, Illinois.

Los Angeles Markets

Los Angeles, June 21, 1922.

BUTTER

Butter: Creamery extras, Produce Exchange price, 42 cents.
 Prices extras past week:
 June 15 16 17 19 20
 43 42 42 42 42

CHEESE

Brokers' prices:
 California flats, 17@19.

EGGS

Produce Exchange closing prices: Eggs, cases included, fresh extras, 27; case count, 25; pullets, 24.
 Prices extras past week:
 June 15 16 17 19 20
 28 28 28 28 27

POULTRY

Price to producers: Hens, 17; colored, 30; broilers, 22@26; roasters, 35; old roosters, 12; fryers, 30; ducks, old, 20; ducklings, Pekin, 3½ up, 25; others, 25; geese 20; turkeys, live, young toms, 40; dr., 45; old, live, 35; dr., 40; hens, live, 37; dr., 42; small hen and tom, 15; squabs, 60@70; capons, 35@43.
 Belgian hares, 10@12; old, 8.

LIVESTOCK

Los Angeles, June 20.—Weighed and delivered off cars without food or water.
 Hogs (hard grain fed), 125 to 150 lbs., 10.75; 175 to 225 lbs., 11.00.
 Cattle (on foot gross weight), steers good, 7.00; medium, 6.50; cows, good, 5.50; medium, 5.00; bulls and stags, 9.25; calves, 125 to 150 pounds, 10.25; 150 to 225 pounds, 8.50.
 Sheep: Ewes, 5.00@6.00; lambs, 11.00@12.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, June 20, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Movement slow, market steady. Idahos, Russets, 3.00@3.50; bakers, 4.50 cwt. Stocktons: Ordinary, 2.00@2.50. New Stock: Best, locals, 75@85 per lug; small, 50@65.

Sweet Potatoes: Movement light, market steady. Arkansas: Nancy Halls, per bu., mostly 1.50@1.75.

Onions: Demand moderate, market steady. Quality fair. Coachella and Imperial Valleys, crates, No. 1, Whites 1.50@1.75; yellow, 1.25@1.50. Stocktons: Reds, 1.75@2.00; yellows, 2.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock, June 20, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Northern and local, best, 75@1.00; poorer, low as 25.
 Asparagus: Per lb.: Local, best, 14@15; Northern, 11@12.

Beans: Market dull. San Pedro Wax, 8@9; Ky. Wonder, 8@9½.
 Bunched Vegetables: Per doz. bunches: Turnips, 45@50; beets, 35@40; carrots, 40@45; radishes and parsley, 15; spinach, 20.

Cabbage: Market steady, quality ordinary. Field cr., best mostly 2.25@2.50.
 Cucumbers: Local, 60@65 per cr. 28-36's; lug, 1.35@1.40.

Celery: Movement moderate, market steady. Wide range in quality and prices; quality, generally ordinary. Locals, 6.25@6.50.

Corn: Green, Imp., best, 40@50 doz.
 Eggplant: Imp., 15@16 lb.
 Lettuce: Market steady. Locals: 1.00@1.15 per cr.

Okra: Lb., 10@15.
 Peas: Best Northern, lb., mostly 6@7.
 Peppers: Demand moderate, market firm. Mexicans and Floridas: Chilis, best, 14@15; Mexicans: Bells, 10@15; local, 17@18; Imp., 16@18.

Rhubarb: Local, best, Crimson, 75@1.00; mostly, 90.

Squash: Market steady. Locals: Summer, lugs, 75@90. Italian, lugs, 90@1.00; Tomatoes: Imperial and Coachella Valleys: 4-basket crates, 2.00@2.50, mostly 2.25.

FRESH FRUIT

These are actual prices obtained June 20 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc., as compiled by the U. S. Bureau of Markets. Terms, cash on the walk.

Apricots: Imperial Valley, Arizona, and Northern, 5@7; Royal, 8@10.
 Blackberries: Cr. 2.75@3.25.

Cantaloupes: Imperial Valley: Standards, 2.90@3.00; ponys, 2.50@2.60; flats, 1.25; Standards, 2.25@2.50; ponys 2.00; flats 90@1.00.

Cherries: Per lb., black Tartarians, 10@14; Royal Annes, 13@15; Bings, 15@20, few 22; Black Republicans, 12@14.

Figs: Arizona black, lb., 25@30.
 Gooseberries: 15@17 lb.
 Loganberries: 2.25@2.50 per cr.
 Peaches: Ordinary, 7@10; fy 12@14 per lb.

Plums: Beautys, best, 6@9 per lb.
 Raspberries: No. 1, cr., 2.50@3.25.
 Strawberries: No. 1, 4.50@5.00; No. 2, 4.00@4.25.

Watermelons: Imperials, lb., 3@4.

CITRUS FRUITS

These are actual prices obtained between 7 and 8 o'clock June 20 by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms, cash on the walk. There may be slight fluctuations during the day's trading. Higher prices are frequently obtained where credit is given or goods are delivered.

Grapefruit: Market steady. Californias: Northern, packed box, 3.50@4.00; market pack, 3.00@3.50; small, 2.25@2.50.

Lemons: Demand and movement light, market firm. Locals: Loose boxes, best, 2.50@2.75; poorer, 2.25; special brands, fancy, 6.75@7.50; choice, 5.50@

5.75

Oranges: Demand moderate, market steady. Navels, culls, 1.50 per field box; Valencia, special brands, 7.75@8.75, according to size.

HONEY

Beekkeepers report that the orange flow is over, but that bees are still gathering sage honey. The yield of orange honey is reported as fair to good, that of sage and buckwheat as good. Both orange and sage new crop are said to be of fine quality. Few sales are reported in carlots F.O.B. Usual terms from California points of extraction: Water white orange blossom and sage at 9½@10; fancy high as 10½ per lb. Light amber alfalfa, no sales reported, but shippers quoting 6@6½ per lb.

HAY

Following are prices in the general market to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats 20.00@26.00
 Barley 18.00@22.00
 Prices quoted f. o. b. L. A. to producers are:

Rabbit Alfalfa 18.00@22.00
 No. 1 Alfalfa 15.00@17.00
 Standard Alfalfa 12.00@14.00

Some growers report prices on ranch:
 Rabbit Alfalfa 20.00
 No. 1 Dairy 15.00
 No. 1 Alfalfa 12.00

GRAIN

Prices L. A. Grain Exchange, June 20.
 Barley: 100 ton lots June Del. 1.17½.

San Francisco Markets

San Francisco, June 20, 1922.

BUTTER

Sales on Dairy Exchange:
 Following quotations carry a jobber-to-jobber discount of 10 per cent, plus a seller's handling charge of 2 per cent of net invoice:

Extras 40½
 Prices Extras last week:
 June 15 16 17 19 20
 41½ 42 42 40½ 39½

CHEESE

Dairy Exchange quotations:
 California Young America, fancy 25½
 California Flats, fancy 18-20
 Oregon Trips 21½
 Oregon Young America 25

EGGS

Dairy Exchange Quotations:
 California Extras 29½
 Extra Pullets 25½
 Undersized Pullets 20

Prices Extras last week:
 June 15 16 17 19 20
 29½ 27 27 27 26½

POULTRY

Prices furnished by state department of agriculture division of markets:

Broilers: 1 to 1½ lbs. 24@27 per lb.; 1½ to 2 lbs., 26@28. Colored, 34@36; 2 to 2½ lbs., 32@34. Colored, lb., 42@46.

Fryers: Lb. 42@46.
 Young Roosters: 3 lbs. and up, 50@52.
 Stags showing spurs, 25@30.
 Colored Old Roosters: Slow, 17@18.

Leghorn Hens: 2½ to 3 lbs., 16@18; 3 lbs. and over, 20@23.

Large Colored Hens: 28@31. Off stock, 26@27.
 Ducks: Young, 20@22. Off stock, 10@15.

Geese: Young, 24@26.
 Live Turkeys: 32@35.
 Dressed Turkeys: Young, 36@40. Off stock 26@32.

Belgian Hare: Live, 13@15. Dressed 18@23.

Squabs: Live, fancy, 50@55 lb.; common, 3.00@3.50 doz.
 Old Pigeons: 2.50@3.50 per doz.
 Guineas: Young, 9.00@10.00 doz.
 Jackrabbits: 2.00@2.50 doz.

LIVESTOCK

Western Meat Company quotes:
 Weighed off cars at our yards in South San Francisco:

Cattle: Steers, first quality, 6½@7 per lb.; second quality, 5½@6½; cows and heifers, No. 1, 4½@5; second quality, 4@4½; bulls and stags, 3@4 per lb.

Calves: Light weight, 8@9 per lb.; heavy, 5@7 per lb.

Sheep: Wethers, 6½@7 per lb.; ewes and stags, 3@4 per lb.

Lambs: 10½@11½ per lb.
 Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 12 per lb.; 200 to 250 lbs., 11 per lb.; 250 to 300 lbs., 10 per lb.; light sows, 10 per lb.; heavy, 9 per lb.

California Farm Bureau Marketing Association reports:
 Corcoran, June 12

101 177 \$11.20
 27 177 11.00
 39 219 10.50
 11 464 8.00
 1 140 8.00

179 hogs
 2 cars, 13 consignors, \$3,829.22.

Tulare, June 13

98 167 11.35
 100 162 11.35
 58 190 11.15
 63 164 11.15
 30 118 11.05
 46 220 10.15
 2 275 9.65
 11 338 7.05
 2 375 2.00

410 hogs
 5 cars, 40 consignors, \$7,828.69.

Visalia, June 14

12 feeders 55 12.05
 11 feeders 124 11.50
 77 167 11.20
 8 211 10.20
 3 243 8.20
 1 stag 400 3.05

112 hogs
 1 car, 13 consignors, \$1,911.75.

Hanford, June 15

99 160 11.15
 57 196 10.35

85 189 10.80
 101 158 10.80
 56 feeders 116 10.55
 22 214 10.35
 3 293 9.35
 15 350 7.10

438 hogs

5 cars, 40 consignors, \$8,048.91.
 Totals for the week: 1,139 hogs, 13 cars, 196 consignors, \$20,899.57.

POTATOES AND ONIONS

Sales to Retailers: Averages of actual prices obtained between 7:30 and 9 o'clock by San Francisco wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Potatoes: River, fancy, 1.60@2.00; Idaho netted gems, 3.25@2.50; off grades, lower; Salinas, 2.25@2.75 per cwt; new, 2½@3½ lb.

Onions: New Crop White, 1.25@1.35 crate; Yellow, 1.00@1.15 cwt.; Gr. Onions, 1.50@1.75 box; Stockton Red 1.00@1.25 cwt.

Garlic: 4@6 per lb. for medium grades; poorer quality, less.

VEGETABLES

Prices furnished by state department of agriculture, division of markets:

Sales to Retailers: Below are listed averages of actual prices obtained between 7:30 and 9 o'clock, June 20, by wholesalers from their sales to retailers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. Slight fluctuations may be noted during the day's trading, while higher prices are sometimes obtained where credit is given or goods are delivered.

Artichokes: 4.00@6.00 per cr.; Extra Fy., 8.00.

Asparagus: 5@6 per lb.; white, 5@8 per lb.; graded, 8@10 per lb.

Beans: Ky. Wonder, 10@15 lb; wax, 14; Italian, 20.

Beets: Sack, 1.00@2.00.
 Bunched Vegetables: Carrots, 60@1.00 per dozen; turnips, 55@60 per dozen; beets, 50@60 dozen; parsley, 30; radishes, 30 per dozen bunches.

Cabbage: River, 2½ per lb.
 Cauliflower: Half-moon Bay, doz., 1.00.
 Celery: So. Cal. 8.00.

Corn: New, doz., 40@90.
 Cucumbers: Arizona and local, small, 25@50 per dozen or 1.25@1.50 per small crate; English, 1.75@2.00; Texas hamper, 2.50@3.00.

Eggplant: Fla. and Mex., 10@18 per lb.
 Lettuce: Local, 75 per cr. top; iced, 1.00@1.25.

Parsnips: 3.00@3.25 per sack.
 Peas: Bay, 1½@3 lb.; Half-moon, 3½ @.

Peppers: Florida and Mexico, 20@30 lb.; Texas, 20.

Rhubarb: Box, 1.25@1.50.
 Spinach: Lb., 3@4.

Squash: Summer, 1.00@1.50 cr.; Italian, 1.25.

Tomatoes: Mexican, repacked, 2.50@3.00 per L. A. lug; off grades, 2.00@2.50; Imperial, 2.75@3.00 lug; Mississippi, 2.25@2.75.

Turnips: 1.25@1.50 per sack.

FRESH FRUIT

Apricots: Lb., 6@10.
 Avocados: 10.00@15.00 per doz.

Apples: New, 1.00@2.00 box.
 Bananas: Hawaiian and eastern, 7½ @ 8 per lb.

Blackberries: Dr., 35@45.
 Cantaloupes: Imperial Valley, pony, 2.75@3.00; do, standard, 3.00@3.50.

Cherries: Black, 1.25@1.50 per box; bulk, black, 3@10 per lb; white, 5@6; Royal Anne, 10@12; Bings, 15@18.

Currents: Dr., 75@1.00.
 Figs: 1.00@1.50 box.

Gooseberries: 10@15 lb.
 Loganberries: Dr., 35@50.

Pineapples: 5.00@6.00 per doz.
 Peaches: Basket, 1.00@1.50; cr., 1.00 @1.25. Cal. Pear Growers prices to canners ton: No. 1 Bartlett \$75; No. 2, \$40.

Plums: 1.50@2.00 per cr.
 Raspberries: 85@1.00.

Strawberries: Watsonville and Salinas, Watermelons: Lb., 6@6½.
 1.30@1.50 cr.; locals, 60@75 dr.

DRIED FRUITS

Packers' Quotations:
 Apricots—1922—In 25s:

Standard 20
 Choice 24½
 Extra choice 26
 Fancy 27½

Prunes—1922:

Size Basis Price Per lb. in 25-lb. Boxes

30-40s 11½@11¾ 15¼@15½
 40-50s 9¼@9½ 12½@12¾
 50-60s 8¼@8½ 11@11¼
 60-70s 7¼@8 10@10¼
 70-80s 7¼@7½ 9@9¼
 80-90s 6¾@7 8@8¼
 90-100s 6¾@7 7½@7¾

Raisins: Sun-Maid Raisin Growers' prices, for shipment to July 1:

Seeded—Sun-Maid, 15-oz., 15½. Bakers (in 25s and 30s) 13½. 1-crown (in 25s and 30s), 13½.

Loose Muscatels—4-crown (in 25s), 15½, 3-crown (in 25s), 14½. 2-crown (in 25s), 13½. 1-crown, re-cleaned (in 25s), 13½. 1-crown, not Sun-Maid (in 25s), 13½.

Seedless—Thompsons, bulk (in 25s), 15½. Thompsons, bakers (in 25s), 15½. Sultanas, bulk (in 25s), 14½.

Bleached Thompsons—Choice, sulfur (in 25s), 18%. Fancy, sulfur (in 25s), 19%. Extra fancy, sulfur (in 25s), 22%. Soda dipped, 15-oz., 17½. Soda dipped, 8-oz., 9½.

Thompsons, 5c pkgs., six 24s, per case, f. o. b. jobbing points, 3.65. Valencias, bulk (in 25s), 12%. Feherzagos, loose (in 25s), 12%. Malagas, loose (in 25s), 12%.

Zante Currants (in 25s), 15%. Black grapes, 1920 crop (in 25s), 16%.

Layers—All grades, withdrawn.

BEANS

California Bean Growers.

Large Whites 8.15
 Small Whites 7.70
 Plunks 5.85
 Mexican Reds 4.55
 Red Kidney 8.25
 Cranberries 8.00
 Bayos 5.80
 Blackeyes 4.65
 Henderson Bush Limas 9.25

HAY AND FEEDSTUFF

A. W. Scott Co. reports under date June 17.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, No. 1 16.00@18.00
 Wheat Hay, Fair Grade 14.00@16.00
 Tame Oat Hay 16.00@18.00
 Wild Oat Hay 11.00@13.00

Alfalfa Hay, 1st and 2nd Cutting 13.00@15.00
 Stock Hay 10.00@12.00
 Barley, Ground 31.00@32.00
 Rolled 28.00@30.00
 Oats, Rolled Feed 38.00@40.00
 Bran 36.00@39.00
 Millrun 35.00@38.00
 Middlings 46.00@50.00
 Linseed Meal 49.00@52.00
 Coconut Meal 33.00@35.00
 Alfalfa Meal 22.00@24.00
 Cottonseed Meal 50.00@55.00
 Sugar Beet Pulp 32.00@34.00
 Molasses, tanks 17.00 Barr 25.00
 Milo Meal 38.00@40.00
 Corn Meal or Cr. Corn 35.00@37.00
 Scratch Feed 43.00@45.00

GRAIN

Prices f. o. b. S. F. warehouse and storage charges paid.

Barley: Feed, 1.15@1.17½; shipping, 1.25@1.30.

Oats: 1.00@1.50.
 Wheat: Mill, 1.85@1.90; Feed, 1.80@1.90.

Corn: California yellow, 1.55@1.60; Egyptian white, 2.00@2.25; milo maize, 1.87@1.90; kafir, 1.72½@1.75; California red milo, 1.90@1.95.

Citrus Markets

Los Angeles, June 21, 1922.

Lighter shipments of Valencias the past week have strengthened prices. Practically 5,000 cars are at that remain for shipment.

Lemons are meeting good demand with hot weather increasing prices. There are on hand and available within 30 days about 200,000 boxes of foreigners.

Shipments of citrus fruits to date since November 1, 1921. Southern California: Oranges, 17,896 cars; lemons, 6,888; total, 24,784. To same date last season: Oranges, 27,843; lemons, 6,896; total, 34,739.

From Central California to date this season: Oranges, 5,098; lemons, 106; total, 5,204. To same date last season: Oranges, 6,603; lemons, 185; total, 6,788.



A 2-month-old cockerel a few hours after being attacked by head and neck lice. Both baby chicks and grown fowls are killed in great numbers by this type of louse.

MINERALIZED WATER ROUTS CHICKEN LICE

A new scientific discovery makes it easy to rid poultry of lice and mites. Simply dissolve in the fowls' drinking water the harmless mineral tablets known as Paratabs. Soon after the fowls drink the mineralized water, all lice and mites leave them. Chicks that drink the water never will be troubled by vermin.



The body louse of chickens.

Paratabs do away with the bother of greasing, dusting, spraying and other unsuccessful methods of fighting lice. They are warranted to impart no odor to flesh or eggs. They cost only a trifle and are sold under a money-back guarantee. Thousands of poultry raisers are using them with complete success.



The head and neck louse of chickens.

What Users Say

Paratabs are the best thing for chickens I ever used. They clean the hens and make them lay, and I don't find any lice, mites or fleas on any of my young chicks. Paratabs are a good tonic for all chickens.—Mrs. W. A. G., Jacksonville, Fla.

Paratabs are fine. My chickens have no more lice. Before using Paratabs I had 20 loafers on the roosts, but now they are out.—A. F., Keeseville, N. Y.

I never saw anything like the work of Paratabs. It reminds me of the fairy story of the magic wand. Early this year I was getting 14 to 16 eggs a day. Then, without visible cause, the number dropped to 5 to 7 a day. I began using Paratabs as directed and in 2 or 3 days there was a difference of 1 or 2 eggs a day. On the fifth day I got 17 eggs and on the seventh I got 23. I heartily recommend Paratabs.—Mrs. E. H., Centralia, Ill.

I received the Paratabs all right and my hens seem to be laying better already.—Mrs. W. S. C., Monticello, Ark.

I am giving Paratabs water to my chickens and am having better luck this year than ever before. I haven't had a little chick to be a bit sick. It is the greatest medicine we ever used for young chickens.—Mrs. M. N., Pulaski, Ky.

Send No Money

LET US TAKE ALL THE RISK

Anyone can try Paratabs without risking a penny. We are so confident this new scientific discovery will free your flock of lice and mites that, to introduce Paratabs, we will send two full \$1 packages—enough for 200 gallons of water—for only \$1. BUT SEND NO MONEY. On delivery, pay the postman \$1 and postage, and if your flock is not free from lice and mites in 10 days, your money will be refunded without question. Don't let vermin kill your fowls and steal your profits. Write for the Paratabs today.

Paratab Laboratories

Dept. 959

1100 Coca-Cola Bldg., Kansas City, Mo.

More Eggs—More Money

By J. H. Barber, General Manager Poultry Producers of Central California

DURING the past year there has developed among commercial poultrymen a considerable amount of interest in better producing stock, that is, hens which will produce more eggs than the ordinary average, which on the Pacific Coast here is about ten dozen eggs per hen per year. Every poultryman well knows that it takes a certain number of eggs to pay for the feed and overhead expense per hen, the exact number depending mainly on the price of feed since the overhead remains substantially the same. It is the eggs produced above this number that make the profit, if any, in the business.

With the ordinary average yearly production of ten dozen per hen produced in the ordinary way, that is, the majority of them in the spring months when the price is low, the careful poultryman can make a living out of his flock and in most years a small interest on his investment. If through disease in the flock he loses many hens or their production of eggs is reduced, he will be apt to run behind. If, on the other hand, he could increase the production per hen above the ten dozen average, he would be able to make an additional and sure profit, because it costs approximately the same to feed a hen whether she produces ten dozen eggs or only five dozen eggs, or on the other hand, 15 dozen.

No doubt a considerable part of the interest in better producing stock has been stimulated by the egg laying contests which have been held in various districts the last two or three years. At these contests the egg production records of individual hens have run all the way from 150 to 300 eggs per hen. Naturally, the thoughtful poultryman, observing these records so much in excess of the production of his own flock, is apt to wonder why he cannot have some of this high production stock himself. A few years ago the commercial poultryman would have laughed at anyone who asked him to pay more than \$1 for a cockerel for breeding purposes, and \$2 was an extreme outside figure. Last fall we had the spectacle of an auction of cockerels at Petaluma where the highest priced bird brought over \$160, and the average price paid was, if I remember correctly, somewhere around \$50.

The accredited hatchery plan put into effect last year was a long step in the direction of better producing stock. There is no doubt that the comparatively low production of many of our commercial poultry farms has been due to the purchase of their chicks from hatcheries which have bought their eggs from all kinds of sources without any effort at selection. Under the new plan the accredited hatcheries are securing eggs from only approved flocks which, as time goes on, will have more and more production pedigree behind them if the plan is carried out as contemplated. In buying chicks from these accredited hatcheries the poultryman will be assured of getting stock that with ordinary good care will produce better than the average. He may even go farther and obtain through the hatchery stock from the flock of a particular breeder whose stock he has satisfied himself is above the ordinary and is being handled in a scientific way. If he cares to go farther he can himself have his hens culled so as to select the best producers and then he can mate them to cockerels with production pedigree behind them. These he can purchase from some breeder with whose methods he is familiar and in whom he has confidence. He can then produce his own hatching eggs, which he can have custom hatched at one of the hatcheries if he does not care to undertake the hatching himself. In a very few years he can by these means very materially increase the production per hen of his flock, and thus add considerably to the profits of his business.

If, in addition to paying more attention to the breeding of his stock, he will install electric lights in his laying houses so as to increase his egg production in the fall and winter, and

will acquaint himself with the proper management of hens on which electric lights are used, he can obtain additional income by securing more eggs in the fall and winter when they are high priced and fewer in the spring when they are low priced.

The future of the poultry industry as a commercial proposition seems to us now to rest very largely on the two points touched on above; that is, higher producing stock and higher relative egg production in the fall and winter months.

If it be asked why we are mentioning these things at this time, it is for two reasons: First, because right now it is possible to obtain pedigreed cockerels two or three months old at very reasonable prices, and second, because during the summer is the time to have the electric light installation put in so as to be ready to turn on the lights in the fall.

Poultry Queries

Conducted by Jean A. Koethen

Culling Pullets

Is it a general practice to cull February pullets in June, and would you advise it?—Subscriber, Ontario.

Pullets that lag behind the rest in development should be removed from the flock as soon as it is evident they are likely to remain undersized. Weakly pullets should also be removed as soon as their condition is apparent. For the rest, I believe it is customary to cull when the pullets are put in the laying house, which time for February pullets would be in July or August.

How Much Grain?

Authorities I have read agree that a quart of grain to 15 laying hens is the proper amount, but I find nothing regarding the proper grain ration for pullets while on the growing mash. Equal amounts of grain and mash leave them unsatisfied after the night feeding of grain.—Subscriber, Ontario.

Not all authorities agree on a quart of grain for 15 laying hens. Professor Dougherty would make it considerably less during the heavy laying season in order that they may eat more mash. With growing pullets, however, the case is quite different. They have to grow and to lay on a little surplus fat, and so they must have all the grain they will eat. Give them all you think they will eat, then, if it is eaten up clean, a little more to make sure there is something for them to begin on in the morning.

Infertile Eggs

Will eggs laid by hens that are not with a male keep better than others?—Subscriber.

Indeed they will. All market eggs should be fertile, and for eggs that are put down in waterglass this rule is imperative. There is nothing to be gained by keeping a rooster with hens if fertility is not required, and everything to be lost. "Rots" are eggs in which a germ has commenced to develop, and then, lacking proper heat, has died, and a rotten egg is a dead loss.

Double Yolks

What is the cause of frequent double yolks in pullet eggs?—Subscriber, Ontario.

I have never heard or read any really satisfactory explanation of double yolks. The Maine Station's "Poultry Diseases and their Treat-

Rid Hens and Chicks of Lice and Mites

A Few Drops of Wonderful New Remedy In Drinking Water Does It—No Dusting, Spraying or Greasing

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City chemist and called Imperial Lice and Mite Remedy.



All that is necessary is to occasionally put a few drops of this amazing remedy in the fowl's drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of Imperial Lice and Mite Remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 638, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized \$1.00 bottle and will also send you free a big full sized (double strength) \$1.00 package of Imperial White Diarrhoea Remedy, the standard, time-tested remedy. Pay the postman only \$1 and a few cents postage when both packages are delivered. Any time within 30 days, if you are not satisfied with results, just say so and your money will be cheerfully refunded.

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We incubate 250,000 eggs every three weeks; the largest and finest equipped electric hatchery in the Southwest. All popular breeds: Rhode Island Reds, Barred Rocks, Black Minorcas, Anconas, etc. Also our famous Oregon-Corvallis White Leghorns. Order now for immediate or future delivery of Baby Chicks, Pekin, Muscovy or Indian Runner Ducklings, Mammoth Bronze baby turkeys. All kinds of pullets supplied—anytime. Incubators and brooders. Careful attention to every order, large or small. Send today for prices.

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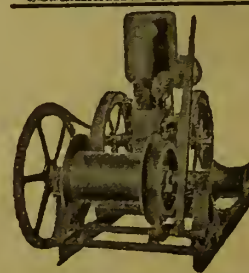
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ment" says: "They result from a disturbance of the time relations of ovulation of such nature that two yolks get into the oviduct at nearly the same time and become surrounded by common layers of albumen." I think you will generally find that double yolks are laid only by certain hens and not by all.

Broilers and Fryers

Which is the best breed to raise for broilers and fryers, R. I. Reds, Barred Rocks, Langshans or Brahmas? What will they weigh at two months?—Subscriber, Turlock.

Barred Rocks and R. I. Reds are equally satisfactory. One man who is making quite a success with market poultry keeps both breeds and crosses them, but the cross is little better, if any, than either of the pure breeds. The important thing is to produce a strain that will grow very rapidly and be above the average weight when grown. Langshans and Brahmas are fine roasters but do not grow as rapidly as Rocks and Reds. Either of these breed ought to weigh two pounds at ten weeks if they are from a heavy strain and well cared for.

Ration For Turkeys

What is the proper ration for turkeys three months old? I had 35 and had wonderful success till recently. Have lost five now and all in the same way. They walk slowly, hump up and in a day or so are gone.—Subscriber, Alhambra.

That is the tragedy of turkey raising. You think your turkeys are safe, and all at once they begin to drop off. The answer is always the same—overfeeding, perhaps recently, perhaps several weeks back. Turkeys three months old are usually past the critical time, but perhaps you have been feeding corn or some other feed which they ought not to have. Bran and grain which may be either wheat or rolled barley, are the usual ration for turkeys this age, but it is well to give chopped onion mixed with rolled oats occasionally if the birds are not on alfalfa. Keep sour milk before them as much as possible and keep them hungry.

Inflamed Combs

Some of my hens have inflamed and swollen combs. Can you suggest treatment?—Subscriber, Banning.

I wonder if chicken-pox is in your flock. If it is those swollen combs have by this time developed warty nodules, red or grayish red in color or perhaps a yellowish crust. You may be able to control the disease by isolating the sick hens and giving all sulphur in their mash, about one pound of sulphur to 50 pounds mash. If this does not control it, write Poultry Division, University of California, Berkeley in regard to vaccination. If the disease is not chicken-pox, anointing the sore combs with carbolated vaseline will probably heal them.

Extensive or Intensive?

I have a two acre place and chicken house 120 by 22, with four runs 30 by 60, and about 900 hens. I am thinking of fencing the whole place and letting them run instead of raising green feed. I have plenty of water for irrigation and could irrigate occasionally. Some say they will do better on less feed than if they were confined.—Subscriber, Redlands.

If you had an alfalfa field so large that the hens could never eat it up this plan might do very well, but it will not work on two acres. Your hens will eat up every green thing and there will be nothing to irrigate. No, better confine them and have a nice patch of alfalfa which you can run through the clover cutter every day and give them all the fresh green they want. In addition to this, since you have so much yard room, you can confine the hens in two runs while you raise rape or barley in the other two, and then let them in to eat it off. It will not last long, but will be a fair substitute for range.

For Sticktights

Please publish a spray for sand fleas or sticktights on chickens.—Subscriber, Modesto.

The best remedy for sticktights is carbolated vaseline. Anoint the head and any other affected parts once or twice a day till the pests die and drop off. The vaseline smothers them, and they cannot live.

Turkeys on Shares

A friend and I are raising turkeys on shares. We have each six hens, in all 12 hens and a gobbler. I take all the care of them, furnish range and everything except feed. What would you consider a fair division of the proceeds?—A Reader, Torrance.

It is difficult to see how you can arrive at a fair division without reducing everything to dollars and cents.

What are the hens worth? To whom does the gobbler belong? Who pays for the feed? What would the range be worth if it were put to other uses? How much time do you put in and what is it worth? If I were you, I would rather buy his hens and go it alone than try to figure out an equitable division.

Guinea Fowl

Can you not give us an article on the Guinea fowl, telling us how to distinguish between male and female; time for eggs to hatch, markets, etc.?—Steady Subscriber, Orange.

An article will appear in due time. Perhaps your immediate need will be satisfied if I say time of incubation is 30 days and the young are fed in the same way as young turkeys, though they are more easily raised. Hatching should not be too early because the little ones are very sensitive to cold.

The Guinea is a great forager and is more profitable where it can have wild range. Eggs are more safely hatched under chicken hens, but Guineas are excellent mothers when they are allowed to hatch and rear their young. The cock is distinguished from the hen by his more compact shape, by the deeper and richer color on his neck, his wider wattles and a slight difference in the call, that of the hen being only "Come back, come back." Guineas are in season in January, February and March and their eggs find ready sale in March and April. I remember reading several years ago that an effort was being made to put Guineas on the market in California as "wild" game, but have heard no more of it. There seems to be little market for the birds except as fancy stock. They mate in pairs.

Canker

Some of my hens have a yellowish white substance on side of mouth and on tongue. What is the cause and what can I do for it?—Subscriber, Mountain View.

This growth, when not connected with roup or chicken pox, is called canker and is due either to an injury to the membrane or to indigestion. The sores may be removed by swabbing with undiluted creolin or with hydrogen peroxide diluted half and half with water.

Canker in Squabs

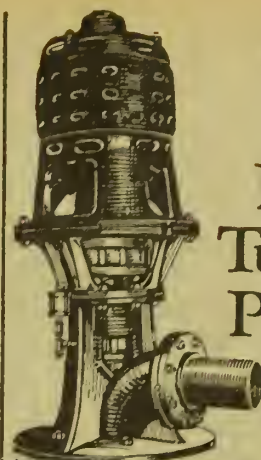
Some of my squabs are dying from a canker like growth in their throats. I feed a regular commercial chicken scratch feed, which for a time contained cracked corn. I wash the water pans every day and spray after the squabs are out.—Subscriber, Redlands.

Alice Macleod in "Pigeon Raising," says: "Some pigeon raisers think canker comes from close confinement and lack of exercise, but I believe it comes from inbreeding, and, likely from improper food and water." She recommends for pigeon feeding Chevalier barley, Egyptian corn, Canadian peas and red wheat, with some whole Indian corn in winter, and hemp and millet seeds occasionally for young stock intended for breeders. Most feed stores keep a mixture of grains specially for pigeons. You might try swabbing the canker out of their mouths with dilute hydrogen peroxide, but it may not work with such young creatures.

DEMONSTRATIONS OF POULTRY CULLING IN LOS ANGELES COUNTY

June 26, 10 a.m., La Canada; 2 p.m., San Fernando. June 27, 10 a.m., Van Nuys; 2:45 p.m., Baldwin Park. June 28, 10 a.m., Lomita. June 29, 10 a.m., Pasadena; 2 p.m., Downey. June 30, 10 a.m., Pomona; 2 p.m., Arcadia. R. B. Eason, poultry extension specialist, will cooperate with Assistant Farm Advisor Gordon in conducting these demonstrations.

The Poultry Producers of Central California have packing plants at Petaluma and Santa Cruz; distributing stores at San Francisco and Oakland; receiving stations at Petaluma, Penn-grove, Cotati, Santa Rosa, Bellevue, Hessel, Oakland, Hayward, Rio Linda, San Francisco, Sonoma, Sebastopol, Windsor, Fulton, Novato, Santa Cruz, Watsonville and Hollister.



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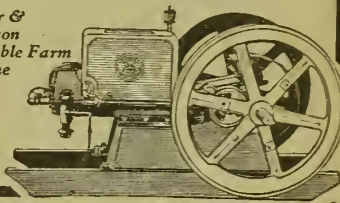
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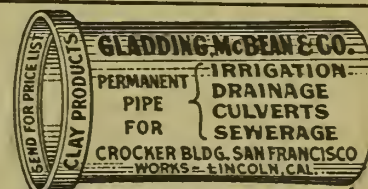
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A recent discovery promises to revolutionize all the methods accepted up to now for keeping poultry free from lice and mites. This wonderful lice killer keeps the birds always lice free without the poultry raiser doing any work. It is the simplest, easiest, surest and best method ever discovered.



Hick's Lice Kill, which is the name of this sensational lice killer, is added to the drinking water. The medicine taken into the system of the bird comes out through the pores and every louse or mite dies or leaves the body. It does not injure the hatchability or flavor of the eggs or meat; is harmless to chicks and does not affect the plumage. A few days treatment at the start and then a little in the drinking water each month.

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KEEPING FARM ACCOUNTS

In spite of the fact, or perhaps because of it, that relatively few farmers will worry about income taxes this year, there has been a growing interest in farm accounts. From every state come detailed reports of work done in this line. In Kansas 49 counties report the distribution of 1846 farm account books by request of interested farmers. Not all of the account keeping that was done was under direct supervision of extension specialists in farm management, but 21 of the county agents employed co-operatively by the United States de-

partment of agriculture and the state agricultural college lent assistance to farmers. Accounts were interpreted and summarized for 285 farmers. In 36 counties 24,186 farm inventories were distributed, and in nine counties 44 farmers made changes in their business as a result of keeping accounts.

Specialists working with the farm management extension department have obtained facts and figures on various crops, classes of livestock, and other particulars on 21 different farms in two counties. One of these men visited the farms on his list at intervals similar to those of a cow tester.

Some of the results noted in connection with this work in Kansas are as follows:

The net cost of producing an acre of alfalfa in 1920 amounted to \$23.17. This is the average obtained on a yield of 2.08 tons per acre on 21 farms on which there was a total of 386.5 acres of alfalfa.

The net cost per acre on corn was \$28.26, or 64 cents per bushel. Twenty farms, including 903.68 acres, furnished this average. Oats averaged 36.7 bushels per acre, grown on 16 farms which had a total acreage of 289.5 acres. The cost was \$27.88 per acre, or 75 cents a bushel. Wheat

cost \$34.22 per acre, or \$1.77 per bushel to produce on 18 farms, planted with 894 acres of wheat averaging 19.3 bushels per acre. The net cost of 100 pounds of pork amounted to \$13.08. The average cost of keeping one work horse for the year amounted to \$159.36. This was found by averaging 140 horses on 22 different farms.

These were the figures for a particular locality. Those applying to other localities could be worked out by following similar methods of averaging if the farmers in any given district have kept their cost accounts in such a way that they can be utilized.

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SAFETY: A machine for handling a poisonous liquid of the nature of hydrocyanic acid must be safe. This pump **DOES NOT LEAK** because the liquid is never under pressure except below the piston when it is being ejected. There are no Stuffing boxes below the liquid level. With the air pump eliminated there is never any liquid under air pressure, thus providing greater safety for the operator.

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DEPENDABILITY: A feature which the Fumigator and Grower alike appreciate. A night's work lost means valuable time wasted, a disappointed grower, discontented crews, and profits smashed. A machine which is dependable is a big asset to the success of the fumigating work. During the past season not a single night's work was lost by the users of the “HYDRO-CY” Pump.

LIGHTNESS: The standard machine of 3 gallons capacity weighs only 18 pounds empty and 35 pounds when filled. A light handy machine means less fatigue to the operator, thus resulting in more and better work and contented workmen. An operator who is always fresh is worth two who are tired out before the night is over.

SERVICE: Our service men averaged one inspection a week during the past season on all the machines in service. Correct calibration

is part of this service. Such service adequately maintained, insures both grower and fumigator that the pump is properly functioning at all times. These pumps are part of our regular service. No rental charge is made to users of our product—“HYDRO-CY.” Our own trucks, manned by skilled drivers deliver the material to you, when and where you want it. Salesmen with an intimate manufacturing knowledge of our products are ever ready to assist you in your problems.



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